Structuring Cooperative Learning in Teaching English Pronunciation

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Abstract

Classrooms incorporating Cooperative Learning (CL) structures facilitate a supportive learning environment for English Language Learners (ELLs). Accurate pronunciation by ELLs is important for communication, and also benefits academic achievement. The known benefits of CL for ELLs make it a desirable learning environment to teach pronunciation skills. Thus, sufficient consideration must be given to its incorporation in curricula and delivery format. However, in implementing CL structuresin ELL classrooms, attention must be paid toincubation time for CL elements, social and cultural factors.This quasi-experiment, with a pre-post test two-treatment, formed by expanding across program designinvestigated the impact of a CL environment in the pronunciation skills of ELLs. Results showed that the difference between the improvement of the CL (experimental) group and the control group was not significant enough to claim that CL wasa major differential factor. Factors affecting the implementation of CL in ELL classroomsare discussed.

Keywords: Cooperative learning, English language learners, ESL pronunciation, Multicultural education

1. Introduction

The classroom was noisy as we entered it, but it wasn't rowdy. The din sounded like 'good' noise, 'constructive' noise. Groups of three or four students were busy practicing certain English sounds that they had learned at the previous English pronunciation class meeting. "Show me where you place your tongue to say 't' in English," Adriana, a native Spanish speaker asked her friend Victor, "I can't seem to get it right." Victor, also a native Spanish speaker, demonstrated how the tip of his tongue touched the ridge in his mouth, just above the upper teeth. "Oh, OK, now watch me do it, please, and tell me if it's right," Adriana said. Close by, Ismael, Erica, and Sergio were practicing a tongue twister containing words beginning with the 'v' sound in English. Soon, each person's hand went up for a 'high-five' because they had done it right!   We, the two team teachers, stopped to watch them and then turned to each other with a I-know-what-you're-thinking look: Our students were helping each other achieve a goal through supportive interaction in a secure environment. That was a turning point in our instructional plans because from that day onward, we incorporated cooperative learning (CL) structures in our classroom.

Researchers and education specialists endorse the view that students' learning can be maximized, and thus academic performance improved, by developing a mutual sense of "we are all in the same boat together." The cooperative learning (CL) model incorporates five essential elements: positive interdependence; individual accountability; face-to-face promotive interaction; social skills; and group processing (Johnson & Johnson, 1989). These elements need to be carefully structured into cooperative learning groups so that the additive learning outcome can be anticipated. The effectiveness of CL on learners' academic achievement is noted in both subject content areas as well as language learning. Kagan (1992) and Johnson & Johnson (2006) have enumerated a variety of strategies to assist teachers in CL structures such as team-building, practice in developing social skills, academic information sharing, content mastery, as well as building communication and thinking skills. The application of CL principles and techniques (Kagan, 1992) in order to build a safe and supportive learning environment, especially for the English language learners (ELLs), has been widely discussed (Jacobs & Hall, 1994).

2. Cooperative Learning for the English Language Learner

Research has shown that CL benefits ELLs in various aspects such as constructive peer interaction and active learning (Ovando, Combs & Collier, 2006). A reciprocal relationship between the home language of the ELL and English can

be established in a cooperative learning setting, which facilitates a non-threatening, nurturing, academic environment. Group dynamics are essential in determining success or failure in the cooperative learning classroom. Dornyei's (1997) suggestions for achieving success through cooperative learning are proximity or physical closeness, individual contact, cooperation for a common goal, rewarding nature of the group experience, intergroup competition, and group identity. These elements align with Johnson & Johnson's (1989) cooperative learning elements stated above. In CL structured classrooms for ELLs in particular, certain factors should be given consideration: the duration of training in CL elements in order for them to be "fermented" in the learner, as well as social and cultural differences in teaching and learning styles.

3. Pronunciation Skills of the English Language Learner

Accurate pronunciation in English, as one of the four language skills of listening, speaking, reading and writing, has been an important goal in teaching ELLs because it is important not only in communication, but also in reading and writing, which pave the path to academic achievement (Badian, 1998). Accurate pronunciation entails phonological awareness, which refers to knowledge of the meaningful differences in the units of the sound system of a language, including its consonants and vowels, syllabic structures, etc. However, an awareness of the phonetic and phonological distinctions among sounds in English and the ELL's native language cannot be assumed. While acquisition of native-like pronunciation is often a personal choice, it is obvious that miscommunications may occur due to the lack of awareness of phonetic and phonological characteristics of sounds in the second language.

