

A COMPARATIVE STUDY OF THE DIFFICULTIES OF APPLYING COOPERATIVE LEARNING METHOD AT THE SCIENTIFIC LABORATORIES BETWEEN SORAN UNIVERSITY AND SALAHADIN UNIVERSITY FROM LECTURERS' VIEW POINT

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ABSTRACT

The purpose of the study was to investigate the difficulties of applying cooperative learning at the scientific laboratories at Soran University and Salahadin University from lecturers view point and compare them. The population of the study was consisted of faculties of Education and Science lecturers at Soran University and colleges of Basic Education and Science lecturers at Salahadin University, for the academic year 2019-2020, They were (296) lecturers, the sample was purposive and presenting %51.6 of the population. The researcher constructed a questionnaire consisted of (47) paragraphs to detect and measure the difficulties encountered by teachers while using cooperative learning in the laboratories. The results of the study showed the difficulties encountered by the lecturers while implementing cooperative learning at the scientific laboratories. The total results showed that Soran University has more difficulties than Salahadin University, and Significant differences were found due to the gender: Soran University male lecture has more difficulties than salahadin university male lecturers, Also Soran University female lecturers has more difficulties than Salahadin University University female lecturers. In the other side The most difficulty at Soran University was the curricula which is not designed well to cooperative learning, while the most difficulty at salahadin University was the large number of students at the scientific laboratories.

KEYWORDS: Cooperative Learning, Scientific Laboratories, The Difficulties of Cooperative Learning and Laboratory Lecturers.

1. INTRODUCTION

Learning is widely recognized as a pedagogical practice that promotes socialization and learning among students across different subject fields. It involves students working together to achieve common goals or complete group tasks – goals and tasks that they would be unable to complete by themselves (Gillies, 2016).

The teaching style of cooperative learning is affected by cognitive theory and it is highly student-centered (Robinson, 1995) stated that “lecturer conceives self as flexible, permissive, interested in stimulating discussion and seeing other grow” . (Lightbown & Spada, 1993) also stated the lecturers should more carefully design what students need to learn before they apply those learning activities into their teaching. A lecturer in the cooperative learning plays a role as a supporter, facilitator, observer, change agent, and adviser. Lecturer’s role is to arrange the students in heterogeneous groups, to provide students with proper materials, and to design

structural systematic teaching strategy (Chen, 1999).

During the last decades science educators have tried to integrate the practice of “doing science” in an effective way in laboratories to facilitate student learning, retention, and effective use of scientific information (Díaz-Vázquez, et al., 2012).The laboratory has been given a central and distinctive role in science education, and science educators have suggested that there are rich benefits in learning from using laboratory activities.

Setting up a laboratory that utilizes the maximum of students’ participation in the inquiry process holds the greatest impact of modern science teaching. Science is accumulating a vast quantity of knowledge that grows at an alarming rate. All of science cannot be taught in a year. The inquiry approach necessitates less diversification of subject matter and more depth in investigation of specific scientific problems. The investigatory laboratory provides the modern science lecturer with an opportunity to stimulate and guide the students into patterns that a scientist might employ in

making a similar investigation. While some of the planning, organization, techniques and equipment may differ from the methods followed by a working scientist, the lecturer can find in the investigatory laboratory a dynamic setting for teaching science as inquiry. The various dimensions of science laboratory environment as perceived by the students and the actual laboratory environment include student cohesiveness, open-endedness, integration, rule clarity and material environment. Student cohesiveness is the extent to which students know, help and are supportive of one another. Open-endedness is the extent to which the laboratory activities emphasize an open-ended, divergent approach to experimentation. Integration is the extent to which the laboratory activities are integrated with non-laboratory and theory classes (Akinbobola, 2015). Cooperative learning improves students' thinking and helps them construct their own understanding of science content by strengthening and extending their knowledge of the topic. The sharing of ideas allows students to explore, refine, and question new ideas. Cooperative learning promotes student involvement and engagement. Research often shows that for true learning to occur, students must take responsibility for their own learning and not depend solely on the lecture. The use of cooperative learning supports this outcome and provides all students with public opportunities to make their thoughts visible to others by allowing them to talk about and consider their own ideas as well as those of others. Cooperative learning aids in the development of important communication skills and scientific thinking processes. Cooperative techniques provide the social settings in which lecturers can help students analyze their thinking processes and encourage all students to interact with their lecturers and peers in a way that is conducive to science learning (Lin, 2006). Based on the recommendations of researchers and practitioners in the field, on the importance of cooperative learning in the educational process, and the need to identify the most important difficulties encountered in the application of cooperative learning, this study attempts to investigate the difficulties of applying cooperative learning in scientific laboratories, and make a comparison between Soran University and Salahadin University.

