DOCUMENT RESUME

ED 388 923 CG 026 682

AUTHOR Gillies, Robyn M.; Ashman, Adrian F.
TITLE Promoting Cooperative and Helping Behaviours in Student Work Groups through Training in Small Group Processes.
PUB DATE [95]
NOTE 7p.
PUB TYPE Reports - Research/Technical (143)

EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS Academic Achievement; Active Learning; Cooperation; *Cooperative Education; *Cooperative Learning; Elementary Education; Elementary School Students; Foreign Countries; *Group Dynamics; Grouping (Instructional Purposes); Helping Relationship; *Learning Strategies; *Student Participation; Team Training
IDENTIFIERS Australia

ABSTRACT

Research in recent years has demonstrated that cooperative learning is a highly effective classroom intervention that promotes student learning and development across a range of curriculum areas. This study compared the effects on behavioral interactions and achievement of: (1) cooperative learning in which members were trained to collaborate to facilitate each other's learning; and (2) cooperative learning in which members were not trained but were merely told to help each other, on 192 Year 6 children. Stratified random assignment occurred so that each four-person group consisted of one high-, two medium-, and one low-ability student. All groups were gender balanced. The children worked in their groups on the same social studies unit, three times a week for 12 weeks. The results indicated that the children in the Trained groups were consistently more cooperative and helpful to each other, they used language which was more inclusive (e.g., frequent use of "we"), and they gave more explanations to assist each other as they worked together. Furthermore, the children in the Trained groups achieved higher learning outcomes than their peers in the Untrained groups. (JEJ)

CG

Promoting Cooperative and Helping Behaviours in Student Work Groups through Training in Small Group Processes.

Robyn M. Gillies
and
Adrian F. Ashman
Graduate School of Education
The University of Queensland
Brisbane

Address correspondence to:
Dr. Robyn Gillies
Graduate School of Education
The University of Queensland 4072
Fax: (07) 3365 7199

Biographical information: Robyn Gillies teaches counselling at The University of Queensland. She currently has a large Australain Research Council grant to investigate cooperative learning behaviours in primary aged children.

Promoting Cooperative and Helping Behaviours in Student Work Groups through Training in Small Group Processes.

Robyn M. Gillies
and
Adrian F. Ashman
Graduate School of Education
The University of Queensland

Abstract

This study compared the effects on behavioural interactions and achievement of (a) cooperative learning in which members were trained to collaborate to facilitate each other's learning and (b) cooperative learning in which members were not trained but were merely told to help each other. One hundred and ninety-two, Year 6 children participated in the study. Stratified random assignment occurred so that each four-person group consisted of one high-, two medium-, and one low-ability student. All groups were gender balanced. The children worked in their groups on the same social studies unit, three times a week for 12 weeks The results indicated that the children in the Trained groups were consistently more cooperative and helpful to each other, they used language which was more inclusive (e.g., frequent use of "we"), and they gave more explanations to assist each other as they worked together. Furthermore, the children in the Trained groups achieved higher learning outcomes than their peers in the Untrained groups.

Research in recent years has demonstrated that cooperative learning is a highly effective classroom intervention that promotes student learning and development across a range of curriculum areas. Cooperative learning has facilitated the acquisition of problem-solving strategies, verbal abilities, metacognitive knowledge, and content knowledge which have promoted academic achievements (Johnson & Johnson, 1990; Sharan & Shaulov, 1990). Furthermore, children have developed more favourable attitudes towards their peers, school, and instructional tasks (Bennett, 1991; Slavin, 1991).

While the benefits of cooperative group work have been well documented, it has been demonstrated that not all cooperative learning groups are equally successful in the classroom (Gillies & Ashman, 1994). Placing students in small groups and telling them to work together does not necessarily promote cooperation and achievement (Johnson & Johnson, 1990). It is only when groups are established so that students understand how they can work together to attain the group goal that the potential for learning is maximised (Deutsch, 1948; Johnson & Johnson, 1985; Slavin, 1987). However, developing this understanding in primary children requires an effort on the part of the teacher to teach those interpersonal and small-group skills which are necessary for successful group collaboration (Schmuck, 1983). Moreover, not only must group members be taught the skills required for effective collaboration, but they must also be given the opportunity to use them (Johnson & Johnson, 1990).

