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ABSTRACT

To study the effects of structured cooperative learning environments on helping interactions and behaviors in the early, middle, and later primary school years, a study was conducted in 11 classrooms across 4 schools in suburban Brisbane, Queensland, Australia. Subjects were 172 children (56 in year 2, 68 in year 4, and 52 in year 6). Through stratified random assignment, 1 high-ability student, 2 medium-ability students, and 1 low-ability student were placed in workgroups. Workgroups were then assigned to a structured or unstructured cooperative learning environment. While they undertook activities assigned by their teachers, groups were observed and children's cooperative behaviors assessed. The language children used was noted, and a questionnaire captured children's perceptions of the group experience. Results showed that children in the two conditions showed marked differences in behaviors, types of language used, and styles of interaction. Compared to the unstructured group children, children in structured groups were more cooperative, helpful, and willing and able to involve every member in the task at hand; children in structured groups also used more inclusive language ("we" or "us," for example) and assisted each other in the learning process. Such behaviors were noted in the structured groups at all three age levels. (Contains 7 tables and 24 references.) (JW)

Examining the nature of helping interactions in primary school children in Years 2, 4, and 6.

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ABSTRACT

This paper will discuss the results of a study which was conducted in 11 classes across three year levels (Yr. 2, 4, and 6) in four schools in suburban Brisbane. The study had two foci. It was designed firstly, to determine if there were differences between the cooperative behaviours, interactions, and types of language used by the children in the Structured and Unstructured groups, and secondly, whether there were differences across year levels in the helping behaviours and interactions of the children in the Structured and Unstructured conditions.

The study showed that there were observable differences in the behaviours, interactions, and types of language used by the children in the two conditions. The children in the Structured groups were consistently more cooperative and helpful to each other as they tried to involve each other in the learning task. They gave more explanations to assist each other's learning and they used more inclusive language (e.g., frequent use of "we" or "us"). Furthermore, these behaviours were exhibited by the children in the Structured groups across the three year levels. Group condition (structured or unstructured) was a significant predictor of group behaviours and interactions, and the type of language used.

Interest in cooperative group work in the schools has grown as a result of studies which have found that cooperative learning strategies have been successful in promoting numerous skills across curriculum areas. For example, cooperative learning has facilitated the acquisition of problem solving strategies, verbal abilities, metacognitive knowledge, and curriculum content (Johnson & Johnson, 1990; Sharan & Shaulov, 1990). In addition, it has contributed to the development of positive student attitudes towards school and instructional tasks (Bennett, 1991; Slavin, 1991). However, while the benefits of cooperative learning have been well documented, it is only in recent years that attention has been given to the variables that mediate the relationship between cooperation and achievement (Knight & Bohlmeyer, 1990).

Webb (1985) studied children's verbal interactions in groups as they worked together to solve mathematical problems. She classified different types of verbal explanations that group members offered to, or received from, one another. Her findings indicate that explanations received in response to a request for help were positively related to achievement whereas non-explanatory help was not.

Others have suggested that the enjoyment of social interaction with peers motivates students and this, in turn, affects learning (Kagan, 1986; Sharan & Shaulov, 1990). Sharan and Shaulov (1990) found that when students are provided with the opportunity to work towards a common goal with peers and are involved in decisions about one's own course of work then students are likely to be more intrinsically motivated to complete the task.

Johnson and Johnson (1990), however, argue that placing children in small groups and telling them to work together does not necessarily promote cooperation and achievement. Indeed, observational studies of students interactions have revealed that only 13% to 16% of all student interactive behaviours are cooperative or helping (Hertz-Lazarowitz, 1990; Hertz-Lazarowitz, Fuchs, Sharabany, & Eisenberg, 1989). Bennett (1991), in reporting on series of studies which he and his colleagues conducted over an eight year period, likewise, found that only a small

percentage of all talk (16%) in cooperative work groups involved children sharing knowledge and providing or receiving explanations. Kalkowski (1988) observed and analysed elementary school children's cooperative discussions over a two year period and found that academic content accounted for 28% of all verbal interactions of which 7% involved requests for information and 21% involved supplying information. Thus, it appears that helping and sharing information is only a small part of the total interactions of many groups in which children are only told to work together without being shown how.