2. THE PROBLEM OF THE STUDY

As a researchers assistant at the Faculty of Education/Soran University, I realized the problem of applying the cooperative method during my working in the laboratories with lecturers and academics. They have been facing problems and always encountered difficulties while they are applying cooperative learning method until now. I realized students does not understand equally. According to my interview with some lecturers they also confirmed the existence of the difficulties. Therefore, this study highlights their difficulties briefly and compare it with Salahadin University difficulties to know they have the same or different difficulties, and propose some solutions.

A study investigates whether instructor-formed heterogeneous groups produce a more effective cooperative learning environment than student self-selected groups by measuring individual academic performance and perceptions. Results indicate the presence of a treatment interaction, implying that the best group composition may not be the same for all students. In some circumstances, higher ability students had statistically higher performance in more homogeneous groups. Lower ability students did better (not significant) in heterogeneous groupings. The majority of students gave high ratings to the impact of Cooperative learning on learning and development of team skills. Students were only mildly interested in increasing the time spent in groups, indicating that they value both traditional teaching methods and CL (Smith & Spindleb, 2007).

3. OBJECTIVE OF THE STUDY

It is the objective of this study to:

1. Identify the difficulties of applying cooperative learning in the scientific laboratories from lecturers view point at Soran University and Salahadin University.
2. Identify the differences of the difficulties of applying cooperative learning in the scientific laboratories from lecturers view point according to the sex (Males and Females) between Soran University and Salahadin University.
3. Compare the total results of the difficulties of applying cooperative learning in the scientific laboratories from lecturers view point between Soran University and Salahadin University.

4. METHODOLOGY

4.1 STUDY SCOPE

- Spatial limit:

- Soran University: Faculty of education/ General science Department
- Soran University: Faculty of science/ Biology Department, Chemistry Department and Geology Department.
- Salahadin University: College of Basic Education / General Science Department
- Salahadin University: College of Science/ Biology Department, Chemistry Department, Physics Department, environment Department and Geology Department.

- Temporal limit:

- 2019-2020

- Human limit:

- Soran University:

Lecturers whom teach in laboratories at Faculty of Education/ General Science Department and lecturers whom teach in laboratories at Faculty of Science/ Departments of Biology, Chemistry, and Geology.

- Salahadin University:

Lecturers whom teach in laboratories at Basic Education College/ General Science Department and Lecturers whom teach in laboratories at Faculty of Science/ Departments of Biology, Chemistry, Physics, Enviroment, and Geology.

4.3 STUDY APPROACH

To achieve the objectives of the study, the researcher depended on the descriptive and analytical method in both theoretical and practical aspects. On the theoretical side, the researcher used the theoretical approach to look at references, sources and previous studies available in building the theoretical background on cooperative learning and the difficulties of applying it. As for the practical aspect, the researcher depends on analyzing the information and data statistically according to the answers of the study questions.

4.2 POPULATION AND SAMPLE OF THE STUDY

The population of the study for the academic year (2019-2020) consists of all the lecturers of :

- Soran university/ Faculty of Education/ General Science Department. They were (17) lecturers: (13) males and (4) females.
- Soran university/ Faculty of science/ Department of Biology, Chemistry, and Geology. They were (47) lecturers: (34) males and (13) females.
- Salahadin university/ College of Basic Education/ General Science Department. They were (21) lecturers: (7) males and (14) females.
- Salahadin university/ College of Science/ Department of Biology, Chemistry, Physics, Geology, and Enviroment. They were (211) lecturers: (122) males and (89) females.

Total population: (296) lecturers.

The sample of the study were (153) lecturers.

