Students' Preferences for Cooperative Learning Instructional Approaches: Considerations for College Teachers

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Abstract

Student acceptability of various teaching formats and techniques is an important factor for teachers to consider in determining their usage and effectiveness. Cooperative learning is a technique that is utilized by teachers from elementary through higher education. The present study compared the acceptability of three cooperative learning techniques: Think-Pair-Share, Three-Step Interview, and Roundtable. Eighty-six college students were first exposed to all three distinct cooperative learning techniques and then asked to rate the acceptability of each. Students completed both quantitative and qualitative assessment measures. Quantitative results showed that students significantly preferred the Roundtable technique over the Think-Pair-Share and Three-Step Interview techniques. The qualitative analysis included highlighted themes such as frequency of use and preference of approach. Considerations for college teachers were also discussed.

Best practices in college teaching indicate that cooperative learning techniques are valuable tools that are widely underutilized in higher education (Shimazoe and Aldrich, 2010). Effective cooperative learning strategies offer an alternative format for the delivery of material (Allison and Rehm, 2007). Furthermore, they are one way to help prevent and remediate difficulties students may encounter when learning a new application or theory (Naested, Potvin, & Waldron, 2004). While a variety of instructional techniques are available to college teachers, they often go unused or underutilized. The present study assessed student acceptability of three distinct cooperative learning styles. The need for information related to the acceptability of cooperative learning styles is great, given that there is scant, if any, research in this area. This article briefly reviews general issues pertaining to treatment acceptability and presents findings from a study in the area of cooperative learning.

Cooperative Learning

Cooperative learning is an approach that organizes classroom activities into academic and social learning experiences. Students must work in groups to complete the two sets of tasks collectively. When the group succeeds, everyone in the group succeeds (Giles and Adrian, 2003). While theorists began establishing the tenets of cooperative learning theory prior to World War II, modern theorists, David and Roger Johnson are currently among the most well known. Johnson and Johnson identified that cooperative learning promoted skills within the group including better communication, mutual liking, and high acceptance and support (Johnson and Johnson, 1975). Subsequently, Johnson and Johnson identified the 5 elements effective for group learning. These

elements are positive interdependence, face-to-face orientation, individual accountability, processing, and social skills (Johnson and Johnson, 1994). Two types of cooperative learning are formal and informal. Formal cooperative learning is structured and is used to achieve group goals. Informal cooperative learning incorporates group learning with passive teaching (Sharan, 2010).

Cooperative learning techniques that relate to the current study are Three-Step Interview, Think-Pair-Share, and the Roundtable Technique. These three approaches are explicated below.

Three-Step Interview Technique

Three-step interviews can be used as an introductory activity or as a strategy to explore concepts in depth through student roles. Paired students ask one another questions. Members then share their responses with the group.

Think-pair-share Technique

This approach is useful for encouraging time on task, and, listening to each other (Kagan, 1999). In this approach, the instructor poses a question to the class, students think about the question, and students share their thoughts with other students.

Roundtable Technique

This approach is useful as a content-related team building exercise (Kagan, 1999). In this approach, the instructor poses a problem with many possible answers. The students write an answer and pass the sheet amongst the group. Finally, the group discusses all possible answers on the sheet.

Treatment Acceptability

Treatment acceptability is a judgment by laypersons, clients, and others of whether treatment procedures are appropriate, fair, and reasonable for the problem or client (Kazdin, 1981). Several models of treatment acceptability have been developed. The first, developed by Witt and Elliott (1985), stressed the interrelationship of four elements: treatment acceptability, treatment use, treatment integrity, and treatment effectiveness. Reimers, Wacker, and Koeppl (1987) expanded on Witt and Elliott's work and focused on the importance of understanding a treatment before acceptability can be assessed. Accordingly, a treatment perceived as low in acceptability will likely be low in compliance or teacher implementation, whereas a treatment rated as high in acceptability will likely result in high compliance.

Teacher and Student Acceptability

Previous research has indicated that many effective classroom activities and interventions are unused by teachers due to low levels of acceptability (Martens, Peterson, Witt, & Cirone, 1986; Witt, 1986). For example, Witt (1986) discussed four factors that have been linked to teachers'

continued use of an intervention: (a) intervention effectiveness, (b) time and personnel resources required, (c) theoretical orientation of the intervention, and (d) the degree to which the treatment is ecologically intrusive. When judging an activity's or intervention's effectiveness, teachers often do not have data concerning the effectiveness of a specific approach, and they often rely upon perceived effectiveness of an intervention. With regard to time and personnel resources, Witt found that teachers prefer interventions that require less time and fewer personnel resources.

