

Field Student Teachers' Attitudes toward certain Pedagogic Dimensions related to Cooperative Learning in the Hashemite University

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Abstract

The present study aims at investigating the attitudes of English, Arabic, Science and Math field student teachers (FSTs) toward the cooperative learning processes, which take place during the teaching session. More specifically, the study aims at exploring their attitudes toward four dimensions related to cooperative learning. These dimensions are: (1) cooperative learning in terms of benefit, (2) the instructors role, (3) the characteristics of group members, and (4) group size.

The study sample (n: 150) consists of (37) English FSTs, (39) Arabic FSTs, (37) Science FSTs and (37) Math FSTs. The research instrument used in this study is a questionnaire, of which items have been derived from the literature related to cooperative learning.

The study results indicated no significant differences between the humanistic (English and Arabic) and scientific (Science and Math) FSTs attitudes in terms of the four dimensions, in general. However, there are significant differences between their responses concerning each of these dimensions. It was found that the humanistic FSTs showed more satisfaction with the first dimension, whereas scientific FSTs showed more satisfaction with the second, third and fourth.

Results also indicated no significant differences between the attitudes of English and Arabic, Arabic and Science and Arabic and Math FSTs with regard to the four dimensions on the whole.

Moreover, the results showed significant differences between the attitudes of Science and Math, English and Science, and English and Math FSTs in respect to these four dimensions collectively.

Introduction:

Learner-centeredness is regarded as an important approach in the process of teaching and learning. It has been introduced into school education systems as a substitute to traditional approaches to teaching in order to create 'a classroom environment that fosters active learning and engages students in the learning process...' (Steiner, Stromwall, & Stephanie, 1999: 253). One of the techniques, which are often employed to implement learner-centeredness in the classroom, is the cooperative learning technique. The Education Reform Program in Jordan or more specifically the national education conferences held during 1980s and 1990s emphasized this technique. These conferences insisted on giving the pupils the chance to work together in groups and exchange ideas in order to arrive at an answer or a solution to a particular problem.

As a result, Methods (1) and Methods (2) instructors of the subject areas, English, Arabic, Science and Math in the Hashemite University changed the course descriptions of each subject and emphasized cooperative learning. The aim was to enable students to apply its major techniques *group-work* and *pair-work* to the teaching-learning context and to build up a teaching strategy that could help them deal with their pupils efficiently during training in the field or when they are appointed in the Ministry of Education. What was agreed upon among the instructors of these two subjects is that lecturing should be minimized as much as possible.

Kromrey and Purdom (1995) state that theorists from both the cognitive and behaviorist schools of thought have confronted lecture methods as ineffective and unproductive. Cognitive psychologists, for example, support every method, which gives the students the chance to learn things meaningfully and to 'promote long-term retention' (p. 124). Johnson and Johnson (1998) argue that there can be little doubt that cooperative learning is appropriate to higher education. They argue that '... it works, while it is never easy to implement, when all the critical elements are in place, it is very powerful' (p. 73).

Several researchers, such as Slavin (1987), Rich (1993), and Steiner et al. (1999) offered definitions of the term 'cooperative learning'. Slavin

(1987) defines it as 'instructional methods in which students of all performance levels work together in small groups toward a group goal' (p. 8). Slavin argues that cooperative learning can be regarded as an alternative to traditional teaching systems, which do not normally give students the chance to exchange ideas in the teaching-learning context. Rich (1993) considers cooperative learning to be a pedagogic orientation which uses small and heterogeneous groups of students working together to achieve a common learning goal and a collaborative relationship among participants. It also uses strategies 'to maximize the students own and other students learning' and to 'change the classroom environment from one in which students are passive recipients of the instructor's knowledge, to one in which they are active participants in their own education' (Steiner et al., 1999: 253).

Research has identified the essential elements of cooperative learning as: (1) positive interdependence (2) face-to-face interaction (3) individual accountability and personal responsibility (4) social skills and (5) group processing. In terms of the first element *positive interdependence*, Johnson and Johnson (1993) remarked that 'students must believe they sink or swim together' (p. 167). They must also believe that they are responsible for both their learning and the teams (Johnson & Johnson, 1989), or '... all group members strive to solve the same problem, and the group must agree on an answer' (Steiner et al., 1999: 254).

With regard to the second element *face-to-face interaction*, students are expected to discuss relevant ideas, solve problems and offer help to each other. In other words, they are expected to 'discuss what they are learning, explain to each other how to solve the assigned problems or complete the assignment, and provide each other with help, assistance, support, and encouragement' (Johnson & Johnson, 1993: 168).

In respect of individual accountability, students should demonstrate mastery of material (Johnson & Johnson, 1989). Each ought to be held accountable for completing his or her part of the assignment. This can be achieved by 'observing the groups, randomly calling on group members to answer questions or explain group progress, and having students teach what they learned to others' (Steiner et al., 1999: 254).

The fourth element necessitates teaching students the way in which conflicts can be managed, decisions can be made, and the way in which

leadership features can be built up (Johnson & Johnson, 1989; Johnson & Johnson, 1993; Steiner et al., 1993). And finally, instructors should ensure that the members of each group have discussed and evaluated how effectively they are achieving their learning goals and how well they are working together as a group (Johnson & Johnson, 1993).

As regards the benefits of cooperative learning, it has been shown that this approach can improve students' academic achievement (Johnson et al., 1981; Slavin, 1983; Slavin, 1990; Manning & Lucking, 1991; Nastasi & Clements, 1991; Hendrix, 1996; Cohen & Lotan, 1997; Steiner et al., 1999). Manning and Lucking (1991), for example, point out that those cooperative learning methods, which produce positive academic achievement, share two features. First, they entail individual liability; that is, 'group success depends on individual contributions and learning of all members' (p. 212). Second, students work autonomously to bring in instructor recognition or other forms of success. It has also been shown that cooperative learning can serve to improve self-esteem (Slavin, 1987 & 1990; Johnson & Johnson, 1983 & 1989; Manning & Lucking, 1991; Aronson & Patnoe, 1997). Slavin (1990), for example, indicates that cooperative learning may lead to increased self-esteem because students have more positive feelings about their subject areas and learning in general.