Collaborative skills include those required to establish and manage the group and those needed to build deeper-level understandings of the material being studied (Johnson, Johnson, & Holubec, 1990). Such skills involve a knowledge of group-dynamics, problem-solving processes, and interpersonal communication (Egan, 1990; Horton & Brown, 1990; Idol, Paolucci-Whitcomb, & Nevin, 1993; Brown, Kurpius, & Morris, 1988). In short, the skills required to be an effective collaborator are complex and require training and practice. Yet in many schools today, teachers often assume that children will be able to demonstrate these skills with little or no training.

Teaching children to collaborate appears to be necessary because studies have shown that only a small percentage of group interactions involve children helping each other (Hertz-Lazarowitz, 1989; Hertz-Lazarowitz, Fuchs, Sharabany & Eisenberg, 1989). Exchanging information, giving help, giving explanations, asking questions, and seeking content clarifications are all important to help children develop intellectually and socially (Sharan & Shachar, 1988). The willingness to collaborate in offering and receiving help promotes interpersonal relationships, positive student attitudes towards school work, and enhances self-esteem (Harter, 1992; Johnson, Johnson, Scott, & Ramole, 1985). Furthermore, when children are trained to use collaborative small-group processing skills, they demonstrate greater individual and group problem-solving success than students who are not trained to use these skills (Johnson, Johnson, Stanne, & Garibaldi, 1990; Yager, Johnson,& Johnson, 1986).

However, while the importance of collaborative small-group processing for students' academic achievements has been demonstrated, there has been little research that has investigated how group communication and process skills affect group functioning. There is only one study known to us which

has focused specifically on the influence of collaborative skill instruction on interpersonal interactions (e.g., Putnam, Rynders, Johnson, & Johnson, 1989), and there are no studies that have specifically focused on the effects of collaborative skill instruction on group interactive behaviours. The study reported here aimed to address these issues.

The children involved in the study were assigned to one of two experimental conditions. In the Trained condition, students were taught how to collaborate in small groups while, in the Untrained condition, children were provided only with the opportunity to work together but were not instructed in the process. Three research questions were addressed: Is there a difference in the level of collaborative behavioural interaction displayed by the children in the Trained and Untrained groups? Do the children in the Trained groups use more collaborative language than those in the Untrained groups? Do children in the Trained collaborative groups develop better problem-solving abilities than those in the Untrained groups?

Method

Participants

This study was conducted in 10 classes across 8 schools in the greater Brisbane area and involved 192, Year 6 children. The children were identified as having high-, medium-, or low-ability based on their performances on the ACER General Ability Intermediate Test F (de Lemos, 1982). Stratified random assignment was then carried out to enable the formation of classroom-based work groups consisting of one high-ability student, two medium-ability students, and one low-ability student. Each work group was gender-balanced. Groups were then randomly assigned to the Trained or Untrained group condition and the children worked in these groups for the duration of the study.

Instruments

Observation schedule A schedule was adapted from two coding procedures developed by Sharan and Shachar (1988) and Webb (1985) to compile information on student behavioural interactions. Four Behaviour State categories were used representing student activity as follows: (a) Cooperative behaviour, broadly defined as all positive task-orientated activity; (b) Non-cooperative behaviours, broadly defined as negative social behaviours; (c) Individual non-task behaviours and confusion broadly defined as negative individual acts; 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.

The second part of the Observation Checklist identified student interactions which occurred in the group activity. Eight interaction (Constructive Input) variables were identified: (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; Giving help was classified according to (b) unsolicited help-explanations, (c) terminal responses, and (d) other help which could not be categorised as either an explanation or a terminal response; and Solicited responses to (e) requests for help- explanations, (f) terminal responses, (g) no response (ignored), and (h) all other help which could not be categorised into either of the previous categories. Constructive inputs were tallied and coded according to frequency.

Analysis of the children's language. Eight language categories were identified and grouped under headings: 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" or the implied plural, personal pronoun). 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.

Learning outcomes probes. These were designed to assess students' levels of thinking about the social studies activities and consisted of a series of question stems which were based on Bloom's taxonomy of educational objectives (1976). The questions were designed to tap basic recall of details or facts and were built from the stem "What is...?" Higher order questions required the children to investigate and analyse different information and arrive at an answer or a solution to the problem by using the stem, "Evaluate the...". The purpose of this assessment was to determine whether the children had learned to construct new meanings and gain a deep understanding of the unit of work (following their group experience).