In structuring cooperative learning, it has been argued that it is only under certain conditions that group effort may be expected to be more productive than individual effort. Five conditions appear to affect the relationship between cooperation and achievement: positive interdependence; face-to-face interaction; individual accountability; the use of relevant interpersonal and small group skills; and regular monitoring of group processes (Johnson & Johnson, 1990).

When groups are structured so these conditions are met, students provide more help to each other and work together to attain mutual goals (Hertz-Lazarowitz, 1989; Sharan & Shaulov, 1990). The exchange of information, giving help and explanations, asking questions, seeking content clarifications and elaborations are common features of student interactions in structured cooperative groups that are believed to contribute to academic success (Webb, Ender, & Lewis, 1986; King, 1990; Sharan & Shachar, 1988).

However, while the benefits of cooperative learning have been clearly enunciated (e.g., Johnson, Maruyama, Johnson, Nelson, & Skon, 1981; Slavin, 1987) there are some limitations to the research studies that have been reported.

First, many of the studies have compared different conditions such as individual and competitive learning with cooperative learning on an outcome measure such as academic achievements. Few studies (e.g., Yager, Johnson, & Johnson, 1985) have compared children's learning in structured and unstructured cooperative

groups, and those that have have either tended to be short-term interventions (one day to a few weeks), or dyadic peer tutoring/peer collaborative interventions (e.g., Fantuzzo, King, & Heller, 1992; Fuchs, Fuchs, Bentz, Phillips, & Hamlett, 1994).

Second, the majority of cooperative learning studies have focused on older primary and highschool children with few focusing on younger children, particularly those in the lower year levels. This is a concern because it appears that there is a developmental sequence to the type of feedback children provide to each other. For example, less than 5% of responses to questions by children aged 5-7 years have been found to involve explicit feedback, and explicit mediation in children's interactions is largely absent from the talk of children of this age (Boggs, 1990).

Third, few studies have examined the nature of helping behaviours in cooperative learning groups and when they have, the studies have been short term (e.g., Webb, 1985). Only two studies have reported on the stability of student interactions in cooperative learning groups over time and the results have been equivocal (e.g., Webb, 1984b; Webb & Cullinan, 1983).

Research aim and questions

The research reported here aimed to overcome some of the limitations of previous research by extending the study of children's helping behaviours in cooperative groups and their effects on group interactions across a 12 week period.

In particular, the study aimed to:

determine the effect of structure on children's helping behaviours and interactions in the early, middle, and later primary years.

The specific questions the study sought to answer were:

1. Do the Structured groups differ from the Unstructured groups at each year level in cooperation and interaction?
2. How do the Structured groups differ across the three year levels?

3. How do the Structured and Unstructured groups differ across year levels in their use of inclusive, exclusive, and maintenance language?

Method

Participants

The study was conducted in 11 classrooms across four schools and involved 172 children (56 in Year 2, 68 in Year 4, and 52 in Year 6). The children were identified as having high-, medium-, low-ability on the basis of their performances on either the Otis-Lennon Test of General Ability (Otis &Lennon, 1989)(Levels B and D-designed for children in Year 2 and Year 4), or the ACER General Ability test-F (de Lemos, 1982)(designed for children older than 10 years). Stratified random assignment was then carried out to enable the formation of classroom-based work groups of one high-ability student (in the top quartile of the test of general ability), two medium-ability students (quartiles 2 and 3), and one low-ability student (in the bottom quartile). Each work group was gender-balanced and all groups had approximately the same number of males and females assigned to the three ability levels. Classes were then randomly assigned to the Structured or Unstructured condition.