Moreover, this approach can promote critical thinking (Johnson & Johnson, 1981; Gabbert et al., 1986) and improve student retention (Johnson, Johnson, & Smith, 1991a). Johnson and Johnson state that cooperative learning activities should be designed to stimulate critical thinking. Instructors can have student's search for information in readings or from lectures, and then critically use that information to answer questions or solve problems. Johnson et al. (1991a) argue that the discussions, which take place among the students, normally help them to retain and retrieve information more easily.

Furthermore, cooperative learning can enhance interdependence (Nastasi & Clements, 1991, Johnson et al., 1991b) and interpersonal (or intergroup) relationships (Aronson & Patnoe, 1997, Slavin & Cooper, 1999). Johnson et al. (1991b) argue that cooperative learning stresses that students should rely on one another to achieve their learning objectives. Each member of the group must do his or her part, for the whole group to succeed. Slavin & Cooper (1999) remarked that

improving intergroup and interpersonal relationships among students has become a top priority among educators. One of the major techniques of enhancing this kind of relationships is teamwork. When students work together; they have the chance to arbitrate each other on qualities rather than stereotypes (Slavin & Cooper, 1999).

Practicing small-group skills and advocacy are regarded as important benefits of cooperative learning activities in the teaching-learning context. Steiner et al. (1999), for example, indicate that cooperative learning allows students the opportunity to practice small-group skills such as keeping the group on task, administrating disagreement, attaining consensus, and experiencing various group roles. Steiner et al. add that during cooperative learning activities, the instructor can ask students to arrive at a conclusion or develop one solution per group. This means that students must reach a consensus, often despite disagreement among group members.

Working in-groups is considered to be an important prerequisite for successful cooperative learning. The instructor can promote interaction by having students take part in team building (Curriculum Review, 1992), or having them work independently on academic assignments and tasks in order to produce a communal product (McWhirter, 1999). Goodwin (1999) argues that the instructor cannot presume that cooperation will take place in cooperative learning groups just because s/he has instructed students to work together. Students who have never been taught cooperative learning skills couldn't be anticipated to work together efficiently. He concludes that 'social skills become most important when students are engaged in cooperative groups; therefore, cooperative groups are the best setting to begin teaching these skills' (p.96).

Group size is also considered as an important prerequisite for successful communication among the students. Bodner & Metz (1997), for example, state those groups should contain between three and five members. They add 'if the group is too small, one member can dominate the others. If the group is too large, the group will ignore the contributions of one or more members. The group should be heterogeneous. It should include high-, medium-, and low-achievers; both males and females;...' (p. 99).

Research indicates that cooperative learning, as a teaching approach, has been investigated mainly in the basic and secondary education stages. It also shows that it has not yet been explored thoroughly at the university level. In this respect, Slavin (1995) states that elementary, intermediate, and high school teachers have access to hundreds of studies on cooperative learning at their grade levels, whereas university instructors who have tried, or want to try, cooperative learning find comparatively little research on it. However, several studies conducted in higher education may serve the purpose of investigation in the present study.

Vermette & Erickson (1996) conducted a research study on a group of college classroom students implementing the cooperative strategy (dialogue) with their professor. The students (N=43) were seated in small groups and were allowed to talk, listen and think freely. By the end of sessions allotted to the implementation of this strategy, the researchers made an informal interview. This interview focused on the major benefits of using this strategy. Results showed that students had direct opportunities for interaction and their ideas fed off of one another. They also showed that the students demonstrated the ability to disagree and were able to integrate prior knowledge and experience to further examine the issues at hand. And finally, the results showed that the instructors were better able to offer explanations and to assess the developing knowledge and perspectives of individual learners.

Kromrey & Purdom (1995) tested the effectiveness of three methods of instruction (cooperative teaching, lecturing and programmed teaching) with undergraduate elementary education majors. The main purpose was to ascertain students' beliefs and attitudes toward each method.

The subjects involved in this study were 95 enrolled in three sections of a curriculum course in the college of education at a metropolitan university. Depending on the number of students enrolled in each class, the small groups ranged in size from nine to 12 members. A total of 33 subjects were assigned to the cooperative learning condition, 30 to the lecture condition, and 32 to the programmed learning condition.

At the conclusion of the study, a post-test was administered along with a questionnaire that assessed students' attitudes and perceptions

about the learning experience. Results indicated that 6% in the cooperative learning treatment perceived their learning 'at a high level of mastery'. More students in the cooperative learning group rated the learning 'satisfactory' (84%) than either the lecture (60%) or the programmed instruction groups (62%). Consequently, most students in the cooperative (90%) and lecture (97%) treatments perceived their achievement either at a 'high level of mastery' or 'satisfactory'. A significant number of students in the programmed instruction group rated their achievement as 'less than satisfactory level of mastery' (28%) or 'did not learn the information' (3%).

Phipps, Phipps, Kask, & Higgins (2001) investigated university students' perceptions of cooperative learning techniques and their perceptions of cooperative learning as a motivator to studying and whether it was effective for their learning. In order to achieve this aim, a written questionnaire was designed to measure the students' perceptions of five basic elements of cooperative learning: positive interdependence, individual accountability, interpersonal skills, small-group skills and group processing. 210 freshman, sophomore, junior university students, male and female, from four different disciplines completed the questionnaire. Results showed that the students' perceptions of the individual cooperative learning techniques were favorable. Mean scores on the Likert Scale exceeded 'somewhat effective' reflecting most perceptions to be the range of effective and very effective. Results also showed that their perceptions of effectiveness were higher for techniques in the individual accountability, interpersonal small-group skills, and group processing elements, but were slightly lower in the face-to-face interaction and positive interdependence techniques.