It is safe to assume that knowledge of phonetic and phonological concepts assists ELLs in correcting their pronunciation problems (Goswami & Chen, 2008). However, typical exercises in phonetic and phonological contrasts among sounds, which often include drills and repetition, may not always engage students, and thus result in off-task and resistant behaviors (Castiglioni-Spalten&Ehri, 2003). According to Krashen's (1994) Pleasure Hypothesis, a more "pleasurable" learning model would be better suited to minimize language learners' disaffection. The increasingly popular learning model that provides a supportive learning environment and ample opportunities for participation, thereby lowering the risk of language learners' disaffection, is Cooperative Learning (Ghaith&Shaaban, 2005).

4. The Study

A study by Authors (2008) indicated a positive impact of phonetic and phonological instruction on pronunciation skills of ELLs, and given the benefits of cooperative learning for ELLs, this study investigated whether Spanish-speaking ELLs benefit from phonetic and phonological instruction delivered through cooperative learning structures. In particular, this study examined whether cooperative learning structures make a significant impact on ELL subjects' overall pronunciation of target English sounds.

4.1 Subjects and sampling

The students who participated in this study were 44 English language learners enrolled in two sections of ESL pronunciation classes at a private, residential high school. They ranged in age from fifteen to nineteen years; all students' native language was Spanish, as spoken in Mexico, and they all functioned at similar levels of English fluency, as determined by the school's criteria. Based on the curricular and scheduling conveniences of the school, students were assigned to one of two ESL Pronunciation class sections. One section, consisting of 19 students, received instruction in a cooperative learning (CL) setting, and 25 students in the other section received instruction in a conventional (CV) classroom setting.

Prior to any data collection, the researchers obtained approval for the study from their university's Institutional Review Board (IRB) and informed consent from the participants and their authorized legal guardians. The researchers were subject to the school schedule and distribution of students in various classes; as such, the quasi-experiment was conducted in a convenience-sampling framework (Urdan, 2000). Convenience sample refers to the selection of participants based on "proximity, ease-of-access, and willingness to participate" (Urdan, 2000, p. 3). Therefore, participant selection for this study was based on the roster of their ESL classes. Each subject's pre-test and post-test data were collected, compared, and analyzed to reach any conclusion in any findings of this study.

4.2 Intervention

The Cooperative Learning (CL) group, consisting of 19 subjects, received the phonetic and phonological instruction which incorporated with the elements of cooperative learning. These elements included Positive Interdependence, Individual Accountability, Face-to-Face Interaction, Social Skills, and Group Processing. Instructions regarding features of the International Phonetic Alphabet (IPA) such as places of articulation and manners of articulation were also presented to this group in a cooperative learning structure. Classrooms were arranged in a format that allowed the circulation of different group structures such as base, formal and informal groups. Techniques such as jigsaw

puzzle, role-play, note-taking, and joint project were utilized to facilitate learning through cooperative skills among group members (Johnson, Johnson &Holubec, 2002). The Conventional (CV) group, on the other hand, consisting of 25 subjects, received the same phonetic and phonological instruction from the researchers without the cooperative learning elements.

Based on Dale &Poms (1986) and Whitley (2002), seven consonants deemed difficult for Spanish-speakers of English were identified (as shown in Table 1) for instruction in the pronunciation class. Both the CL and CV groups received phonetic and phonological instruction for ninety minutes during each class meeting, five days a week, through a six-week period. The instruction was delivered in the classroom, in formats of lectures, handouts, PowerPoint presentations, pronunciation exercises/activities, and computer software.