Measures

Observation schedule. An observation schedule was adapted from two coding procedures reported by Sharan and Shachar (1988) and Webb (1985) to compile information on student behaviour states and constructive (verbal) input during recorded sessions. Four Behaviour State categories were employed: (a) Cooperative behaviour, broadly defined as all positive social activity such as task-orientated behaviour, socially-orientated behaviour, and listening; (b) Non-cooperative behaviours, broadly defined as negative social behaviours such as competition, opposition, and criticism; (c) Individual non-task behaviours and confusion broadly defined as negative individual acts such as non-participation in group activities or the group task (but not working individually);and (d) Individual behaviours referred to the states in which the individual was task-orientated but worked alone. Momentary time

sampling was used to code Behaviour States at 5 second intervals for group members for group members over a period of 13 minutes 20 seconds.

The second part of the Observation schedule identified student interactions which occurred in the group activity. There were five interaction (Constructive Input) variables: (a) Non-specific verbal, defined as the frequency of participation in group interactions and included all interactions which could not be coded into any of the following categories; (b) Unsolicited help-explanations. (c) Unsolicited Terminal responses, and (d) Unsolicited Other help which could not be categorised as either an explanation or a terminal response; and (e) Solicited requests for help-explanations. Constructive inputs were tallied and coded according to frequency.

Analysis of the children's language. Six, 10-minute video segments were chosen at random from both the Structured and Unstructured groups and coded for Inclusive, Exclusive, and Group maintenance language. Inclusive language included: a willingness to listen to others; acknowledge other's contributions; and, language that recognised the group as a unit (e.g., use of "we"). Exclusive language included all comments that used "I" in an authoritative manner, and all negative or disparaging comments directed at others in the group. Group maintenance language included all language that was not included in one of the two preceding categories (providing unsolicited help; talking to self or others about the task; non-specific talking).

Children's perceptions of the group experience. A questionnaire was developed to gather the children's perceptions of their group experiences (Year 4 and 6 only). Ten questions were written to represent the five conditions of group cooperation: Positive interdependence; Facilitation of each member's efforts to complete tasks; Individual responsibility to help achieve the group's goals; Interpersonal communication and collaboration; and, Processing of the group's functioning in managing the task and in involving the members (Johnson & Johnson, 1990). The children were asked to respond to each question using a Likert scale of 1 to 5 to indicate whether they perceived the behaviour almost never happened (1) to

whether it almost always happened (5).

Procedure

Before the study began, the first author trained the teachers in the Structured condition in the procedures for establishing cooperative small groups, that is, task-interdependence, face-to-face interaction, communicative and collaborative skills training, and small-group processing of the group's interactions and progress. The teachers then introduced the children to the processes involved in group learning. These included the communicative skills of: actively listening to a speaker, stating ideas freely and clearly, providing constructive criticism of ideas, and accepting responsibility for one's own behaviours. The collaborative skills included: sharing tasks fairly; taking turns; resolving problems democratically; trying to take the other person's perspective; and clarifying differences of opinion.

The children in Year 4 and Year 6 were told they were to use these skills to help them develop their own set of group rules for working together. The children in Year 2 were helped by their teachers to think about using these rules to 'get along' with each other as they worked together.

The teachers in the Unstructured condition were asked to establish cooperative, small-group activities in their classrooms. While the teachers received information on cooperative learning, they were not told how to establish group activities nor were they asked to teach the communicative and collaborative skills that the children in the Structured groups had learnt. However, while teachers of the children in the Unstructured groups were not trained in small group processes designed to facilitate cooperation, the first author spent the same time with these teachers as she did with the teachers of the Structured groups discussing cooperative learning processes.