It is apparent to the reader that the studies, which were conducted by Vermette & Erickson (1995), Kromrey & Purdom (1995), and Phipps et al. (2001), focused on the students' perceptions of specific strategies, methods and techniques. It is also clearly seen that only Phipps and his colleagues elicited the students' views about the instructor's role. Moreover, none of these studies assessed students' attitudes and perceptions about group size and characteristics of group members. This limit of focus and this lack of emphasis encouraged the researcher to conduct this study in order to fill a gap in the literature associated with cooperative learning.

Aims of the study:

This study aims at investigating the attitudes of English, Arabic, Science, and Math field student teachers (FSTs) toward the cooperative learning processes that take place during the teaching session. That is, the study aims to explore their attitudes toward four dimensions related to cooperative learning. These dimensions are associated with the benefits of cooperative learning, the instructor's role, the characteristics of group members and group size.

The study attempts to answer the following questions:

- (1) Are there any statistically significant differences between English and Arabic FSTs' attitudes concerning each of the four dimensions stated above and in terms of them in general?
- (2) Are there any statistically significant differences between Science and Math FSTs' attitudes in respect of each of the four dimensions and with regard to all in general?
- (3) Are there any statistically significant differences between English and Science FSTs' attitudes?
- (4) Are there any statistically significant differences between English and Math FSTs' attitudes?
- (5) Are there any statistically significant differences between Arabic and Science FSTs' attitudes?
- (6) Are there any statistically significant differences between Arabic and Math FSTs' attitudes?
- (7) Are there any statistically significant differences between the attitudes of the humanistic and scientific FSTs?

Seven major null hypotheses have been derived from these questions. The hypotheses are:

- (1) There are no statistically significant differences between English and Arabic FSTs' attitudes in connection with each of the four dimensions and regarding all in general.
- (2) There are no statistically significant differences between Science and Math FSTs' attitudes in respect of the same dimensions.

- (3) There are no statistically significant differences between English and Science FSTs' attitudes.
- (4) There are no statistically significant differences between English and Math FSTs' attitudes.
- (5) There are no statistically significant differences between Arabic and Science FSTs' attitudes.
- (6) There are no statistically significant differences between Arabic and Math FSTs' attitudes.
- (7) There are no statistically significant differences between the humanistic and scientific FSTs attitudes.

Importance of the study:

The importance of this study lies in the value of the domain, under investigation, and in the educational level of the subjects chosen for the purposes of the study. That is, the study attempts to explore university students' attitudes toward cooperative learning and its impact, the instructor's role, the characteristics of group members, and group size and its influence on the students' contributions during group work. The importance of this study also lies in its theoretical and practical values. It has been found that a few studies were conducted in higher education concerning university students' attitudes toward cooperative learning (Slavin, 1995; Slavin & Cooper, 1999). With regard to practice, the study may benefit all those who are interested in the methodology of teaching university students, in general, and those concerned with teaching English, Arabic, Science and Math, in particular.

Further, the study may complement the role the university questionnaire plays in assessing students' attitudes toward the instructor's performance and the methods or techniques that s/he uses in the teaching session. It is worth mentioning, in this regard, that this questionnaire includes only four items, which are related to the instructor's methodology of teaching and the effects of this methodology on the students.

Definition of terms

Field student teachers (FSTs):

The students who are studying in the Faculty of Education-Hashemite University four specialized subject areas: methods of teaching English, methods of teaching Arabic, methods of teaching Science and methods of teaching Math.

Pedagogic dimensions:

They are: (1) Cooperative learning benefits (2) The instructor's role (3) Characteristics of group members and (4) Group size

Cooperative learning: Refers to the methods and/or techniques (e.g., group-work, pair-work, discussion groups) emphasized by the instructors of methodology of teaching, in which the students can exchange ideas, brain storm each other and express their minds freely.

Benefits: The influence of cooperative learning on the student in terms of his or her way of thinking, academic achievement, feelings toward learning and the subject area, retention of information, initiation, responsibility, ability of negotiation, freedom of expression and social relationships with colleagues. These influences are major components of the first dimension (i.e., Cooperative learning: Effects) in the questionnaire.

The instructor's role: The efforts made by the instructor to make cooperative learning successful. That is, whether s/he taught them in advance, the necessary techniques through which the students could manage conflicts, make decisions, build up leadership features, develop social skills and evaluate their own performance. These techniques are the main elements of the second dimension (i.e., the instructor's role).

Characteristics of group members: Refers to group members' motivation, seriousness and skill of managing disagreement. It also refers to the extent to which group members vary according to their achievement levels. These characteristics represent the constituent parts of the third dimension (i.e., Characteristics of group members).

Group size: Refers to the number of students involved in each group. Preston (1989), for example, remarks that the smaller the group, the better it will perform and fewer students will be ignored. Group size represents the fourth dimension.

Limitations of the study:

The present study uses only one research instrument, which is the questionnaire. It has not, for example, used the interview as a tool, which could support the results obtained from this questionnaire. It has not also used classroom observation in order to get more authentic data, which often help triangulate results in general.

Procedures of the study:

Sample:

The sample of the study consists of 150 FSTs in the Faculty of Education, who completed the two courses: Methods (1) and Methods (2) in the four specialized subject areas. This sample represents 73.8 % of the total number of FSTs (N=203). Only 12.66% of the sample is males, whereas 87.33% are females. The table below shows the areas with the number of students involved in each area, sex and the university level.