The CL classroom was arranged in a way that facilitated the circulation of different groups and group members, with desks clustered together and adequate space between groups of desks. The 19 students in this class section were randomly placed in groups of 3 (with one group of 4) studentsbased on   random and heterogeneity principles. Each group developed a team name and logo, and its members interacted with the "home team" in all class meetings, with opportunities to work with members of other groups as well. Prior to actual instruction in English pronunciation skills, each group participated in activities pertaining to team-building and social interaction appropriate to the context. Various aspects of Positive Interdependence such as Goal, Reward, and Environment Interdependence were executed with available resources such as ample space in the classrooms and sweets (permitted by the school). Social skills were carefully and constantly structured into the CL Group by jigsaw format and played out using board games and flash cards created by the researchers. At the end of each session in the CL Group, there were technology applications integrating CL elements, such as Jeopardy game in PowerPoint format, for subjects to practice skills acquired. In order to ensure that the CL elements were present in the instructional activities, lessons were carefully prepared to entail most of these elements. As an example, the 'jigsaw' technique was employed in an activity in which each group member of each 'home' group was assigned a different part of the class tasks. For instance, member A was assigned to practice specific strategies to accurately pronounce the contrasting target sounds *b* and *v*, member B *sh* and *ch*, member C *s* and *z*. All the A members from the different groups worked together to master their target sounds with prepared materials, as did the Bs and Cs. Then, they returned to their 'home' groups to teach their group members the strategies they learned to pronounce their target sounds. This activity clearly incorporated the CL elements of individual accountability in requiring each member to be responsible for learning and teaching the assigned task; positive interdependence in every group members relying on the other group members to teach the parts of the task that they learned; social skills and face to face interaction by negotiating their roles in the groups successfully and interacting with classmates outside their home groups; and finally, group processing through mutual support and group performance evaluations. In another activity requiring students to discriminate between specific sounds, the researchers created a game of Bingo. Participants were given a Bingo sheet with words containing the target sounds and distracters. For example, to help students distinguish between the *b* and *v* sounds in English, the researcher would call out either *ban* or *van*,and the participants would have to decide whether that word was on the Bingo sheet or not. If he/she perceived the sound to be the one on the sheet, he/she would highlight the word on the sheet. After all the words were announced, the researcher would then review the sheets for accuracy and reward the winning participants with a sticker. Ultimately, the group with the most stickers was declared the winner! Each group was represented by a member, with a different member for every Bingo round. Such a requirement ensured a level of individual accountability and positive interdependence among group members. With the help of the social skills that they learned, they were able to offer each other support and encouragement, and assess their performance as a group at the end of the activity. Thus, through a simple task-oriented activity, several of the elements of CL were incorporated. The CV group, on the other hand, received the same phonetic and phonological instruction without the cooperative learning elements.

4.3 Data collection

Prior to any instruction, the researchers administered a pre-test of the pronunciation of the target sounds to all the participants in both the CL and CV groups. After all the phonetic features of the target sounds were presented in the phonetic and phonological instruction, a post-test was given to both CL group and CV group in the identical format as in the pre-test. Subjects' phonetic realizations of the target consonants were audio taped and video recorded during both tests for assessment purposes. Both researchers independently recorded and evaluated each subject's pronunciation of target sounds, according to its phonetic features. In the evaluation process of both the pre-test and the post-test, each subject's pronunciation was accounted as correct (+) if the researcher perceived the correct phonetic realization of the target sound; it was accounted as incorrect (−) when the researcher perceived the target sound as incorrectly pronounced. Results of evaluations from both researchers were integrated for statistical analysis.

4.4 Results

The data collected was analyzed in SPSS Version 13.A dependent (paired-samples) *t*-test was chosen to answer the research questions. The results showed that there was a statistically significant difference in performance between pre-test and post-test scores in the CL group, with $t(19) = -15.985$, $p = .0000$. That is, as shown in Table 2, the overall performance score of the CL (experimental) group in the pre-test ($M = 4.90$, $SD = 3.58$) showed a statistically significant difference from that of the post-test ($M = 5.85$, $SD = 3.87$). The researchers concluded that the implementation of phonetic and phonological instruction in a cooperative learning setting had a statistically significant effect on the pronunciation proficiency in the cooperative learning group of this study. With regard to the CV (control) group, the results showed that there was a statistically significant difference in performance between pre-test and post-test scores in the CV group with $t(25) = -13.687$, $p = .0000$. That is, as shown in Table 3, the overall performance score of the control group in the pre-test ($M = 4.93$, $SD = 3.59$) showed a statistically significant difference from that of the post-test ($M = 5.88$, $SD = 3.88$). Again, it was concluded that the implementation of phonetic and phonological instruction in a conventional setting had a statistically significant effect on the pronunciation proficiency in the conventional group of this study.

The main focus of the study was to examine whether there existed a statistically significant difference between the improvement of pronunciation skills between the CL and CV groups. An independent *t*-test showed$t(44) = 0.2404$, $p = .8101$. That is, as shown in Table 4, the overall performance score of the CL (experimental) group ($M = 1.38$, $SD = 2.00$) was not statistically significantly different from that of the CV (control) group ($M = 1.35$, $SD = 2.07$).