Procedure

Before the investigation began, the first author met with classroom teachers individually to discuss the testing and the assignment of students to groups, the procedure for establishing the Trained and Untrained groups and the planned small group activities for the social studies unit.

Interpersonal and small-group collaborative skills training.

All cooperating teachers agreed to establish student work groups in their classrooms and to teach the designated social studies unit. The groups assigned to the Trained condition then participated in two training sessions conducted by their classroom teachers over two consecutive days. Each training

session was designed to teach the interpersonal and small-group skills required to facilitate group collaboration. The children in the Untrained condition were not taught these skills but they spent the same length of time with their teachers discussing the proposed unit of work.

The children in both the Trained and Untrained conditions worked in their groups for one hour per day, three times per week. The study continued for 12 weeks with the groups from both conditions being videotaped on four occasions, during Weeks 3, 6, 9, and 12.

Results

The Behavioural interactions data for the Trained and Untrained conditions were analysed in a group X time multivariate analyses of variance (MANOVA) with a repeated measure on the last dimension. Using an overall .05 alpha level and a .001 alpha level for each variable, significant multivariate effects were found for group (T^2 =10.72, F=149.26, df 12/178, p<.001), time (T^2=0.31, F=4.55, df 36/534, p<.001), and group by time interaction (T^2 =0.16, F=2.35, df 36/534, p<.001) permitting an examination of the univariate results. Group main effects were found for Cooperation (F=249.92), Noncooperation (F=117.30), Independence (F=27.31), Nontask (F=80.00), Unsolicited Explanations (F=56.40), Unsolicited Terminal (F=13.26), Unsolicited Other (F=247.84), and Solicited Explanations (F=1073.65). Time main effects were found for Unsolicited Terminal (F=6.23), Solicited Terminal (F=9.14), and Solicited other (F=14.33). Group by Time main effects were found for Solicited Other (F=6.21). An examination of Table 1 shows marked differences in the behavioural interactions of students in the two group conditions over the four observations. The students in the Trained groups engaged in more cooperative behaviour and less noncooperative behaviour than their peers in the Untrained groups; they were more task-orientated and were less likely to work independently of the group. Furthermore, they were more responsive to group members who requested explanations and gave more task-related help to each other. These differences were apparent at the first observation period (in Week 3 of the study) and continued throughout the study.

Analysis of the children's language.

Three t-tests were used to compare the means of the frequencies of the three main language categories (Inclusion, Exclusion, and Group Maintenance) between the Trained and Untrained Conditions (The Trained group: inclusion M=14.8 SD=1.78; exclusion M=1.40, SD=2.20; group maintenance M=10.80, SD=2.60. The means and standard deviations for the Untrained condition are: inclusion M=3.60, SD=2.20; exclusion=9.80, SD=6.70; group maintenance M=8.60, SD=2.70). The t-tests revealed significant differences for the groups on Inclusion (t=8.85, p<.001) and Exclusion (t=2.67, P,.001) but not for Group maintenance (t=1.10, p>.05). While the children in both conditions demonstrated comparable usage of Group maintenance language, the children in the Trained condition used more Inclusive and less Exclusive language than their peers in the Untrained condition.

Learning outcomes.

The pre- and post-test learning outcomes data were analysed in a three-way MANOVA (group X time) with a repeated measure on the last dimension. Although there was no main effect for groups, the hypothesised differences of groups over time were found (F=29.21, 1/118 df, p<.001). These findings suggest that there was a change in the learning outcomes over the period of the study and this change was dependent on the group condition. An examination of the pre-test learning outcomes showed that although the children in each condition had obtained comparable results (Trained group M=2.94; SD=1.30; Untrained group M=2.97, SD=1.30), the children in the Trained groups obtained higher post-test results than their peers in the Untrained groups (Trained group M=4.15, SD= 1.41; Untrained group M=3.40, SD=1.30).

Discussion

The present study of small group collaborative interactions and learning showed clearly that the children in the Trained condition were consistently more cooperative and responsive to the needs of other group members than their peers in the Untrained condition. In addition, the children in the Trained groups used inclusive language ("we" and "us" rather than "I"), expressed an understanding of the group as a unit, and the need to help and support each others' learning. This was demonstrated by the explanations the children gave each other, particularly when help was not requested. (e.g., statements such as "If we try to do it like this...", "We could see if this...", are examples of common phrases which were used to help other group members understand problem issues). It appeared that the children were "in tune" with each other's needs and were communicating by means other than explicit requests for assistance. Furthermore, the children in the Trained groups attained higher learning outcomes than their peers in the Untrained groups.