Table (1)

Area	No. of students	Sex		Level	
		Male	Female	Third year	Fourth year
English	37	3	34	5	32
Arabic	39	5	34	3	36
Science	37	4	33	3	34
Math	37	7	30	4	33
Total	150	19	131	15	135

The students in each subject area were chosen randomly from the files that are normally kept by their academic supervisors. The computer slips also helped in this regard.

Research instrument:

The present study uses the descriptive method of research. The research instrument, employed to achieve the aim of this method, is a questionnaire, through which the students' attitudes toward the effects of cooperative learning, the instructor's role, the characteristics of group members and group size and its effects are explored. The questionnaire was developed from the international literature related to cooperative learning. After drafting the questionnaire in English, it was translated into Arabic in order to be administered to Science, Math and Arabic FSTs. Then, the two drafts were offered to a group of experienced professors in the Department of Educational Psychology and the Department of Curricula and Instruction. The aim was to ascertain whether they are appropriate for measuring what is intended to measure, and to elicit their viewpoints about the clarity of its items and if each suits measuring the dimension related to it. The comments were taken into consideration, and the tool was modified accordingly.

In order to find out the reliability factor of the questionnaire, the Test-Retest was employed on 30 of the sample students chosen from the population of the study. The reliability of 0.81 was reached.

The final draft of the questionnaire included 31 items of which 13 items were designated to cooperative learning, 9 to the instructor's role, 5 to characteristics of group members and 4 to group size. These items had four alternatives (strongly agree, agree, disagree and strongly disagree) in order for the students to read them carefully and put a tick (next to each and under the alternative, which represents their attitudes toward it.

The questionnaires were handed to the students through their academic supervisors. The percentage of the questionnaires returned was 95%, that is, 7 questionnaires were not returned from the 150 administered to students. As soon as the questionnaires were received, the data were transcribed for the need of statistical analysis. The reliability coefficient for the questionnaire was calculated through Cronbach Alpha. It was found to be .79.

Statistical procedures:

This study used descriptive statistics in the data analysis. They are the means, standard deviation and the t-test with 2-tailed significance in order to examine whether there are statistically significant differences between students' attitudes.

Results of the study:

The researcher used the SPSS package for educational studies in order to analyze the data collected from the study sample. The tables below show the presentation of the main results in order to accept or reject the study hypotheses. These results will be examined at the standard of $\alpha = .050$.

Table (2)
The mean (M), the Standard Deviation (SD), the T-value and the 2-tailed sig. of the four dimensions for English and Arabic FSTs.

Field Dimension	English FSTs		Arabic FSTs		T-value	2-Tailed Sig.
	M	SD	M	SD		
Cooperative learning: Effects	3.30	.218	3.16	.252	2.74	.008
Instructor's role	2.79	.265	2.74	.282	.80	.425
Charac. Of group members	2.98	.351	3.17	.439	-2.05	.044
Group size and its effects	2.51	.332	2.57	.295	-.83	.412
In general	3.00	.182	2.96	.152	1.03	.305

Table No. (2) shows that there are statistically significant differences between English and Arabic FSTs' attitudes concerning the first and third dimensions. The differences related to the first dimension are in favor of English FSTs; whereas those related to the third are in favor of Arabic FSTs. It also shows no statistically significant differences between the students' attitudes in terms of the second and fourth dimensions. Moreover, the table shows no statistically significant differences between their responses with regard to the four dimensions, in general.

Table (3)
The mean (M), the Standard Deviation (SD), the T-value and the 2-tailed sig. of the four dimensions for Science and Math FSTs

Field Dimension	Science FSTs		Math FSTs		T-value	2-Tailed Sig.
	M	SD	M	SD		
Cooperative learning: Effects	2.80	.198	3.18	.216	-7.20	.000
Instructor's role	2.83	.191	3.12	.256	-5.13	.000
Charac. Of group members	3.24	.285	3.28	.304	-.59	.559
Group size and its effects	2.62	.360	2.70	.454	.93	.356
In general	2.87	.135	3.10	.138	-6.86	.000

The table above indicates that there are statistically significant differences between Science and Math FSTs' attitudes in terms of the first and second dimensions. These differences are in favor of Math FSTs. It also indicates no statistically significant differences between the students' attitudes in respect to the third and fourth dimensions. In addition, the table shows statistically significant differences between their responses regarding the four dimensions, in general. The differences are in favor of Math FSTs.

Table (4)
The mean (M), the Standard Deviation (SD), the T-value and the 2-tailed sig. of the four dimensions for English and Science FSTs

Field Dimension	English FSTs		Science FSTs		T-value	2-Tailed Sig.
	M	SD	M	SD		
Cooperative learning: Effects	3.30	.218	2.80	.198	9.89	.000
Instructor's role	2.79	.265	2.83	.191	-.67	.504
Charac. Of group members	2.98	.351	3.24	.285	-3.26	.002
Group size and its effects	2.51	.332	2.71	.360	-2.36	.021
In general	2.87	.182	3.00	.135	3.40	.001

Table No. (4) shows that there are statistically significant differences between English and Science FSTs' attitudes respecting the first, third and fourth dimensions. The differences related to the first dimension are in favor of English FSTs, whereas those associated with the third and fourth are in favor of Science FSTs. It also shows no statistically significant differences between the students' responses in terms of the second dimension. Furthermore, the table shows statistically significant differences between their responses with regard to the four dimensions. These differences are in favor of Science FSTs.