5. Factors impacting cooperative learning structures for English language learners

The researchers concluded that phonetic and phonological instruction did significantly improve subjects' pronunciation of target English sounds in both the Cooperative Learning and the Conventional groups, and both groups made statistically significant improvement over the period of the study. However, the difference in improvement *between* these two groups was not statistically significant. Thus, the conclusion of the cooperative learning setting being a decisive factor in such improvement cannot be made in this study. The outcome led the researchers to examine further some of the possible reasons for the results: What factors need additional attention when using cooperative learning structures in an ESL classroom? What factors were beyond the researchers' control in this study?

The lessons used in the ESL Pronunciation class conducted in a CL setting successfully addressed most of the elements of CL. In each lesson, every student was individually accountable for his/her performance, even if some of the activities involved working in groups, to promote positive interdependence. CL was not used as an assessment tool, but rather, a teaching and learning format. Thus, students were responsible for their own work and their grade in the class depended how they performed individually, not necessarily how the group functioned. A very small percentage of the overall class grade reflected group activity. With the help of initial training in appropriate social skills in groups and consistent monitoring of group interactions, face-to-face interaction and social skills, two important elements of CL, were being implemented effectively. Finally, every week, each group had an opportunity to 'process' its work that week – whether or not they achieved their goals, what they did well, what needed improvement, and what group goals they should set next. Given that the CL elements were integrated in the lessons effectively, an obligation that was within the researchers' control, the next step was to look outside the lessons for answers to why the CL group did not perform statistically significantly better than the CV group.

The single most obvious reason for the lack of statistically significant impact of the cooperative learning format appeared to be time. The improvement in the pronunciation skills of subjects in both the CV and CL groups, despite the short duration of the intervention, should be well-noted. Expectations of higher positive impact would seem unreasonable, given the length of time. Another point to note is that besides the instruction time in the classroom, subjects were occupied by other academic tasks required by the school. For the CL group, time available for phonetic/phonological instruction was even less than the time given to the CV group because of the need to train the CL group in the elements of cooperative learning and implement the structures of the setting prior to any instruction. Since cooperative learning elements, especially the social skills, need to be not only structured but fermented, (Johnson, Johnson & Smith, 2006), they were given high priority in the CL group. As mentioned earlier, duration of implementation of CL structures is an important factor to consider, especially among populations, such as ELLs, who may be unfamiliar with the format. In this study, subjects in the CL Group might not have been accustomed to the pedagogical style of the cooperative learning format, and the time devoted to train them in it was not adequate to merit a significant change in their performance.

An important consideration in implementing CL structures in a classroom is the role of social factors. It is possible, as may have been the case in this study that such factors contributed to the lack of significant difference between the

CL and CV groups. Socio-cultural factors can contribute to the "catch-up" effect for low-achieving minority students in cooperative learning settings (Kagan, 1986). The CV group subjects in this study are by no means low-achieving students; however, one possible reason to account for their "catch-up" effect during this quasi-experiment is that they benefited, even though they were not in the cooperative learning group, from the "fermentation" that the CL group had been undergoing. The particular school setting, being a boarding facility, requires students to participate in school work together and share their daily lives 24 hours a day on the same premises. There was no physical boundary between the participants in the two groups once they were outside the classroom environment. The "fermentation" process of cooperative learning elements might have had interactive effects on all subjects, regardless of the group they were assigned to in this study, to the extent that the outcome became indistinctive. On the other hand, the socially dominant group, whichever it was, might have had an influence on the other group. That is, if the CV group was socially more dominant, the cooperative learning effects on the CL group might have been minimized, or conversely. Such cross-influence might have made both groups perform similarly, and consequently, with no statistically significant difference in their results.

Mohatt& Erickson (1981) reported that the ethnicity of the teacher may influence students' participation. As such, cultural factors must be taken into account in implementing CL structures, especially among linguistically and culturally diverse groups. As a speculation, in this study, it is possible that a cultural barrier existed, despite sincere efforts of the researchers, between the Mexican students and Asian instructors. A teacher's role in Mexican society, similar to Asian Confucianism, is highly respected, even intimidating sometimes. Students in the CL group might have been confused not only by the unfamiliar learning format of the CL setting, but also the change in the role of the teacher as simply the 'facilitator' in the classroom. Cross-cultural adjustments such as responding to questions, giving feedback, note taking and/or rewarding (an important aspect of positive interdependence in cooperative learning) need to be made when structuring a CL format in a classroom.