The teachers in both conditions were told the purpose of the study was to observe the cooperative discussions and activities of the children. The teachers were asked to identify the group tasks and to allow the children to work in their groups for

a minium of an hour, three times a week. Each group was taped for 13minutes and 20 seconds (representing 40, five second intervals of observational time for each child in the four person group). The study continued for 12 weeks with the groups from both conditions being videotaped on three occasions, during Weeks 3/4, 7/8, and 11/12.

Results

The results are presented in terms of the effects of the Structured and Unstructured condition on the behaviours, interactions, and language used by the students in Years 2, 4, and 6. The students perceptions of their group experiences in the Structured and Unstructured conditions are then presented.

The means and standard deviations for the Behaviour States for the Structured and Unstructured conditions across the three observation periods are presented in Table 1.

Insert Table 1 about here

The means and standard deviations for the Constructive Inputs categories for the Structured and Unstructured conditions across the three observations are presented in Table 2.

Insert Table 2 about here

The Behaviour States and Constructive Inputs data for the Structured and Unstructured conditions for Years 2, 4, and 6 were analysed in three, Group (Structured versus Unstructured) x Time multivariate analyses of variance (MANOVA) with a repeated measure on the last dimension. The MANOVA for Year

2 yielded significant multivariate effects for Group (Hotellings T^2 =2.44,F=12.50, df 9/54, p<.001), Time (Hotellings T^2 =1.60, F=8.60, df 18/108, p<.001), and Group x Time (Hotellings T^2 =1.12,F=6.20, df 18/108, p<.001) permitting an examination of the univariate results. The univariate results for Group, Time, and Group x Time for Year 2 are given in Table 3.

Insert Table 3 about here

The above results demonstrate marked differences between the students in the Structured and Unstructured conditions on five key variables. As can be seen from Table 1, the children in the Structured condition engaged in more cooperative behaviour and less nontask behaviour than their peers in the Unstructured condition. They provided more more help to each other in the form of explanations and recorded fewer nonelaborative and nonspecific interactions (see Table 2).

The MANOVA for Year 4 also yielded significant multivariate effects for Group (Hotellings T^2 =4.20,F=26.93, df 9/66, p<.001), Time (Hotellings T^2 =1.0, F=6.50 df 18/132, p<.001), and Group x Time (Hotellings T^2 =1.0,F=4.20, df 18/132, p<.001) permitting an examination of the univariate results. The univariate results for Group, Time, and Group x Time for Year 4 are presented in Table 4.

Insert Table 4 about here

As can be seen from Table 4, the students in the Structured condition differed from those in the Unstructured condition on six key variables. The students in the Structured condition demonstrated more cooperative and less noncooperative and nontask behaviours than their peers in the Unstructured condition (see Table 1).

Furthermore, they were more responsive to the needs of other group members and provided help and assistance when it was not requested (see Table 2).

Similarly, the MANOVA for Year 6 yielded significant multivariate effects for Group (Hotellings T^2 =1.13F,=5.50,df 9/50, p<.001), Time (Hotellings T^2 =3.60, F=18.40, df 18/100, p<.001), and Group x Time (Hotellings T^2 =7.80,F=14.30, df 18/50, p<.001). This permitted an examination of the univariate results (see Table 5).

Insert table 5 about here

An examination of Table 5 showed that the students in the Structured condition differed from those in the Unstructured condition on six key variables; cooperation, noncooperation, independent, nontask, unsolicited explanations, and unsolicited terminal. An examination of Table 1 showed that the students in the Structured condition were group-focused and task orientated and were less likely to work independently of the group. In addition, they gave more detailed help to each other and recorded fewer nonspecific verbal interactions.

Analysis of the children's language.