Table (5)

The mean (M), the Standard Deviation (SD), the T-value and the 2-tailed sig. of the Four dimensions for English and Math FSTs

Field Dimension	English FSTs		Math FSTs		T-value	2-Tailed Sig.
	M	SD	M	SD		
Cooperative learning: Benefits	3.30	.218	3.18	.216	2.32	.023
Instructor's role	2.79	.265	3.12	.3119	-5.05	.000
Char. of group members	2.98	.351	3.2	.304	-3.61	.001
Group size and its effects	2.51	.332	2.62	.454	-1.05	.299
In general	3.00	.182	3.10	.138	-2.55	.041

Table No. (5) indicates that there are statistically significant differences between English and Math FSTs' attitudes concerning the first three dimensions. The differences associated with the first dimension are in favor of English FSTs, whereas those related to the second and third dimensions are in favor of Math FSTs. It also indicates no significant differences between the students' attitudes in terms of the second dimension. Besides, the table shows significant differences between their responses in relation to the four dimensions, in general. These differences are in favor of Math FSTs.

Table (6)
The mean (M), the Standard Deviation (SD), the T-value and the 2-tailed sig. of the four dimensions for Arabic and Science FSTs

Field Dimension	Arabic FSTs		Science FSTs		T-value	2-Tailed Sig.
	M	SD	M	SD		
Cooperative learning: Effects	3.16	.252	2.80	.198	6.69	.000
Instructor's role	2.74	.282	2.83	.191	-1.54	.127
Charac. Of group members	3.17	.439	3.24	.285	-.77	.443
Group size and its effects	2.57	.295	2.71	.360	-1.89	.063
In general	2.96	.152	2.87	.135	2.83	.006

Table No. (6) shows that there are statistically significant differences between Arabic and Science FSTs' attitudes in respect to the first dimension. The differences are in favor of Arabic FSTs. It also shows no significant differences between their attitudes as regards the second, third and fourth dimensions and concerning the four dimensions, in general.

Table (7)
The mean (M), the Standard Deviation (SD), the T-value and the 2-tailed sig. of the four dimensions for Arabic and Math FSTs

Field Dimension	Arabic FSTs		Math FSTs		T-value	2-Tailed Sig.
	M	SD	M	SD		
Cooperative learning: Effects	3.16	.252	3.18	.216	-.38	.705
Instructor's role	2.74	.282	3.12	.256	-5.01	.000
Charac. Of group members	3.17	.439	3.28	.280	-1.21	.232
Group size and its effects	2.57	.295	2.62	.454	-.51	.608
In general	2.96	.152	3.10	.138	-4.11	.000

Table No. (7) shows that there are no statistically significant differences between Arabic and Math FSTs' attitudes in respect to the

first, third and fourth dimensions. It also shows statistically significant differences between the students' attitudes with regard to the second dimension. These differences are in favor of Math FSTs. Further, the table shows statistically significant differences between their responses regarding the four dimensions, in general. These differences are on the side of Math FSTs.

Table (8)

The mean (M), the Standard Deviation (SD), the T-value and the 2-tailed sig. of the four dimensions for the humanistic and scientific FSTs

Field Dimension	Hum. FSTs		Scient. FSTs		T-value	2-Tailed Sig.
	M	SD	M	SD		
Cooperative learning: Effects	3.22	.248	2.98	.279	5.43	.000
Instructor's role	2.76	.274	2.97	.266	-4.47	.000
Charac. Of group members	3.09	.411	3.26	.293	-2.77	.006
Group size and its effects	2.55	.311	2.67	.407	-2.00	.048
In general	2.98	.166	2.98	.180	-.05	.958

Table No. (8) shows that there are statistically significant differences between the humanistic and scientific FSTs' attitudes in connection with each of the four dimensions. The differences, related to the first dimension, are in favor of the humanistic FSTs; whereas those associated with second, third and fourth dimensions are in support of the scientific FSTs. Nevertheless, the students' responses show that there are no statistically significant differences between them, in general.

Discussion of the results:

The study results, as table (2) indicates, show statistically significant differences between English and Arabic FSTs' attitudes in terms of the first and third dimensions. That is, English FSTs show more satisfaction with the first dimension, whereas Arabic FSTs show more satisfaction with the third. This indicates that English FSTs regard cooperative learning more beneficial attitudinally, mentally, socially, skillfully,

academically and personally. This also indicates that Arabic FSTs consider their colleagues in the group(s) more motivated, serious, various and skillful in managing disagreement.

English FSTs' showed more satisfaction with the benefits of cooperative learning in accordance two of the results found by Kromrey & Purdom (1995), which indicate that 84% of the students rated their learning 'satisfactory' and 90% perceived their achievement either at a 'high level of mastery' or 'satisfactory'. English FSTs' satisfaction, in this regard, may be ascribed to the students' being given sufficient opportunities to work together to the extent that they considered cooperative learning more beneficial. The characteristics of group members regarded by Arabic FSTs more positive have been referred to by Johnson et al. (1998b), who remarked that when students are motivated and serious and skillful enough, they may achieve their learning goals more easily.

Results also show no statistically significant differences between the students' responses as regards the instructor's role and group size. This denotes that the instructors of the two subject areas, in the view of the students, made the same efforts in the teaching session. This also denotes that the students consider group size similar and it has the same effects on group members' contributions. The instructor's role in enabling students to cooperate effectively is regarded as central in the teaching process (Johnson & Johnson, 1989; Steiner et al., 1999). Group size is also considered to be important in the students' contribution during group work (Bodner & Metz, 1997).

Further, the results show no statistically significant differences between the students' responses with regard to the four dimensions, in general. This indicates that English and Arabic FSTs lived under similar circumstances in the teaching session. In other words, both used the same strategy *cooperative learning* and received education from instructors, who made similar efforts in the teaching session.

Study results, as table (3) indicates, show statistically significant differences between Science and Math FSTs' responses in connection with the first and second dimensions. These differences are in favor of Math FSTs. That is, they are more satisfied than Science FSTs with the benefits they obtained from cooperative learning and with the instructor's role. Math FSTs' satisfaction with the benefit of cooperative

learning agrees with the results Phipps et al. (2001) found in their study. These results showed that students' perceptions of cooperative learning were favorable.

