

Grouping Strategies and Writing Achievement in Cooperative Learning

Nasim Ghanbari *

Department of English Language and Literature, Persian Gulf University, Bushehr, Iran

Reza Ghaffar Samar

Department of English, Tarbiat Modares University, Tehran, Iran

Abstract

Along with a growing reliance on cooperative learning in language classrooms, a key question is how effective different grouping strategies (i.e. homogeneous and heterogeneous) are. Such an issue seems innovative when considering the long-accepted tradition of heterogeneous grouping of learners in cooperative activities. To reach this aim, present study set out to investigate the effect of grouping in terms of language ability and gender of the Iranian EFL learners on their written performance. Two elementary-level male and two elementary-level female intact classes were selected and randomly assigned to either homogeneous or heterogeneous groups. The treatment sessions lasted 9 weeks of instruction with a special emphasis on developing the skill of writing. Learners were pre-tested and post-tested through a free writing measure. Analyses of variances indicated that learners in homogeneous groups outperformed those in heterogeneous ones, though it did not reach any significance level. Language ability of the learners did not make any difference and only the gender made a significant difference between the groups. A more focused analysis of the five components of writing (i.e. content, organization, grammar, mechanics and vocabulary) revealed the same pattern as that of the learners' whole composition in the two grouping formats. The obtained results were a confirmation of a new strand of research which has questioned the long-dominant heterogeneous grouping in cooperative learning settings to design groups in a way that promotes learners' achievement to the extent possible.

Keywords: grouping strategy, homogeneous grouping, heterogeneous grouping, cooperative learning (CL), writing performance, gender

INTRODUCTION

Over the past ninety years, about 550 studies have been conducted comparing the relative effectiveness of cooperative, competitive, and individualistic learning (Johnson & Johnson, 1998). It is claimed that cooperative learning (henceforth, CL) consistently improves achievement and retention of language features, creates more positive

relationships among students and promotes students' psychological health and self-esteem (Johnson & Johnson, 1999).

One of the very important features of CL is the appropriate assignment of the students to groups, since grouping "who with whom" has been found to affect the outcome of second/foreign language learning. Even though appropriate use of student groups for learning has been shown to yield significant learning improvement across disciplines, the successful application of CL in classrooms still eludes many educators (Johnson & Johnson, 1999).

Going through the literature, it is found that the very rationale of CL has been associated with heterogeneity of language ability, gender, ethnicity, etc. Those who advocate heterogeneous group composition believe that when groups are maximally heterogeneous and the other essential elements are met, students tend to interact and achieve in ways and at levels that are rarely found in other instructional strategies (Baer, 2003). The other CL grouping strategy (i.e. homogenous grouping) has been often ignored simply on the assumption that in the present dominant social constructivist perspective to education, diversity and providing a suitable atmosphere for interaction of various abilities, races and genders, are pursued and homogeneity, recalling the negative aspects of the long-practiced ability grouping has been put aside (Cohen, 1986).

In Iranian educational system, separate-gender classes cause the professionals to overlook the role of gender in whatever decisions made in the class and in a wider national educational level; therefore, in addition to prior level of achievement, the degree of moderation which gender makes in the choice of group composition demanded the researcher to investigate this issue experimentally and not rely just on a vague tradition or controversial research findings. Indeed, the contribution of the present study is to provide an opportunity for an "informed decision" for the practitioners in this special EFL context to design group composition in a way that promotes learners' achievement in cooperative activities.

The rationale for the selection of writing is that writing as a process fits the cooperation well in that different members take on a role and through different stages of pre-writing, rough drafting, re-reading, revising and editing come to a final draft. Also for a rigorous investigation of any probable effect of grouping on the composition of the learners, five components of writing were chosen. As a result, attempts were made to answer the following research questions in this study:

- Does grouping strategy based on language ability and gender have any effect on the Iranian EFL learners' writing products?
- Does grouping strategy based on language ability and gender have any effect on the Iranian EFL learners' writing regarding grammar, mechanics, content, organization and vocabulary?

LITERATURE REVIEW

CL as a generic term refers to numerous models for grouping students. At least 10 different ones have been formally described in the research literature (Johnson & Johnson, 1999). Student Teams Achievement Divisions (STAD), Team-Game Tournament, Jigsaw, Constructive Controversy, Group Investigation, Number Heads Together, to name a few. Most of these CL methods consider heterogeneous grouping as the preferred group composition. Although some research studies have counted a number of grouping formats, but there is no easy and clear-cut answer to that. For example, some teachers design groups so that each group has a mixture of boys and girls, students of different ability levels, students who are fluent in English and those who are emerging speakers, etc. Other educators use random groupings each time and change group compositions around frequently. Some group students homogeneously according to their ability level. Yet others allow students to choose with whom they will work (Karen, et al., 1994).