A MANOVA of the three categories of language used by students in the Structured and Unstructured conditions yielded a significant multivariate statisitc (Hotellings T^2 =1.10, F=11.75, df 1/3, p<.001) permitting an examination of the univariate F-tests, all of which were signficant (Inclusive F=10.80, p<.001; Exclusive F=6.10, p<.001; Maintenance F=15.50, p<.001). In order to determine the effect of the Structured condition on the three year levels, a further MANOVA was conducted. This also yielded a significant multivariate statistic (Hotellings T^2 =2.10, F=4.50, df 6/16, p<.001). Planned contrasts of the univariate results for Inclusive language were used to test for differences between the three year levels. A significant contrast was found between Year 2 and Year 4 (t=2.40, p<.001) but not between Year 4 and Year 6 (t=1.90, p=.077). Likewise, a significant contrast was found for Exclusive language

between Year 2 and Year 4 (t=2.60, p<.001) but not between Year 4 and Year 6 (t=.03, p=.780). Significant contrasts were not found between Year 2 and Year 4 (t=1.13, p=.280) or between Year 4 and Year 6 (t=1.50, p=.150) (see Table 6 for the differences in the means and standard deviations of the three language categories across the year levels in the Structured and Unstructured conditions).

Insert Table 6 about here

Children's perceptions of the group experience. In order to gauge the children's perceptions of their group experiences, a 10-item questionnaire was administered at the completion of the study (end of week 12). The means and standard deviations of the children's responses are presented in Table 7.

Insert table 7 about here

A MANOVA performed on the ten measures of the children's perceptions of their group experiences yielded a significant multivariate statistic (Hotellings T^2 =.25, F=3.34, df 1/10, p<.001) permitting an examination of the univariate F-tests, some of which were significant. The children in the Structured and Unstructured groups had different perceptions of some of their group experiences but not of others. This may have been because of the children's relative lack of past experience with group work in their classrooms.

Discussion

The present study was a 12 week investigation of students' behavioural interactions as they participated in Structured and Unstructured work groups in Years 2, 4, and 6. The results show that while there was some variability in the children's behaviours and interactions over time, they were dependent on group condition.The

children in the Structured condition engaged in more cooperative behaviours than the children in the Unstructured condition, and this applied across all year levels. They were more task oriented and helped each other work towards completing the group goal. In effect, they exhibited helping behaviours which facilitated group interactions and helped to build cohesion.

In contrast, the children in the Unstructured groups exhibited significantly more noncooperative behaviours and they displayed more nontask and confused behaviours than their peers in the Structured groups. These findings are consistent with previous research which has found that when children work together in groups which are structured, they realise that no one can succeed unless they all do, so they coordinate their efforts to complete the task (Johnson & Johnson, 1990; Sharan & Shaulov, 1990).

Similarly, while there was some variability in the children's verbal interactions over time, once again they were dependent on the group condition. The children in the Structured condition consistently gave more explanations to assist understanding and, in turn, were more responsive for requests for help from other group members. This finding, in part, may have been the result of the training the children received in helpful communication which included providing constructive feedback to group members in assisting each other to understand and learn the task, and share tasks fairly.

In the Unstructured condition, the children were generally less responsive to each other's needs, however, these children did not receive any specific training in skills based communication. In effect, these findings would suggest that it is important for children to receive such training if they are to take advantage of the opportunities presented in cooperative small group learning (Fuchs, Fuchs, Bentz, Phillips, & Hamlett, 1994; Yager, Johnson, & Johnson, 1986).

At the different year levels, the children in both conditions in Year 2, while demonstrating similar levels of cooperative behaviour at the first observation, differed

markedly by the third. Initially, it appeared that the children commenced their group activities with a great deal of enthusiasm for cooperative group work. However, while the children in the Structured groups maintained their level of cooperative involvement for the duration of the study, the children in the Unstructured groups were less cooperative and certainly appeared to be less enthusiastic about the group involvement by the completion of the research. Lack of commitment to the group may account for the more nontask behaviours shown by this group. Certainly previous research indicates that the perception of interdependence in attaining the group goal is crucial to successful group outcomes (Deutsch, 1949; Johnson & Johnson, 1990).