Math FSTs' attitudes toward this dimension have two possible reasons. One can be referred to the second dimension and the other can be inferred. In other words, the benefits they obtained from cooperative learning might have come from the efforts made by the instructor in making cooperative learning successful. He might have given the students enough chances to work together cooperatively. These benefits might also have come from the nature of the subject matter *Math*, whose content often requires the students to ask each other about the minute details in order to arrive at the correct answer.

Results also show no statistically significant differences between Science and Math FSTs' responses concerning the third and fourth dimensions. That is, they have similar (or relatively similar) attitudes toward group size and toward the characteristics of group members in terms of motivation, seriousness, etc. Group size is considered to be an important prerequisite for effective communication among the students (Bodner & Metz, 1997), and the students' features during group work are regarded as essential factors in making cooperative learning a success (Slavin, 1990).

Furthermore, the results show statistically significant differences between Science and Math FSTs' responses in connection with the four dimensions, in general. These differences are in favor of Math FSTs. We think that there are two possible reasons for Math FSTs' more satisfaction with these dimensions. First, they are more satisfied with the instructor's role and the benefits of cooperative learning. Second, the nature of the subject area, as is stated above, requires the students to work cooperatively and to ask each other constantly about the minute details in order to arrive at the correct answer.

Study results, as table (4) indicates, show statistically significant differences between English and Science FSTs' attitudes in regard to the first, third and fourth dimensions. We find that English FSTs show more satisfaction with the attitudinal, mental, social and academic returns of cooperative learning, while Science FSTs show more satisfaction with the characteristics of group members and group size. English FSTs' more satisfaction with the returns of cooperative learning agrees

with the results Vermette & Erickson (1996) came to in their study particularly that related to the direct opportunities students had for engagement while implementing the cooperative strategy 'dialogue'. Students' motivation, seriousness, and variety are regarded essential elements in improving their practices in the teaching session (Johnson et al., 1991).

English FSTs' satisfaction with the benefits of cooperative learning may mean that they might have been given sufficient chances to work together although group members are not, in their view, serious, motivated, and different and group size does not allow all the students to participate. In addition, Science FSTs' satisfaction with group size and with the characteristics of group members might not have been sufficiently helpful to consider the returns of cooperative learning as beneficial.

Further, the results show no statistically significant differences between the students' attitudes concerning the instructor's role. This indicates that the instructors of the two subject areas made similar efforts in the teaching session. The instructor's role in teaching and explaining certain techniques and skills in advance or during group work is considered to be necessary for making cooperative learning a success (Steiner et al., 1999; Johnson & Johnson, 1993).

Moreover, the results show statistically significant differences between the students' responses concerning the four dimensions, in general. They are in favor of Science FSTs. It seems that group size, the characteristics of group members and the nature of the content of this subject area, which includes activities that demand making experiments, have affected their attitudes, in this regard.

Study results, as table (5) indicates, show statistically significant differences between English and Math FSTs' attitudes in respect to the first three dimensions. We find that English FSTs are more satisfied with the attitudinal, mental and social benefits of cooperative learning, while Math FSTs are more satisfied with the instructor's role and with the characteristics of group members. English FSTs' satisfaction with the benefits of cooperative learning agrees with what, for example, Nastasi & Clements, 1991, Gabbert et al., 1996 and Slavin, 1990 remarked to regarding the benefits learners obtain from cooperative learning. Math FSTs' satisfaction with the instructor's role agrees with

one of the results Vermette & Erickson (1996) found in their study. Vermette & Erickson found that the instructors were able to offer explanations and to assess the development of knowledge.

English FSTs' more satisfaction with the benefits they obtained from cooperative learning can, again, be referred to the sufficient chances that might have been given to them to work cooperatively. The instructor, who played, in their view, fewer roles in teaching certain techniques in advance might have supported these chances. In addition, Math FSTs' satisfaction with the instructor and with the seriousness, motivation and skill of group members might not have played a satisfactory role in making cooperative learning more beneficial to them.

The results also show no statistically significant differences between the students' attitudes in terms of group size and its effects. This indicates that the students share similar group sizes, and group size, in general, has the same effects on them in terms of contribution. Preston (1989) stated that it is better to divide the class into small groups so that each student can contribute to the class activity more successfully.

In addition, the results show statistically significant differences between the students' attitudes with regard to four dimensions, in general. These differences are in favor of Math FSTs. The reason, again, may be associated with the nature of the content of the subject area, which requires cooperation and questioning on the part of the students. The reason may also be associated with their having more satisfaction with the instructor's efforts, with the seriousness, motivation and skill of group members and with group size.

The study results, as table No. (6) indicates, show statistically significant differences between Arabic and Science FSTs' attitudes respecting the first dimension. These differences are on the side of Arabic FSTs. That is, they are more satisfied than their counterparts with the benefits of cooperative learning.

Arabic FSTs' more satisfaction with these benefits agrees with some of the results Kromrey & Purdom (1995) & Phipp et al. (2001) found in their studies. It also agrees with what, for example, Johnson et al., (1991a) and Aronson & Patnoe, (1997) state apropos of the benefits of cooperative learning.

The results also show no statistically significant differences between

the students' attitudes regarding the second, third and fourth dimensions. That is, the instructor's effort, group size and the motivation; seriousness, variety and skill of group members are similar, in their view. This may indicate that they did not play a major role particularly that associated with the instructor in making cooperative learning more or less beneficial. However, the instructor's role, the characteristics of group members and Group size are considered by research to be essential elements in cooperative learning (See, for example, Johnson & Johnson, 1989; Johnson et al., 1998b and Bodner & Metz, 1997)

Further, the results show no statistically significant differences between the students' attitudes concerning the four dimensions, in general. The reason can be referred to the similar roles the instructors played in the teaching session, to the similar characteristics of group members in the two subject area classes and to the similar group size and its impact on group members' contributions.