Witt, Martens, and Elliott (1984) investigated the influence of time involvement, intervention type, and problem severity on teacher acceptability and found that interventions requiring high levels of time were less acceptable for many classroom problems except those that were very severe. In a related study, Martens et al. (1986) assessed teacher perception of effectiveness, ease of use, and frequency of use for various school-based interventions. The highest rated interventions were redirection, manipulation of material reward, alteration of classroom environment, consultation, time-out, and removal from classroom.

Overall, previous research (Witt, 1986; Witt et al., 1984) on treatment acceptability with teachers has suggested a preference for interventions that are effective, easy to implement, and require short periods of time to implement. Although several studies (e.g., Martens et al., 1986; Witt, 1986; Witt et al., 1984) have increased knowledge of intervention acceptability, the research, for the most part, has been analogous in nature with little emphasis on insuring that participants have sufficient knowledge and use of the interventions they rate. Particularly in the area of cooperative learning approaches, research that directly exposes teachers and students to interventions and examines acceptability is needed.

Relative to teacher preferences, few, if any, studies have assessed student acceptability of instructional approaches, including cooperative learning. This apparent gap in the research provided the impetus for the current study.

Purpose of the Study

What are the key research findings associated with the utilization of cooperative learning approaches in the classroom? Furthermore, do students show a preference for any of these cooperative learning approaches? The current study addressed the need for additional research by extending our knowledge of the acceptability of three distinct, cooperative learning styles (Think-Pair-Share, Roundtable, Three-Step Interview) by comparing the judgments of students. The researchers employed a mixed-methods research design using the Cooperative Learning Approach Rating Profile (CLARP) as the primary quantitative measure and qualitative data from the student demographic questionnaire completed by the participants. The goals of the study were to:

1. Do students show a preference for any of the cooperative learning approaches?
2. How many courses had the students completed that utilized cooperative learning approaches?
3. Which types of cooperative learning activities had students been engaged in previously?

4. Of the cooperative learning activities that students had engaged in, previous to this study, which types of activities do they prefer?

Method

Participants

Students. A total of 86 students participated in the study. The students were enrolled at a community college or a 2-year-college in the Mid-Atlantic region of the U.S. They were college freshman and sophomores. Fifty-seven females and 29 males, ranging from 17 to 58 years of age, participated in the study. There were 36 Caucasian, 7 Asian-American, 19 African-American, 10 Hispanic, and 8 students identified as other. Thirty-two students identified themselves as freshman, and 54 students identified themselves as sophomores. The students agreed to participate in this research study.

Materials

Student Demographic Questionnaire. This questionnaire consisted of information related to age, gender, ethnicity, and previous relevant coursework (see Appendix A). The questionnaire was administered to all students at the outset of the study by the principal researcher.

Student questionnaire. Students were asked to complete an acceptability questionnaire after completing each cooperative learning technique. Witt and Marten's (1983) Intervention Rating Profile (IRP) is a commonly used acceptability measure. Previous research (Witt, 1986; Witt, Elliott, & Martens, 1984; Witt & Martens, 1983; Witt, Martens, et al., 1984) indicates that the IRP has demonstrable reliability and validity; consequently, it was selected as the primary measure to assess technique acceptability. However, each IRP is worded in a way that reflects intervention acceptability for a specific instructional approach. Because the current study investigated three distinct cooperative learning techniques, the IRP was modified to reflect the nuances of cooperative learning techniques. The modified IRP renamed the Cooperative Learning Approach Rating Profile (CLARP) consisted of 10 Likert-type items using a 6-point scale (1 = Strongly Disagree …, 6 = Strongly Agree), and it assessed acceptability in terms of ease of implementation, instructional impact on students, and utility of implementing approaches (see Appendix B). Using the student sample from this study, internal consistency analyses were conducted on the modified IRP to assess reliability. The resulting Cronbach alpha was .91 (Arra, 2010).

Procedure

Students implemented and then evaluated all three cooperative learning techniques during one session. First, a demographic questionnaire was completed by all students. Next, the principal researcher read standard instructions to the students for the Roundtable technique (see Appendix C). The researcher and an assistant then modeled the Roundtable technique for all students. The

students then spent 5 minutes implementing the technique in small groups. Finally, they individually completed an acceptability questionnaire for the Roundtable technique. Once the first cooperative learning technique had been implemented, the principal researcher presented the second technique, Think-Pair-Share, to the students. The principal researcher read standard instructions to the students for the Think-Pair-Share technique (see Appendix C). Students then spent 5 minutes implementing the technique in small groups. Upon completion, students individually evaluated the acceptability of the Think-Pair-Share technique. Finally, the Three-Step Interview technique was presented to the students. The principal researcher read standardized instructions to the students for the Three-Step Interview (see Appendix C). The students then spent 5 minutes implementing the technique. Upon completion, students evaluated the technique using the CLARP.