In studies done so far, two grouping strategies (i.e. homogeneous and heterogeneous) are more distinguished. The long-practiced heterogeneous grouping brings together different ability levels on the assumption that present homogeneity-inducing educational systems prevent them to interact. Advocates of heterogeneous grouping strongly insist on forming groups which have learners of diverse ability levels. Some scholars (Dansereau, 1988; Webb, 1985, 1989) argued that high-achievers would benefit most from heterogeneous grouping since they provide frequent elaborated explanations.

Considering the present situation, although much of the literature emphasizes heterogeneous groups (Cooper, et al., 1990; Johnson, et al., 1998; Slavin, 1995) and also it appears to be reasonable on the surface and a generally accepted practice, there are some voices of disagreement (Baer, 2003; Felder & Brent, 2001; Roser, 1997; Sandler, 1996). This new trend of research seeks the difference between homogeneously-and heterogeneously-grouped cooperative learning classes experimentally. Such research studies have counted serious educational failures with the sole preference of heterogeneous grouping in cooperatively-organized classrooms. These findings suggest that isolating students of diverse ability from each other can be detrimental to the academic success of these individuals, because they can become isolated, marginalized, or placed in stereotypical roles and not permitted to flourish (Baer, 2003; Felder & Brent, 2001; Roser, 1997; Sandler, 1996).

Feldhusen (1989) as one of the critics of heterogeneous grouping, states that the idea that lower ability students will look up to gifted ones as role models is highly questionable. He believes that learners typically model their behavior after the behavior of other learners of similar ability who are coping well with the school. Also research done at the elementary and secondary levels suggests a pattern similar to that found in non-cooperative learning settings: high-achievers do much better in homogenous groups; among average-and low-achievers there is little difference in heterogeneous and homogeneous groups; also high-achieving students frequently have a poor attitude

toward group work (Allan 1991; Engelhard & Monsaas 1989; Kulik & Kulik 1982; Kulik 1984; Loveless 1999; Slavin 1991; Sternberg & Willard, 2002).

Besides language ability, gender has been an influential factor in the structure of CL groups. Previous research has indicated certain gender-based differences in the interaction patterns of the non-native speakers of English when involved in group work. For example, Gass and Varonis (1986) reported that males and females converse differently in the same-sex dyads than in mixed-sex dyads. Similarly, Webb (1984) reported that in majority-female groups, females directed most of their interaction to males and showed lower achievement than males. As can be inferred, most of the studies have focused on the interaction patterns of both gender while they are "together" whether in homogeneous- or heterogeneous-ability groups. However, few studies have investigated gender-homogenous groups. As an example, in a study by Goethals (2001) on the written performance of SG cooperative groups, it was found that male subjects performed better than female subjects. In another study to examine the important relationships among social presence, decision process, satisfaction and group performance, Wong (2004) found that social presence of mixed-gender groups were higher than that of same-gender groups. Bilous and Krauss (1988) found no male/female difference in interruption and speech production in mixed-gender dyads, but in same-gender dyads, female subjects uttered more words and interrupted more often than did males.

Research findings on cooperative writing have also been positive to foster reflective thinking, especially if learners are engaged in the act of explaining and defining their ideas to their peers (Higgins, Flower & Petraglia 1992; Keys, 1994). Also research conducted with L2 learners (Donato, 1988; Dicamilla & Anton, 1997; Storch, 2002; Swain & Lapkin, 1998) has shown that in the process of co-authoring, learners consider not only grammatical accuracy and lexis but also discourse. Furthermore, depending on the kind of group/pair dynamics formed (Donato, 1988; Storch, 2002, 2003), cooperative writing may encourage a pooling of knowledge about language; a process Donato (1988, 1994) termed collective scaffolding.

METHODOLOGY

Participants

Participants were 80 elementary learners of English in Jahad Daneshgahi Language Center of Tehran University. These learners were from four classes, two male and two female ones. Regarding age and educational background, they were heterogeneous, with the majority of university students. Ability to understand academic textbooks, being able to communicate in English, understanding Internet databases, etc. were among their objectives in learning English.

Instruments

Four major instruments were used in this study. Oxford Placement Test (OPT), a researcher-developed writing instructional package, a writing test and an observation checklist.