6. Considerations for future studies

Adequate time for instruction and "fermentation" of cooperative learning elements is definitely needed for further studies investigating the cooperative learning effect on the oral proficiency of ESL learners. Moreover, the affective influence of cooperative learning, which may be easily overlooked in quantitative studies, should not be ignored. Academic improvement which results from cooperative learning may not last longer than these "incubated" benefits; however, cooperative learning contributes to caring relationships and psychological health, and these enable learners to acquire knowledge through collaboration with other members in their social lives. Through the socials skills which learners gain from a cooperative learning setting, they can learn both academic and non-academic content effectively. These subsequent outcomes cannot be observed within a short-term experiment. Thus, a longitudinal qualitative study is needed to further investigate benefits and possible "incubated" outcomes of cooperative learning structures.

To reveal more accurate and in-depth effects of cooperative learning, future qualitative research should employ instruments such as pre- and post-intervention questionnaires with both Likert-scaled and open-ended questions regarding subjects' attitudes toward phonetic instruction. In addition, such studies could utilize interviews, focus groups, class journals, and in-class audio recordings focusing on social skills. With such instruments, future studies with similar designs may reveal more effects of cooperative learning in similar settings.

Determining the articulatory quality of consonants is efficiently done with computerized instruments such as Audacity; however, such instruments were not utilized in this study. Instead, two researchers, with phonetic expertise and teaching experience, evaluated subjects in the pre- and posttests. In future studies with similar designs, another pair of evaluators measuring subjects' performance in pre- and posttest, through videotape and/or audio recording, might increase the objectivity of data collection.

Cultural differences, if any, between subjects and instructor/researcher should be considered and adjustments should be made preferably at a pre-experiment period so that counter-effects can be kept to a minimum. Instructional methodology, perception of the teacher's role and other cross-cultural differences should be thoroughly examined to prevent any unexpected misperception.

7. Conclusion

For cooperative learning structures to be successfully implemented in ESL classrooms, the essential elements of CL need to be present for successful results. Positive interdependence; individual accountability; face-to-face promotive interaction; social skills; and group processing need to be built in the instructional format and materials creatively and effectively. Next, adequate time for instruction and "fermentation" of cooperative learning elements is definitely needed for the implementation of CL structures. This becomes particularly relevant in classrooms with linguistically and culturally diverse learners. Moreover, the affective influence of cooperative learning should not be

ignored. CL settings are especially conducive to building safe, non-threatening, interactive learning environments, which greatly benefit in lowering the "affective filter" (Krashen, 1994) or anxiety levels of ELLs. Academic improvement which results from cooperative learning may not last longer than these "incubated" benefits; however, cooperative learning contributes to caring relationships and psychological health, and these enable learners to acquire knowledge through collaboration with other members in their social lives. Through the socials skills which learners gain from a cooperative learning setting, they can learn both academic and non-academic content effectively. These subsequent outcomes may not always be evident in the short term.

The benefits of structuring cooperative learning in an English language learning environment have far reaching effects beyond the language proficiency level. Not only are these benefits evident in short term academic achievements of ELLs, but also in their long term overall social development.

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Table 1. Categories of Target Sounds

Categories	Sounds			
I. Sounds which differ in a phonetic feature (place of articulation)	/t/		/d/	
	Spanish	English	Spanish	English
	dental	alveolar	dental	alveolar
	taco (taco)	_ten_	_dos_ (two)	_den_
II. Sounds which differ in a phonological behavior (allophone [ALO] vs. phoneme (PHO/)	/v/		/z/		/ð/	
	Spanish	English	Spanish	English	Spanish	English
	[ALO]	/PHO/	[ALO]	/PHO/	[ALO]	/PHO/
	viva (alive)	_van_	_zapato_ (shoe)	_zoo_	_lado_ (side)	_there_
III. Sounds which are absent in native language	/θ/		/š/	
	Spanish	English	Spanish	English
	ø	_three_	ø	_shoe_

Table 2. Mean Differences between Pre-test and Post-test of Performance in the Cooperative Learning Group (N=19)

Variable	M	SD	t(19)
Score of performance in pre-test	4.90	3.58	-15.985[†]
Score of performance in post-test	5.85	3.87	

[†]p< .05

Table 3. Mean Differences between Pre-test and Post-test of Performance in the Conventional Group (N=25)

Variable	M	SD	t(25)
Score of performance in pre-test	4.93	3.59	-13.686[†]
Score of performance in post-test	5.88	3.88	

[†]p< .05

Table 4. Mean Differences between Improvement of Performance in the Cooperative Learning (Experimental) Group and Conventional (Control) Group (N=44)

Variable	M	SD	t(44)
Improvement of performance in Cooperative learning Group	1.38	2.00	0.2404 *
Improvement of performance in Conventional Group	1.35	2.07	

*p = .8101 > .05