Table (1): Population and sample of the study at Soran University

Soran University				
	Faculties	Departments	Population	Sample
Males	Faculty of education	General science	13	9
	Faculty of science	Biology	34	27
		Chemistry		
		Geology		
Females	Faculty of education	General science	4	3
	Faculty of science	Biology	13	10
		Chemistry		
		Geology		

Table (2): Population and sample of the study at Salahaddin University

Salahaddin University				
	Colleges	Departments	Population	Sample
Males	Colleges of basic education	General science	7	5
	College of science	Biology	122	47
		Chemistry		
		Geology		
		Physics		
	Enviroment			
Females	College of basic education	General science	14	5
	College of science	Biology	89	47
		Chemistry		
		Geology		
		Physics		
	Enviroment			

4.4 STUDY TOOL

To achieve the objectives of the study, the researcher prepared a questionnaire to identify the difficulties of applying cooperative learning in scientific laboratories, directed to the lecturers of Soran University and Salahadin University. The questionnaire was prepared in its preliminary form before the arbitration consisting of (46) paragraphs. The formation of these paragraphs are depended on clarity of meaning, the integrity of the language and the simplicity of the expression. Each paragraph of the tool was given a weight as a five scale. To

estimate the degree of approval of the difficulty, they are always (5) and extremely (4) and sometimes (3) and a rarely (2) and never (1).

4.5 VALIDITY AND RELIABILITY OF THE STUDY TOOL

For the purpose of verifying the validity of the study tool, the following was done:

The initial questionnaire was presented to (8) experts and specialized with competence in the Soran University , Dohuk University and Sulaymaniyah University, to express their opinions on the tool in terms of:

- The extent to which the paragraphs belong to the scale;
- The extent of the clarity of the paragraphs and the integrity of their formation;
- Any adjustments they deem appropriate.

To verify the reliability of the questionnaire, the researcher distributed the questionnaire to (20)

lecturers from outside the study sample. Two weeks after the first application, the process was performed again and the T- test co-efficient was calculated between the two applications to extract the stability co-efficient.

Table (3): First and second application of the study

First application		Second application		Reliability degree	Significance
Arithmetic mean	Standard deviation	Arithmetic mean	Standard deviation		
7.45	1.13	7.26	0.98	0.83	0.001

Table (1) indicates the existence of a good correlation co-efficient between the first application and the second application of the arithmetic mean in the first application (7.45) and the second application of the arithmetic average (7.26). This is an indication of a very good co-efficient of stability between the two applications.

4.6 PROCEDURE

The study tool has been prepared in its final form, after verifying its reliability and stability by presenting it to the committee of specialized arbitrators in this field, in addition to applying it to a survey sample from outside the study sample, and using the appropriate statistical methods to extract significance of reliability and stability. After the preparation of the study tool in its final form, the study population was selected and the sample was chosen on purpose. An important facilitation book was obtained from Soran University. The researcher directed this book to Salahadin University to facilitate the task of the researcher, especially the application sample.

The questionnaire was distributed to the sample of the study, where I attached with each questionnaire the necessary instructions to answer them, knowing that the researcher personally interviewed several lecturers. She heard the suffering and complaints of many lecturers, and the many difficulties they face while they are using cooperative learning in scientific laboratories. She explained the purpose and importance of the study, the necessary information, and answered any questions that could be asked to reach accurate data from the study sample. Then, the questionnaire were collected after the lecturers completed the questionnaires, all (153) questionnaires were retrieved.

Finally, the data were collected, categorized and verified, validated for statistical analysis, and then inserted into the computer's memory, using the statistical analysis program (SPSS) to analyze the data and obtain the results, interpret them and make appropriate recommendations in the light of the study's findings of the results

5. RESULTS

- In response to the first research question: What are the difficulties of applying cooperative learning method at the scientific laboratories at Soran university in lecturers' view point?

learning in the scientific laboratories from lecturers view point at Soran University

Three top higher difficulties:

paragraph number (16) "Most curricula are not designed to cooperative learning", with the arithmetic mean (4.98) and standard deviation (2.14). This paragraph was the most difficulty at Soran University from lecturers' view point, as (Acosta and Slotta 2018) ensures that