The study results, as table No. (7) indicates, show no statistically significant differences between Arabic and Math FSTs' responses in respect to the first, third and fourth dimensions. Both have similar attitudes toward cooperative learning in terms of benefit, the characteristics of group members and toward group size and its effects on the contributions of group members.

Study results also show statistically significant differences between their responses with regard to the instructor's role. They are in favor of Math FSTs. This indicates that the instructor, in their view, made more efforts in teaching certain skills (e.g., social skills) and in explaining how conflicts could be managed, how decisions could be made, how leader features could be built up and how performance could be evaluated. The instructor might have used the resources needed for cooperative learning. Math FSTs' satisfaction with the instructor's role agrees, again, with one of the results Vermette & Erickson, 1996 found in their study.

Moreover, the results show no statistically significant differences between the students' responses in the four dimensions, on the whole. The reason may be referred to the similar characteristics of group members, to the similar group size and to the similar benefits the students obtained from cooperative learning, as a whole.

The study results, as table No. (8) indicates, show statistically significant differences between the humanistic and scientific FSTs' attitudes in connection with each of the four dimensions. We find that the humanistic FSTs are more satisfied with the first dimension (cooperative learning: benefits), whereas scientific FSTs are more satisfied with the remaining three (i.e., the instructor's role, characteristics of group members and group size). The benefits of cooperative learning, which the humanistic FSTs obtained, in their view, have been underlined by several researchers, such as Johnson & Johnson, 1981 and Slavin & Cooper, 1999. Further, the importance of the instructor's role, group member characteristics and group size, which the scientific FSTs are more satisfied with, have been explored by researchers, such as Vermette & Erickson (1996), Goodwin (1999) and Johnson et al., (1998b) and Bodner & Metz, (1997).

The humanistic FSTs' satisfaction with the benefits they obtained from cooperative learning could mean that they had been given enough chances and sufficient time to work together cooperatively. This may be supported by their less satisfaction with the instructor's role. That is, their attitude towards this role might not be put down to the instructor's failure to do this part well, but s/he might not have spent much time on teaching skills and explaining cooperative techniques. Further, Science FSTs' more satisfaction with the instructor's role, with the motivation, seriousness, variety and skill of group members and with group size might not have made cooperative learning beneficial to them. In other words, the instructor, for example, might have spent much time on making explanation and teaching skills. This might have deprived the students of working cooperatively, regardless of how many students each group had and regardless of the students' motivation, seriousness, variety and skill.

And finally, the study results show no statistically significant differences between the students' attitudes respecting the four dimensions, in general. Both the humanistic and scientific FSTs have similar attitudes toward the process of cooperative learning, as a whole, and toward the factors that often help to make it more effective.

Conclusion and Implications:

The present study shows the following results:

- There are no significant differences between English and Arabic FSTs' attitudes regarding the four dimensions in general. But there are significant differences between their attitudes in terms of the first and third dimensions. That is, English FSTs show more satisfaction with the benefits of cooperative learning, whereas Arabic FSTs show more satisfaction with the characteristics of group members. In addition, both reveal similar satisfaction with the instructor's role and with group size and its effects.
- There are significant differences between Science and Math FSTs' attitudes concerning the four dimensions in general and concerning the first and second in individual. They are in favor of Math FSTs. This indicates that Math FSTs are more satisfied with the strategy as a whole, particularly that related to its benefits and the instructor's role. However, both reveal similar satisfaction with the characteristics of group members and with group size and its effects.
- There are significant differences between English and Science FSTs' responses in regard to the four dimensions in general and in terms of the first, third and fourth, in particular. In respect to the four dimensions, altogether, we find that Science FSTs show more satisfaction with them. With regard to them, in individual, we find that English FSTs show more satisfaction with the first dimension, whereas Science FSTs show more satisfaction with the third and fourth. However, both reveal similar satisfaction with the efforts made by the instructors.
- There are significant differences between English and Math FSTs' attitudes with regard to the four dimensions in general and concerning the first three. With regard to the four dimensions in general we find that Math FSTs show more satisfaction with them. In respect to the first three, we find that English FSTs show more satisfaction with the first, whereas Math FSTs show more satisfaction with the latter two. Moreover, both reveal similar satisfaction with group size and its effects.

- There are no significant differences between Arabic and Science FSTs' responses in terms of the four dimensions in general and in respect to the second, third and fourth. But there are significant differences between these responses regarding the first dimension. They are in favor of Arabic FSTs.
- There are no significant differences between Arabic and Math FSTs' attitudes with regard to the four dimensions in general and with regard to the first, third and fourth. But there are significant differences between these attitudes concerning the instructor's role. They are in favor of Math FSTs.
- There are no significant differences between the humanistic and scientific FSTs' attitudes in terms of the four dimensions in general. But there are significant differences between their attitudes concerning each of these dimensions. We find that the humanistic FSTs shows more satisfaction with the first dimension, whereas the scientific show more satisfaction with the second, third and fourth.

In light of these results, the researcher implies the following:

- It is necessary for the instructors of the humanistic subject areas (English and Arabic) to give their students enough opportunities to be cooperative so that they can get more benefits from cooperative learning.
- It is necessary for the instructors of the scientific subjects (Science and Math) to play a better role in activating the role of group members and in choosing appropriate group sizes.
- It is necessary for the researchers interested in cooperative learning to conduct further research studies in higher education, using another research instrument or using more than one so that the results can support each other.