The results of this study provide strong evidence that training children to collaborate facilitates the effectiveness of the group functioning and has a positive effect on student learning. Members demonstrated a willingness to support each other by generating feedback that improved understanding and reinforced their collaboration. One explanation for this behaviour could be that when children perceive that they are able to openly communicate with others in the group and share in the group

decisions, they are more likely to value the group's goals and actively work to achieve them. Teachers who are reluctant to introduce small group activities because of the difficulties in training the children in interpersonal and small-group skills can be encouraged by the ease with which these skills can be taught and the changes in the children's behaviour and learning reported.

Table 1: Means (and Standard Deviations) of the Behavioural Interaction Categories for the Trained and Untrained Conditions across Time (1-4).

Variable	Trained Condition				Untrained Condition			
	Time							
Behaviour State	1	2	3	4	1	2	3	4
Cooperation	30.2 (3.90)	30.8 (4.41)	30.4 (3.61)	30.8 (3.10)	25.5 (5.50)	25.0 (4.80)	24.5 (4.13)	24.0 (3.90)
Noncoop-eration	0.60 (1.30)	0.80 (1.50)	0.76 (1.40)	0.80 (1.30)	2.8 (3.10)	3.6 (2.80)	2.5 (1.98)	2.6 (2.50)
Nontask Confusion	3.5 (2.62)	3.3 (2.48)	3.9 (2.58)	2.8 (2.51)	5.8 (3.90)	5.8 (3.55)	6.1 (3.40)	6.3 (3.20)
Independent	5.8 (3.30)	5.0 (2.80)	5.1 (2.70)	5.0 (2.73)	6.1 (2.30)	5.9 (4.00)	6.9 (3.00)	7.2 (3.10)
Constructive Inputs								
Nonspecific Verbals	28.1 (9.00)	30.0 (10.30	30.1 (8.20)	30.1 (7.70)	25.4 (10.10)	27.2 (9.40)	24.4 (10.00)	26.2 (10.00)
Unsolicited Explanations	5.3 (3.55)	6.0 (3.10)	5.9 (3.57)	5.6 (3.04)	3.3 (1.85)	3.7 (2.30)	3.6 (1.82)	3.4 (1.80)
Unsolicited Terminal	0.74 (0.90)	1.7 (1.69)	1.4 (1.40)	1.3 (1.30)	1.5 (1.40)	1.5 (1.30)	1.9 (1.66)	2.0 (2.05)
Unsolicited Other	4.4 (2.95)	3.7 (2.57)	3.7 (2.07)	3.3 (1.81)	1.4 (1 37)	1.1 (1.10)	0.97 (0.97)	0 90 (1.07)
Solicited Explanation	4.5 (1.60)	4.7 (1.50)	4.7 (1.85)	4.7 (1.57)	0.70 (0.91)	0.62 (0.80)	0.56 (0.86)	0.81 (0.96)
Solicited Terminal	0.35 (0.75)	0.75 (1.18)	0.75 (1.05)	0.82 (0.90)	0.36 (0.78)	0.61 (0.92)	0.95 (1.30)	0.66 (0.93)
Solicited No Response	0.24 (0.56)	0.49 (0.80)	0.40 (0.72)	0.48 (0.83)	0.21 (0.52)	0.41 (0.70)	0.64 (1.02)	0.45 (0.86)
Solicited Other	0.32 (0.67)	0.76 (1.02)	1.4 (1.30)	1.1 (1.28)	0.48 (0.84)	0.75 (1.00)	0.76 (0.87)	0.59 (1.00)

References

Bennett, N. (1991). Cooperative learning in classrooms. process and outcomes. Journal of Child Psychology and Psychiatry, 32, 581-594.

Bloom, B. (1976). Human characteristics and school learning. New York: McGraw Hill.

Brown, D., Kurpius, D., & Morris, J. (1988). Handbook of consultation with individuals and small groups. Alexandria, Virginia: Association for Counselor Education and Supervision.

Christensen, A., & Hazzard, A. (1983). Reactive effects during naturalistic observation of families. Behavioral Assessment, 5, 349-362.

de Lemos, M. (1982). ACER Intermediate Test F. Hawthorn: Australian Council for Educational Research.