Interrater Agreement

For the CLARP, the researcher summed the individual item scores to create a total score, which served as the unit of analysis. Ten percent of the measure was randomly selected for interrater agreement. An outside observer, unfamiliar with the study's purpose, was recruited to serve as a blind rater. Percent of agreement was calculated by dividing the number of agreements by the total agreements plus disagreements and multiplying by 100% (Sulzer-Azaroff & Mayer, 1977). Interrater agreement for the CLARP was 100% .

Data Set 1 consisted of data from the responses to the questionnaire prompt "Number of college classes that you have enrolled in that utilized cooperative learning activities." This prompt were used during the administration of the demographic questionnaire. The primary investigator and a graduate assistant both reviewed the data in a systematic manner, reading all 86 questionnaires after the study ended (Henning-Stout, 1999). The data were reviewed by each party to identify data sets, categories of responses, and code responses. This method of data analysis was modeled on a qualitative analysis conducted by Henning-Stout (1999).

Data Set 2 consisted of coded data from the responses to the journal prompt "Types of activities conducted in these classes." This prompt was used during the implementation of the demographic questionnaire.
Data Set 3 consisted of coded data from the responses of the questionnaire prompt "Types of cooperative learning activities that you prefer." This prompt was used during the implementation of the demographic questionnaire.

Results

First Research Goal

Do students show a preference for any of the cooperative learning approaches?

Using the total scores as the unit of analysis**,** a one-way, between groups ANOVA revealed a statistically significant interaction, $F(2, 255) = 151.07$, $p = .001$, Cohen's $d = .69$. Additionally, a Tukey's Post Hoc revealed a significant difference amongst the three approaches, with a statistically significant difference between the Roundtable approach and the Three-Step Interview and the Think-Pair-Share approaches. Therefore, pertaining to this study's first research goal, the significance indicated that students preferred Roundtable approach over the Think-Pair-Share approach and the Three-Step Interview.

Second Research Goal

How many courses had the students completed that utilized cooperative learning approaches?

Eighty-six student responses were analyzed for the first probe (see Table 1). The question asked students to report the number of course they had taken that incorporated cooperative learning. The participants reported having been enrolled in an average of 4.25 (SD = 2.28) courses that utilized cooperative learning approaches. The study included students who identified themselves as college freshman or sophomores.

Third Research Goal

Which types of cooperative learning activities had students been engaged in previously?

Eighty-six student responses were analyzed for the second probe (see Table 1). This question asked the students to report which types of cooperative learning activities they had engaged in. Themes and high frequency responses that emerged included high levels of participation in group projects, group presentations, and group discussions. Group projects and group presentations had the highest frequency of responses at 48, while labs had the lowest frequency of responses at 11. For the second probe, most students reported having engaged in more than one activity in previous coursework. For example, student 51 reported having engaged in group projects, group research, and group presentations. Additionally, student 84 reported having engaged in group discussions, group test reviews, and labs.

Fourth Research Goal

Of the cooperative learning activities that students had engaged in, previous to this study, which types of activities do they prefer?

Eighty-six student responses were analyzed for the third probe (see Table 1). This question asked the students to report which types of cooperative learning activities they preferred. Themes and high frequency responses that emerged included high levels of preference for group projects, group presentations, and group discussions. These high frequency responses were identical to the high frequency responses given by the students for the second probe. So, students reported having been exposed to and preferring the same cooperative learning activities. Group projects and group

presentations had the highest frequency of responses at 25, while labs had the lowest frequency of responses at 3. For the third probe, many students reported having been exposed to many activities, but, preferred only one. For example, student 35 reported having engaged in group work, group research, and group presentations, but preferred only group presentations. Also, student 27 reported having engaged in group research, group presentations, and group projects, but preferred only group presentations. Additionally, several students listed preferences for activities that they had not previously listed as having been exposed to. For example, student 1 reported having engaged in group projects and labs, but preferred group exam reviews. Furthermore, student 31 reported having engaged in group presentations and group research, but preferred group lab work. Finally, it is important to note that 6 students listed that they prefer to work alone.