Oxford Placement Test (OPT)

OPT as a screening measure was administered prior to the study. The reliability coefficient obtained through the split-half method was 79.8 which guaranteed the stability of the instrument. Also running the extraction method of principal component analysis, two factors were extracted and the items loaded on both. These two factors were considered the same as the listening and grammar sections of OPT, confirming its construct validity.

Writing instructional package

The researcher developed a writing package consisting of eighteen short writing tips, obtained from books such as *Academic writing course*, (Jordan, 1999), *Techniques for writing composition* (Milton, 1985), *From Paragraph to Essay* (Tillet, 1987). Introduction to different styles of writing, basics of paragraph writing, punctuation marks etc. were among the writing points dealt with in the writing package. These short lessons which lasted ten to twenty minutes in each session were affected by the learners' group writings. In other words, some parts were emphasized more than the others due to the perceived needs of the learners.

Writing test

To measure written performance of the learners, among many types of composition tests, free writing as the most face valid test of writing (Farhady, et al., 1994) was chosen. As the name suggests free writing involves a topic for the student writers to write about. Also the content of the required topic should be familiar and of interest for them. For this, researcher asked the participants to write about the advantages and disadvantages of living in Tehran -the capital. Such a writing test was done individually by the participants at the beginning and also at the end of treatment sessions as a measure of their writing ability.

Observation checklist

The last instrument used was an observation checklist developed by the researcher to examine what actually happened in the cooperative writing process each session. Due to elementary proficiency of the learners and the technical language of the observation checklist, it was prepared in Persian-native language of the participants- and in three parts. The first section dealt with group characteristics and was fixed-except in the case of absence of some members. The second part considered general physical features of the classroom and the third which formed the main section consisted of observation items which were mostly open-ended. At the end of this part there was a blank area

devoted to comments of group members. Such an observation checklist was distributed among group members each session. Researcher documented her observations in it, too.

Procedure

The researcher randomly assigned each of male and female classes to either homogeneous or heterogeneous groups. Then, OPT was administered. Based on the ability ranges specified after scoring OPT, cooperative groups- either homogeneous or heterogeneous- were formed. Grouping was formed as follows: In each class, those students who got top scores- about ten percent of the class- were considered as the high achievers, those who got low scores with around the same ten percent as the low achievers and those who scored in the middle were considered as the average achievers. In homogeneously grouped classes, group composition was like forming groups of three high-achieving, middle-achieving and low-achieving learners (Figure 1). In the heterogeneously grouped classes students were put in groups using the following formula: one high achiever was put next to one average achiever and one low achiever (Figure 2). These groups remained in place until the end of the course.