اتجاهات طلبة معلم المجال نحو بعض أبعاد التعلم التعاوني في الجامعة الهاشمية

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ملخص

تهدف هذه الدراسة إلى استقصاء اتجاهات طلبة معلم مجال اللغة الإنجليزية واللغة العربية ومعلم مجال العلوم والرياضيات نحو عمليات التعلم التعاوني التي تحدث خلال الجلسة التعليمية. وبشكل خاص، فإن هذه الدراسة تهدف إلى استقصاء اتجاهاتهم نحو أربعة مجالات مرتبطة بالتعلم التعاوني. والمجالات هي: (١) التعلم التعاوني من حيث الفائدة (٢) دور المدرس (٣) خصائص أفراد المجموعة (٤) حجم العينة.

تكونت عينة الدراسة من ١٥٠ طالباً وطالبة من تخصص معلم مجال في مواد اللغة الإنجليزية واللغة العربية والعلوم والرياضيات، بواقع (٣٧) طالباً وطالبة، و(٣٩) طالباً وطالبة، و(٣٧) طالباً وطالبة، و(٣٧) طالباً وطالبة، وكانت الاستبانة أداة البحث المستخدمة، واشتقت عناصر هذه الأداة من الأدب المتعلق بالتعلم التعاوني.

أشارت نتائج الدراسة إلى عدم وجود فروق جوهرية بين اتجاهات طلبة مجال المواد الإنسانية (إنجليزي، عربي) وطلبة مجال المواد العلمية (علوم، رياضيات) نحو الأبعاد الأربعة بشكل عام، في حين أشارت هذه النتائج إلى وجود فروق جوهرية بين اتجاهاتهم نحو كل من هذه الأبعاد، إذ وجد أن طلبة مجال المواد الإنسانية أكثر قناعة بالبعد الأول، في حين وجد أن طلبة مجال المواد العلمية أكثر قناعة بالأبعاد الثاني والثالث والرابع.

وأشارت النتائج أيضاً إلى عدم وجود فروق جوهرية بين اتجاهات طلبة معلم مجال اللغة الإنجليزية واللغة العربية، وبين طلبة مجال اللغة العربية والعلوم نحو الأبعاد الأربعة بشكل عام، وأشارت النتائج إلى وجود فروق جوهرية بين اتجاهات طلبة مجال (العلوم والرياضيات)، وطلبة مجال (اللغة الإنجليزية والرياضيات)، وطلبة مجال (اللغة الإنجليزية والعلوم) نحو هذه الأبعاد.

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بسم الله الرحمن الرحيم

An Attitudinal Scale on Cooperative learning

Dear Student:

You know that Methods (1) and Methods (2), in your specialized area, are important subjects because they are relevant to your future career teaching. These subjects, particularly the latter, normally incline to the practical aspect of teaching rather than to the theoretical one. That is, the instructor has to emphasize the methods or techniques used with the pupils in the classroom and apply them in the teaching session. One of the important techniques, which are focused on by the instructor, is that related to cooperative learning. Therefore, you are now requested to express your mind toward its influence upon you in terms of attitude, personality, achievement, initiation and relationships with colleagues. You are also requested to reveal your viewpoint toward the instructors role, group members responses during group work and group size.

Please, keep in mind that the information you provide will be kept secretly and will be used only for research purposes. So, try as much as possible to be frank and precise.

Required data

- Sex: (a) Male (b) Female
- Specialization: (a) English language field teacher.
(b) Arabic language field teacher.
(c) Science field teacher.
(d) Math field teacher.
- Level: (a) Third year. (b) Fourth year.

Dear student:

In this questionnaire, you have 31 items with four alternatives (Strongly agree, Agree, Disagree, and Strongly disagree). Read all of

them carefully and put a tick (✓) next to each and under the alternative, which represents your attitude toward it. Please, try not to miss any of the items below.

Example:

Item	Strongly agree	Agree	Disagree	Strongly disagree
Cooperative learning improved my achievement.		✓		

**Thank you in advance
Please, turn the page**

The researcher

Item	Strongly agree	Agree	Disagree	Strongly disagree
1. Cooperative learning made me more responsible for my learning.				
2. Cooperative learning made me less responsible for the groups learning.				
3. Cooperative learning encouraged me to be more helpful in solving problems.				
4. Cooperative learning did not help me to Compromise answers with group members.				
5. Cooperative learning allowed me to demonstrate mastery of the teaching material.				
6. Cooperative learning did not improve my academic achievement.				
7. Cooperative learning made me have more positive feelings toward the subject area.				
8. Cooperative learning made me have negative feelings about learning in general.				
9. Cooperative learning encouraged me to think more critically.				
10. Cooperative learning did not help me to retain the ideas negotiated among the students.				
11. Cooperative learning motivated me to search for more powerful concepts.				
12. Cooperative learning encouraged me to express my mind more freely.				

Item	Strongly agree	Agree	Disagree	Strongly disagree
13. Cooperative learning did not develop my relationships with colleagues.				
14. The instructor taught students in advance small-group and interpersonal skills (i.e., social skills).				
15. The instructor did not teach students how conflicts could be managed.				
16. The instructor taught students how decisions could be made.				
17. The instructor did not teach students how leadership features could be built up.				
18. The instructor encouraged students to teach what they learned to groupmates.				
19. The instructor did not ensure that each group members could evaluate their performance.				
20. The instructor allowed group members to discuss how they could work together as a group.				
21. The instructor inclined to detailed explanations of ideas.				
22. The instructor used the resources needed for cooperative learning.				
23. Group members had no motivation to teach what they know to groupmates.				
24. Group members were varied according to their achievement levels (high-, medium-, and low-achievers were involved).				

Item	Strongly agree	Agree	Disagree	Strongly disagree
25. Group members worked together seriously to achieve learning goals.				
26. Group members roles, in general, were not activated.				
27. Group members managed disagreement skillfully.				
28. The groups that I worked with were small (3 to 5 students per group).				
29. The groups that I worked with were large (more than 7 students per group).				
30. One member of each group dominated the others.				
31. One or more members contributions in each group was ignored.				