Conclusion

The present study assessed the acceptability of three cooperative learning approaches by college students. Administration of the CLARP revealed a significant preference, by students, for the Roundtable cooperative learning approach over the Three-Step Interview and the Think-Pair-Share approaches. This finding is useful for college teachers to consider when recommending a cooperative learning approach to a colleague, or, implementing an approach in their own class. Teachers may also consider that the Roundtable approach, as compared to the other techniques, is an approach that utilizes a group effort throughout the entire process. In comparison, the Three-Step Interview and the Think-Pair-Share techniques focus on individual and paired efforts. It may be that college students prefer cooperative learning activities that have a group focus over approaches that focus on individual and paired efforts. It is also noteworthy to report that the CLARP served as a useful tool for the researchers to identify student preferences for cooperative learning approaches.

Qualitative Conclusions

Several qualitative conclusions emerged from the data analyzed in the current study. These conclusions were structurally corroborated across four data sets that included students' answers for three questions and administration of the CLARP. Data collection revealed that students have been exposed to an average of four cooperative learning approaches across a maximum of two years of college training. This number speaks to the amount college teachers are using cooperative learning techniques in their classes. The number of cooperative learning experiences may vary by teacher pedagogy or the type of course. It may be that certain college courses are not conducive to these types of activities.

Data collected from the students in this study indicated that with regards to cooperative learning approaches, college freshman and sophomores have been exposed to a wide variety of cooperative learning approaches through their coursework (e.g., group presentations, group discussions, and peer editing). However, although students have been exposed to a variety

of cooperative learning approaches, some showed a preference for specific approaches. In fact, several students, who had been exposed to multiple cooperative learning approaches, reported preferences for a single cooperative learning activity.

Interestingly, students also showed preferences for approaches that they had not previously engaged in. This finding suggests that students have a broader knowledge of cooperative learning approaches beyond what they have been exposed to during their college coursework. It could prove valuable, in a future study, to determine students' cooperative learning baseline upon entering college.

Finally, 6 students reported that they prefer to work alone. It is important that educators are aware that cooperative learning approaches are not for every student. It could be that, based on previous cooperative learning experiences, some students prefer to work alone.

Considerations for College Teachers

Teachers must consider several factors before implementing a cooperative learning approach. As discussed in the introduction, factors such as ease of implementation, ecological intrusiveness, perceived effectiveness, and time constraints, must all be considered. The current study's researchers ask teachers to consider implementing cooperative learning approaches based on the study's results. Perceived acceptability of a cooperative learning approach by a student is an important consideration for teachers. The results of the present study suggest that the Roundtable approach is reported to be more acceptable by students, than either the Think-Pair-Share or Three-Step Interview approach. As teachers have many approaches to consider before implementing a cooperative learning strategy, the current study makes a statistically significant suggestion concerning three approaches. These findings, when combined with other research on acceptability of cooperative learning approaches, could inform changes in the teaching process. With all the helpful findings in this study, it is paramount that teachers and students are aware that the process student acceptability of cooperative learning approaches is an ongoing process that transcends other courses and professional experiences. The present study adds important information to teachers' understanding of treatment acceptability related to college students.

Limitations and Future Research

Limitations to this study included the educational levels of the students. For the present study, the participants were limited to college freshman and sophomores.

Another limitation to this study would be that the CLARP is not psychometrically sound. The only analysis performed on the tool was a Cronbach's alpha, a measure of internal consistency reliability. One may infer construct validity from the results of this measure, but overall, support for the validity and reliability of the CLARP is lacking.

An area of future research could be to include college juniors and seniors in the participant pool. This would allow researchers to infer their results to a broader college population.

Another area of future research could be to determine students' cooperative learning knowledge base upon entering college. Research around this topic would give teachers information regarding what experiences students bring with them to their course. Teachers could then determine which types of cooperative learning activities to engage in with their students.

References

Allison, B., & Rehm, M. (2007). Teaching strategies for diverse learners in FCS classrooms. *Journal of Family and Consumer Sciences, 99,* 8-10.

Arra, C. (2010). [IRP reliability analysis]. Unpublished raw data.

Giles, R.M., & Adrian, F. (2003). Cooperative learning: The social and intellectual outcomes of learning in groups. London: Farmer Press.

Henning-Stout, M. (1999). Learning consultation: An ethnographic analysis. *Journal of School Psychology, 37,* 73-98.

Johnson, D., & Johnson, R. (1994). Learning together and alone, cooperative, competitive, and individualistic learning. Needham Heights, MA: Prentice-Hall.

Johnson, D., & Johnson, R. (1975). Learning together and alone, cooperation, competition, and individualization. Englewood Cliffs, NJ: Prentice-Hall.

Kagan, S. (1999). Building character through cooperative learning. Port Chester, NY: National Professional Resources, Inc.