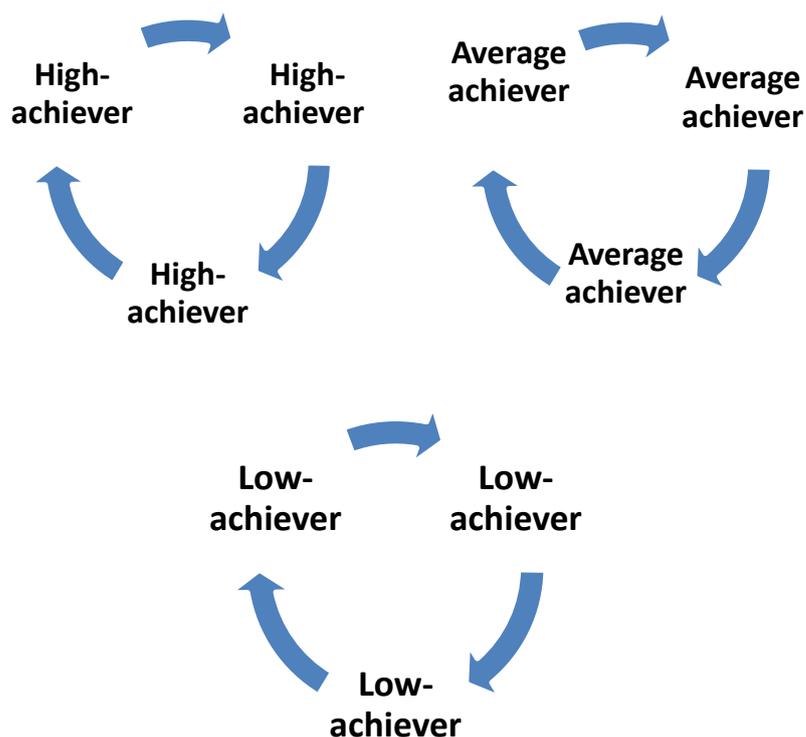


Figure 1. Structure of a homogeneous group



Figure 2. Structure of a heterogeneous group

After administering the writing pre-test and general orientation to the cooperative procedure, treatment began. Every session, learners in the form of cooperative groups were asked to write a group composition. Such a cooperative writing was after presenting the class with a short writing lesson by the teacher-researcher. The researcher chose the writing topics in a way which had an interactive and neutral nature (i.e. group members could discuss impersonally). For example, one of the topics chosen was, “side effects of being overweight”. First group members discussed it, brainstormed their ideas, wrote a rough draft and finally after peer reviewing wrote the final draft. During their cooperative activities what the researcher observed was the learners’ gradual progress in cooperative activities. She clearly observed their interest and sense of intra-group dependence. During the treatment sessions, teacher-researcher observed the cooperative activities of the learners through the checklist. Students in groups were assigned different roles, for example, leader, timekeeper, and encourager. Assigning a role to each student in the group helped to reduce behavior problems.

Since components of writing were of concern in the present study, there was a need for an analytic scoring that measured the learners' performance on each component .The scoring procedure selected was the well-known analytic scoring method of ESL Composition Profile by Jacobs et al. (1981). The scoring rubric was used to score the students' performance on writing components. Each paper was rated on five components, each focusing on an important aspect of composition: Content 30 points, Organization 25 points, Vocabulary 20 points, Grammar 25 points, and finally Mechanics 5 points. Two raters (researcher and another EFL teacher who was an academic writing teacher) scored the papers and the inter-rater reliability estimate was 0.83 indicating a high correlation between the two ratings.

On the whole, treatment sessions lasted eighteen sessions of instruction. At the end of the treatment sessions, learners were required to write a composition as the writing pre-test. It should be mentioned that both pre-and post-tests of writing were done individually.

RESULTS

Before running ANOVA, a preliminary analysis of means indicated that performance of the learners in four groups were quite close to each other prior to the study. Results of the between-subjects ANOVA showed that there was no significant difference among the participants' writing performance in terms of gender and language ability.

Table 1. Results of ANOVA showing learners' performance in terms of language ability and gender prior to the Study

Source of Variation	Sum of Scores	df	Mean Scores	F	P
Gender	3.612	1	3.612	.092	.763
Ability	90.313	1	90.313	2.293	.134
Gender* Ability	3.613	1	3.613	.092	.763

Exploring the mean scores of the participants after treatment sessions showed that a considerable difference existed between the performance of male and female learners, while such a variation was not found regarding the language ability of the learners in homogeneous and heterogeneous groups (Table 2). It is worth mentioning that homogeneously-grouped learners outperformed their heterogeneous counterparts though it did not meet the significance level.

Table 2. Means of learners' performance on writing post-test

Grouping	Gender	Mean	N
Homogeneous	male	79.19	20
	female	74.70	20
	Total	76.93	40
Heterogeneous	male	79.15	20
	female	74.65	20
	Total	76.90	40
Total	male	79.15	40
	female	74.68	40
	Total	76.91	80

Results of ANOVA showed that only gender affected the learners' performance significantly, $F(1, 76) = 0.000$ $p < 0.05$. Ability-based grouping had no significant effect on the learners' writing, $F(1, 76) = 10.04$ $p > 0.05$. Also, there was not any significant interaction between ability and gender on the written performance of the participants (Table 3).

Table 3. Results of ANOVA showing the effects of language ability and gender on the learners' writing post-test

Source of Variation	Sum of Scores	df	Mean Scores	F	P
Gender	400.5	1	400.5	.000	.002
Ability	1.250E	1	1.250E	10.46	.986
Gender* Ability	1.250E	1	1.250E	.000	.986

To achieve a more comprehensive view regarding the influence of grouping strategies on the learners' performance, besides holistic writings of the participants researchers

studied the five components of writing namely, content, organization, mechanics, grammar and vocabulary using the analytical measure of ESL composition profile (Jacobs, et al.1981). Exploration of the learners' mean scores in either homogeneous or heterogeneous groups demonstrated the existence of a difference in the performance of males versus females and not between homogenous or heterogeneous ones (See Appendix)

Also a Between-subjects two-way ANOVA was run for each of the five components. In four out of five components- organization component did not differ among the learners significantly- gender was found to make a significant difference; however, equal or superior level of the homogeneously-grouped learners' performance compared with their heterogeneously-grouped ones was not approved significantly.