Deutsch, M. (1948). A theory of cooperation and competition. Human Relations, 2, 129-152.

Egan. G. (1990). The skilled helper: A systematic approach to effective helping (4th ed). Pacific Grove.

California: Brooks/Cole.
Gillies, R. & Ashman, A. (1994). The effects of structured cooperative learning. In H. Foot, C. Howe, A. Anderson, A. Tolmie, & D. Warden (Eds.), Group and interactive learning (pp. 423-428). Southampton: Computational Mechanics.
Harter, S. (1992). The relationship between perceived competence, affect, and motivational orientation within the classroom: Processes and patterns of change. In A. Boggiano & T. Pittman (Eds.). Achievement and motivation: A social developmental perspective. (pp.77-114). New York: Cambridge University Press.
Hertz-Lazarowitz, R. (1989). Cooperation and helping in the classroom: A contextual approach. International Journal of Research in Education, 13, 113-119.
Hertz-Lazarowitz, R., Fuchs, I., Sharabany, R., & Eisenberg, N. (1989). Students' interactive and noninteractive behaviors in the classroom: A comparison between two types of classroom in the city and in the kibbutz in Israel. Contemporary Educational Psychology, 14, 22-32.
Horton, E. G., & Brown, D. (1990). The importance of interpersonal skills in consultee-centered consultations: A review. Journal of Counseling and Development, 68, 423-426.
Idol, L., Paolucci,-Whitcomb, P,.. & Nevin, A. (1993). Collaborative consultation (2nd ed.). Austin: PRO-ED.
Johnson, D.W., & Johnson, R.T. (1990). Cooperative learning and achievement. In S.Sharan (Ed.). Cooperative learning: Theory and research (pp. 23-37). New York: Praeger.
Johnson, D.W. & Johnson, R.T. (1985). The internal dynamics of cooperative learning groups. In R. Slavin, S. Sharan. S. Kagan, R. Hertz-Lazarowitz, C. Webb, & R. Schmuck (Eds.). Learning to cooperate, cooperating to learn (pp.103-123). New York: Plenum.
Johnson, D.W., Johnson, R.T., & Houlbec, E. J. (1990). Circles of learning: Cooperation in the classroom. Edina, Minnesota: Interaction.
Johnson, D.W., Johnson, R.T., Scott, L, & Ramolae, B. (1985). Effects of single-sex and mixed-sex cooperative interactions on science achievement and attitudes and cross-handicap and cross-sex relationships. Journal of Research in Science Teaching, 22, 207-220.
Johnson, D.W., Johnson, R.T., Stanne, M., & Garibaldi, A. (1990). Impact of group processing on achievement in cooperative groups. Journal of Social Psychology, 13, 507-516.
Putnam, J., Rynders, J., Johnson, R., & Johnson, D. (1989). Collaborative skills instruction for promoting positive interactions between mentally handicapped and nonhandicapped children. Exceptional Children, 55, 550-557.
Schmuck. R. (1983). System-process mental health models. In S. Cooper & W.F. Hodges (Eds.). The mental health consultation field (pp. 71-90). New York: Human Science Press.
Sharan, S., & Shachar, H. (1988). Language and learning in the cooperative classroom. New York: Springer-Verlag.
Sharan, S., & Shaulov, A. (1990). Cooperative learning, motivation to learn, and academic achievement. In S. Sharan (Ed.), Cooperative learning theory and research (pp. 173-202). New York: Praeger.
Sharan S. & Shachar, H. (1988). Language and learning in the cooperative classroom. New York: Springer-Verlag.
Slavin, R. (1987). Developmental and motivational perspectives on cooperative learning: A reconciliation. Child Development, 58, 1161-1167.
Slavin, R. (1991). Synthesis of research on cooperative learning. Educational Leadership, 48 (5), 71-82.
Webb, N. (1985). Student interaction and learning in small groups: A research summary. In R. Slavin, S. Sharon, S. Kagan, R. Hertz-Larowitz, C. Webb. & R. Schmuck (Eds.), Learning to Cooperate, Cooperating to Learn (pp. 5-15). New York: Plenum.
Yager, S., Johnson, D., & Johnson, R. (1985). Oral discussion, group-to-individual transfer, and achievement in cooperative learning groups. Journal of Educational Psychology, 77, 60-65.