Kazdin, A. E. (1981). Acceptability of child treatment techniques: The influence of treatment efficacy and adverse side effects. *Behavior Therapy, 11,* 329-344.

Martens, B. K., Peterson, R. L., Witt, J. C., & Cirone, S. (1986). Teacher perceptions of school-based interventions. *Exceptional Children, 53,* 213-223.

Naested, I., Potvin, B., & Waldron, P. (2004). Understanding the landscaping of teaching. Toronto: Pearson Education.

Reimers, T. M., Wacker, D. P., & Koeppl, G. (1987). Acceptability of behavior treatments: A review of the literature. *School Psychology Review, 16,* 212-227.

Sharan, Y. (2010). Cooperative learning for academic and social gains: Valued pedagogy, problematic practice. *European Journal of Education, 45,* 300-313.

Shimazoe, J., & Aldrich, H. Group work can be gratifying: Understanding and overcoming resistance to cooperative learning. *College Teaching, 58,* 52-57.

Sulzer-Azaroff, B., & Mayer, G.R. (1977). *Applying behavior analysis procedures with children and youth*. New York: Holt, Reinhart & Winston.

Witt, J. C. (1986). Teachers' resistance to the use of school-based interventions. *Journal of School Psychology, 24,* 37-44.

Witt, J. C. & Elliott, S. N. (1985). Acceptability of classroom management strategies. In T. R. Kratochwill (Ed.), *Advances in School Psychology Vol. 4* (pp. 251-288). Hillsdale, NJ: Erlbaum.

Witt, J. C. & Martens, B. K. (1983). Assessing the acceptability of behavioral interventions used in the classrooms. *Psychology in the Schools, 20,* 510-517.

Witt, J. C., Martens, B. K., & Elliott, S. N. (1984). Factors affecting teachers' judgments of the acceptability of behavioral interventions: Time involvement, behavior problem severity, and type of intervention. *Behavior Therapy, 15,* 204-209.

Table 1. Frequency of themes and subcategories from journal entries

I. Types of Activities conducted in these classes.

Category	Frequency
Group Projects and Presentations	48
Group Discussions and Debates	46
Peer Editing and Problem Solving	24
Team Building Activities	20
Labs	11

II. Types of Cooperative Learning preferred.

Category	Frequency
Group Projects and Presentations	25
Group Discussions and Debates	18
Peer Editing and Problem Solving Activities	9
Group Research Activities	9
Labs	3
No Preference/prefer to work alone	6

APPENDIX A

Cooperative Learning Approach Rating Profile (CLARP)

Directions: Please answer the following questions using a rating of 1 to 6, where 1= Strongly Disagree and 6= Strongly Agree.

1._____ Most students would find this cooperative learning approach helpful for students.
2._____ Most students would find this cooperative learning approach appropriate for various introductory psychology topics.
3._____ This cooperative learning approach should prove effective in helping the student with their introductory to psychology coursework difficulties.
4._____ This cooperative learning approach would be helpful for student's with difficulties in an introductory to psychology course.
5._____ Overall, this type of cooperative learning technique would be beneficial for the student.
6._____ This cooperative learning technique would not negatively affect a student's psychology performance.
7.____ This cooperative learning technique would not result in risk to the student.
8.____ This cooperative learning technique would not be considered a last resort.
9.____ This cooperative learning technique would not be difficult to implement in a classroom with 30 other students.
10.____ This cooperative learning technique would not be disruptive to other students.

APPENDIX B

DEMOGRAPHIC QUESTIONNAIRE

Age: _____

Sex:_____

Years of Community College Education: _____

Total years of College Education: _____

Ethnicity: _____

Number of college courses completed: _____

How would you describe yourself: (circle one) Freshman Sophomore Junior Senior

Number of college classes that you have enrolled in that utilized cooperative learning/group work: _____

Types of activities conducted in these classes:
_____
_____

Types of cooperative learning activities that you prefer:
_____
_____

Thank you for your time and cooperation.

APPENDIX C

Think-pair-share Technique

1. The instructor poses a question to the class.
2. Students then think about the question silently.
3. Next, individuals pair up and exchange thoughts.
4. Finally, the pairs share their responses with the entire group.

Roundtable Technique

1. The instructor poses a problem with many possible answers.
2. The students write an answer and pass the sheet amongst the group.
3. The group discusses the possible answers on the sheet.

Three-Step Interview

1. The instructor poses a question to the class.
2. Students choose another member to be a partner.
3. Individuals interview their partners.
4. The partners reverse roles.
5. Finally, they share their partner's answer with the instructor.