DISCUSSION

Results of the present study ran counter those studies which advocate the superiority of heterogeneous grouping (Cooper 1990; Johnson et al., 1988; Nurrenbern, 1995; Slavin, 1995). It revealed that homogeneously-grouped learners outperformed heterogeneously-structured ones, though this difference was not statistically significant. In line with this finding, Baer (2003) found that homogeneously-grouped learners had higher achievements compared to heterogeneously-grouped ones after a semester of treatment in a college psychology course. Loveless (1999) and Webb (1992) also found that homogeneous-dyads outperformed heterogeneous ones in mathematics classes.

One probable reason that contributed to the lower performance of heterogeneous groups was the gender-homogeneous structure of the groups that reduced the heterogeneity and consequently decreased the possible success of the heterogeneous groups if they had a mixed-gender format. The other reason which was also reported in the literature in favor of homogenous grouping (Baer, 2003; Loveless, 1999; Webb 1992) was that learners of both gender geared more effectively with same-ability group mates. The sense of positive interdependence, empathy and mutual trust made learners achieve their common goals in the group.

Also better performance of the males compared with females can be attributed, in the first place, to the affective aspects of cooperative groups. Based on observation checklist results over the span of 18 sessions of treatment, it was found that female participants- in especial lower-achievers- were reluctant to accept accountability in their groups and avoid accepting the high-achiever member as a model. Indeed, sense of positive interdependence was not created among females. In female heterogeneously-grouped classes, problematic groups were frequently observed. The other reason which mattered especially in separate-gender classes was the psychological aspect of males and females that react differently to various aspects of the classroom. Such a difference led to the existence of two different attitudes between groups and contributed to the higher performance of male participants.

In this study, the researcher tried to avoid any subjective in-group or out-group evaluation and among males and females. Random assignment to either groupings, identical assignments and in-class activities were significant controls over the extraneous variables that might have influenced the outcome. Results of the present study confirm those research projects that advocated setting up groups of learners in cooperative learning activities that are of the same ability level and also found no reason for emphasizing heterogeneity in the structure of the groups.

As a next step, a study can be designed to investigate the same grouping strategies on other skills of the language like speaking and reading. The groups in the present research had a same-gender format which left this question unanswered whether mixed-gender or separate-gender groups had any influence on the way learners in either homogeneous or heterogeneous groups performed. Another study can compare separate-gender groups with mixed-gender ones to come to a more comprehensive view on the role of gender in cooperative groups. Also, this study did not study what happened for each individual ability level. A study can be deemed to compare the performance of each ability level in homogenous and heterogeneous groups.

CONCLUSION

Communicative language teaching as a qualified and dominant approach in ELT considers a central role for the learner in whatever goes on in the class. Also group work, pair work, cooperative learning, etc. are common terms in a considerable number of CLT course books. But the point is that every approach to teaching and learning becomes effective just if the cultural, educational and ethnical realities of each ELT context be seriously concerned. Group composition or simply who sits with whom in separate-gender Iranian language learning Institutes had been paid scant scientific attention to and undertaking the present study was an effort to localize the suggested practice of cooperative learning in this specific context to provide illuminating guidelines for more successful management of the groups and also assignment of the learners to groups that effectively fit them.

As the last word, although language Institutes typically group learners homogeneously in classes by means of placement tests, oral interviews, etc. that is not the case when forming cooperative learning groups since they insist on heterogeneous grouping as the only way to fulfill CL prerequisites to promote learning to the extent possible. This study suggests not to ignore the diversity of characters that is the very essence of CL but groups can be homogeneous regarding the learners' language ability and at the same time heterogeneous regarding age, gender, ethnicity, etc.

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APPENDIX

Table 4. Mean Scores-Male Learners

Writing Components	Homogeneous		Heterogeneous	
	Pre	Post	Pre	Post
Content	23.25	24.15	23.10	24.40
Organization	14.95	15.70	15.15	15.60
Mechanics	3.70	4.15	3.40	4.00
Grammar	18.10	19.80	17.30	18.20
Vocabulary	15.05	15.90	14.85	15.55

Table 5. Mean Scores-Female Learners

Writing Components	Homogeneous		Heterogeneous	
	Pre	Post	Pre	Post
Content	24.20	23.45	24.00	23.10
Organization	16.20	15.65	15.50	15.05
Mechanics	3.75	3.70	3.40	3.35
Grammar	18.30	17.45	18.40	17.90
Vocabulary	15.10	14.35	15.35	14.85