In Year 4, the differences in cooperation and nontask behaviour were apparent at the first observation and these differences were maintained for the duration of the study. In contrast, in Year 6, the differences between the two conditions were less noticeable. That is, the children exhibited comparable levels of cooperative and nontask behaviours. There are two explanations that may account for these outcomes.

First, it may be that there are developmental changes in the way children cooperate with each other (i.e., Boggs, 1990) so that older children who are placed in situations in which they are told to work together and assist each other will do so, irrespective of structure simply because they are more socially astute.

Second, there may have been some contamination of the results in that two of the Year 6 classes (out of three involved in the study) were in the same school. Thus, unknown to the researchers, the teachers or even the children may have unwittingly shared ideas or experiences.

With regard to the types of verbal interactions, the children in the Structured groups in Yea. 2 were more responsive to each other's needs and gave more detailed help to each other in the form of explanations. However, while the children in both conditions were inclined 'bubble over' with excitement in wanting to assist

each other and share their ideas as they huddled together over some task, this behaviour was not as noticeable in the Unstructured groups towards the end of the study. It appeared that their initial enthusiasm had distinctly waned.

The children in the Structured groups in Year 4 and Year 6 also demonstrated a greater understanding of the learning needs of the other group members than their peers in the Unstructured groups and this was shown in the explanations they gave each other, particularly when help was not requested. Statements such as "If we do it like this..." and "We could see if this..." are examples of the common phrases which were used to help group members understand problem issues. In effect, the children appeared to be "in tune" or working in synchrony with each other (Foot, Morgan, & Shute, 1990, p.8) and were communicating by means other than explicit requests for assistance.

Although it is only possible to speculate about students' motivation to give unsolicited explanations to each other, one could argue that they may have been the consequence of the children's recognition of their interdependence and the need to help and support each other if all were to succeed. Certainly, the inclusive language used by the children in the Structured condition demonstrated an understanding of their commitment to, and involvement with each other. They often used terms such as "we" and "us" or implied their use in reference to their efforts as a single group. Furthermore, they used each other as a resource in sharing ideas and making group decisions and these behaviours were generally maintained for the duration of the study.

In conclusion, the study showed that there were observable differences in the behaviours, interactions, and types of language used by the children in the Structured and Unstructured groups. The children in the Structured groups were consistently more cooperative and helpful to each other as they tried to involve each other in the learning task. They gave more explanations to assist each other's learning and they used more inclusive language (e.g., frequent use of "we" or "us"). Furthermore, these behaviours were exhibited by the children in the Structured

groups across the three year levels. Group condition (structured or unstructured) was a significant predictor of group behaviours and interactions, and the type of language used.

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Table 1: Means (and Standard Deviations) of the frequency of events for the Behaviour States for the Structured and Unstructured Conditions across Time (1-3).

Variable		Structured Condition			Unstructured Condition		
		Time					
Behaviour State	Yr	1	2	3	1	2	3
Cooperation	2	30.11 (7.24)	35.36 (5 55)	35 75 (6.40)	28.60 (9.60)	34.80 (4.36)	18.15 (7.59)
	4	38.27 (3.34)	37.63 (3.30)	35.72 (5.52)	20.25 (11.63)	30.75 (9.71)	22.25 (12.23)
	6	39.44 (0.91)	36.86 (3 04)	35 62 (5.35)	32.04 (12 50)	22.69 (10.43)	36.21 (3.61)
Non-cooperation	2	0.22 (0.59)	0.50 (3.00)	0.50 (1 61)	0.50 (1.82)	1 00 (1.48)	1.10 (1 44)
	4	0.00 (0.0)	0.00 (0.0)	0.13 (0.63)	0.16 (0.48)	0 04 (0.20)	1 33 (2.59)
	6	0.00 (.00)	0.00 (0.0)	0.03 (0.18)	0.00 (0.0)	2.87 (4 29)	0 82 (1.61)
Independent	2	3.61 (5.05)	0.38 (1.69)	0.44 (1.15)	5.45 (10.23)	0 50 (1.05)	1.90 (3 68)
	4	0.00 (0 0)	0.04 (0.21)	0.11 (0.75)	9.04 (7.95)	2.79 (7.26)	1.75 (3.99)
	6	0.00 (0.0)	0.03 (0.18)	0.31 (0.80)	4 30 (8.56)	0.47 (1.44)	0.00 (0.0)
Nontask	2	5.69 (5 89)	4.77 (10.40)	2.36 (3.57)	7.25 (12.17)	3.20 (4 04)	11.95 (8.65)
	4	0.95 (2.83)	1 27 (2.49)	0.25 (0.83)	9.62 (10.16)	11 54 (28.77)	10.45 (8.60)
	6	0.48 (0 91)	2.03 (3 35)	4.03 (5 21)	3.39 (4 98)	12 30 (7.15)	2.52 (2.37)

Table 2 · Means (and Standard Deviations) of the frequency of interactions for the Constructive Input Categories for the Structured and Unstructured Conditions across Time (1-3)

Variable		Structured Condition			Unstructured Condition		
Constructive Inputs		Time					
		1	2	3	1	2	3
Nonspecific Verbals	2	8 14 (7.95)	4 91 (5.75)	6.00 (7.21)	14.00 (17.64)	9.80 (8.64)	28.30 (20.20)
	4	1.56 (2.54)	2.75 (9.37)	0.88 (2.67)	15.70 (17.82)	14.33 (12.41)	23.58 (23.58)
	6	2.10 (3.00)	15.03 (24.89)	10 75 (12.54)	4 21 (6.10)	25.91 (20.86)	12.17 (12.91)
Unsolicited Explanations	2	19.19 (12.06)	20 03 (11.31)	24 94 (16.78)	18.35 (6.86)	19.00 (9.81)	12.55 (10.03)
	4	26.88 (11.96)	25.81 (17.96)	27.13 (15.36)	11.41 (13 19)	20.87 (15.23)	16.75 (9.14)
	6	30.37 (14 25)	17.31 (14.04)	27.43 (14.90)	19.95 (15.44)	13.04 (6 06)	33.95 (17 05)
Unsolicited Terminals	2	8.08 (5.77)	11.25 (7.71)	9.13 (7.26)	9.35 (7.08)	6.60 (5.70)	3.45 (3.28)
	4	12.04 (7.06)	11 45 (10.52)	7.34 (4.80)	9.33 (11.70)	7.25 (4 07)	6.45 (8.76)
	6	13.44 (7 49)	6.31 (5.13)	6 24 (5.50)	18.47 (13 45)	4 13 (2.92)	6 60 (4.76)
Unsolicited Other Help	2	0 27 (1.05)	1.75 (3.82)	4.52 (5.44)	3.10 (4.12)	8.40 (8 94)	6.25 (3.25)
	4	0 25 (0.86)	3.56 (3 78)	4 00 (4 21)	1 79 (4.53)	7.83 (10.30)	4.91 (6 19)
	6	0.03 (0 18)	2.58 (3.51)	3.13 (3.43)	0.00 (0.00)	1.21 (1 90)	3.30 (3.12)
Solicited Explanations	2	3.27 (3 59)	2.72 (2 26)	2 77 (2 79)	2 90 (2 91)	2 00 (1 77)	1 40 (1 66)
	4	4 00 (4 36)	3 25 (3 91)	4 25 (3.71)	2 70 (3 48)	2 79 (3 09)	1 54 (1.76)
	6	3 20 (2 88)	3 00 (5 35)	4 58 (5 26)	2 82 (3 42)	1 52 (1 75)	2 56 (2 08)

Table 3: Summary of the Univariate-F tests for Group[a] Time[b] and Group X Time[b] for Year 2

Variable	Group		Time		Group X Time	
Cooperation	34 78	***	19.43	***	25.53	***
Noncooperation	1.50		1.18		0 14	
Independent	2.32		12.25	***	0 54	
Nontask	4 69	*	2.80		8.40	***
Nonspecific Verbals	31 92	***	10 98	***	10 75	***
Unsolicited Explanations	2 90		0 13		7.71	**
Unsolicited Terminal	6.30	*	3.08		5.07	**
Unsolicited Other help	16.54	***	12.42	***	4.94	**
Solicited Explanations	3 54		1 90		0 46	

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

a df 1/54
b df 2/108

Table 4: Summary of the Univariate-F tests for Group[a], Time[b], and Group X Time[b] for Year 4.

Variable	Group		Time		Group X Time	
Cooperation	173.20	***	8.73	***	7.88	**
Noncooperation	12.25	**	10.36	***	6.66	**
Independent	93.11	***	12.95	***	13.63	***
Nontask	33.17	***	0.22		0.11	
Nonspecific Verbals	54.50	***	2.72		5.21	**
Unsolicited Explanations	14.78	***	1.92		2.91	
Unsolicited Terminal	3.65		4.04	*	0.75	
Unsolicited Other help	7.05		15.96	***	2.15	
Solicited Explanations	6.80		0.28		1.61	

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

a df 1/66
b df 2/132

Table 5: Summary of the Univariate-F tests for Group[a], Time[b], and Group X Time[b] for Year 6.

Variable	Group		Time		Group X Time	
Cooperation	32.77	***	14.44	***	16.13	***
Noncooperation	16.04	***	9 72	***	9.81	***
Independent	6.65	*	6 20	**	7.51	**
Nontask	19.75	***	26 65	***	31 95	***
Nonspecific Verbals	2.21		23.98	***	2.22	
Unsolicited Explanations	0.86		24.05	***	7.08	**
Unsolicited Terminal	0.65		40.05	***	3 86	*
Unsolicited Other help	1 05		20.18	***	1.35	
Solicited Explanations	3 32		1 77		0 70	

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

a df 1/50
b df 2/100

Table 6: Means (and Standard Deviations) of the Language categories, Inclusive, Exclusive, and Maintenance across Year 2, 4, and 6 for the Structured and Unstructured Conditions.

	Structured	Condition		Unstructured		Condition
Year	Inclusive	Exclusive	Maintenance	Inclusive	Exclusive	Maintenance
2	10.3 (22 43)	5.0 (1.90)	47.5 (4.70)	11.0 (6.63)	8.0 (7.00)	49.0 (25.78)
4	22.4 (11 63)	2 00 (2.00)	37.3 (21.50)	8.2 (4 87)	7.0 (8.46)	93 0 (17.10)
6	32 0 (9.44)	1 66 (2.25)	51 00 (16.37)	11 0 (12.30)	8.67 (11.00)	80.7 (29.20)
Total	21.6 (12.35)	2.8 (2 45)	44.8 (16.50)	10.0 (8.12)	7.88 (8.52)	75.70 (29.50)

Table 7: Means (and Standard deviations) of the children's responses to the What happened Questionnaire for the Structured and Unstructured Conditions

Variables	Structured Condition	Unstructured Condition
Communication		
1. Free to talk	4.06 (0 86)	3.85 (1 47)
2. No interrupting	4.00 (2.08)	3.83 (1.25)
3. Listen to others	4.32 (0.84)	3.56 ** (1.38)
4 Expand on point	2.85 (1.30)	2.26 * (1.40)
Participation		
5. Share ideas	4.43 (0.88)	4.02 * (1.12)
6 No domination	3.73 (1.37)	3.85 (1.40)
7. Sensitive to others	3.30 (1.42)	3 22 (1.50)
Decision Making		
8. Considers ideas	4.14 (1.06)	3.68 * (1.30)
9. Joint decisions	4 14 (1 11)	3.62 * (1 20)
10. Group organisation	3 61 (1.26)	2.81 ** (1.28)

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