"Emphasize the need for co-design in such approaches and curricula as the only viable means of ensuring that partner lecturers are fully aware of all designs, feel a sense of ownership, and succeed in orchestrating them during the time of enactment", also (Voogt, Pieters and Handelzalts 2016) showed that "lecturers as co-designers developed ownership, the agency principle, of the curriculum reform, and this contributed to improved teaching practices. The curriculum products that were designed also proved to be important for the sustainability of the intended curriculum change. Enactment in lecturer's own or colleague's practices resulted in positive changes in teaching practices". The second top difficulty at Soran University was paragraph number (35) "lecturers' weak conviction of cooperative learning strategies", with the arithmetic mean (4.27) and standard deviation (1.81), as (Albawy 2009) confirmed that "Lecturer's convictions and positive interaction through the use of interactive and appropriate teaching methods to students and away from the traditional method of dialogue increases the motivation of the student to study, research and access, and have a positive impact on students". The third top difficulty at Soran University was paragraph number (23) "Scarcity of lecturer's evaluation of students' performance to reward active and guide inactive" with the arithmetic mean (4.03) and standard deviation (1.20), As (Sparks 2012) ensured that "Researchers found rewarded students worked significantly harder to keep what they had than they did to win something new".

Three lowest difficulties:

Paragraph number (32) "Lecturers have limited time, which prevents them from preparing for cooperative learning", with the arithmetic mean (2.83) and standard deviation (1.62), paragraph number (33) "Discouraging lecturers to apply cooperative learning in scientific laboratories", with the arithmetic mean (2.68) and standard deviation (1.53), paragraph number (31) "Negative attitudes of the administration towards cooperative learning for fear of provoking chaos due to the work of cooperative groups", with the arithmetic mean (2.57) and standard deviation (1.38). These three paragraphs were the lowest difficulty at Soran University in lecturers view point, they are about lecturer and administrative difficulties, (Buchs, et al. 2017) confirms that "In addition to teachers' learner-orientation beliefs predicting the use of cooperative learning, the more

teachers report difficulties in embedding cooperative learning into the curriculum and finding time for it". All the other paragraphs were middle difficulties, they are about students difficulties, lecturers difficulties, administrative and technical difficulties, material and physical difficulties, (KRUKRU 2015) notes that "Instructional materials have a significant effect on the academic performance of students, and the use of instructional materials facilitate and enhance effective teaching", and (Felder and Brent 2007) also confirms that "Many students who have worked in a team in a laboratory- or project-based course do not have fond memories of the experience. Some recall one or two team members doing all the work and the others simply going along for the ride but getting the same grade". Paragraph number (22) "Not caring about the individual differences in the scientific activities in the laboratory" with the arithmetic mean (2.87) and standard deviation (1.22) was also the low difficulty. (Kubat 2018) argues that "Students differ from each other in terms of experience, socioeconomic status, ethnicity, culture, language and learning style. Using different teaching methods for different students using their own experience and learning backgrounds will be much more efficient".

All the other difficulties were middle difficulties, they are student difficulties, lecturer difficulties, technical and administrative difficulties, and material difficulties, (Eng, Li Li and Julaihi 2013) notes that "Materials are deemed as necessary in assisting students to understand the laboratory lessons. With solid learning materials, and proposed classroom discussions as an attempt to help students to grasp difficult concepts". and (Wang 2007) confirms that "the lecturers who are willing to implement the new, ideal strategies in our global society should be prepared, patient, skillful, perseverant and flexible through lots of trials and practice to reach teaching goals in current society".

- In response to the first research question: What are the difficulties of applying cooperative learning in the scientific laboratories from lecturers view point at Salahadin University?

Three top higher difficulties:

Paragraph number (24) "The large number of students in the laboratory and the difficulty of lecturer's movement between groups" came in the first place, with the arithmetic mean (4.71) and standard deviation (0.92), followed by

paragraph number (42) in the second place, "Lecturers lack of experience of selecting the appropriate number of students during forming cooperative learning groups within scientific laboratories", with the arithmetic mean (4.41) and standard deviation (0.03). Followed by paragraph number (10) in the third place, "Lack of providing the necessary safety guidelines for using the materials and equipment in the laboratories" with the arithmetic mean (4.33) and standard deviation (1.02), were the top three difficulties at Salahadin University in lecturers view point, they are administrative and technical, and lecturers difficulties, as (Baranek 1996) confirms that "There is a need to train lecturers in how to teach students and Lecturers also need to feel that they are in control of the material to be taught, how to teach it, and how to teach the students to be in control of the content", and (Felder and Brent 2007) confirms that "Most importantly, instructors who are successful in using cooperative learning in their classes will have the satisfaction of knowing that they have significantly helped prepare their students for their professional careers"

Three lowest difficulties:

Paragraph number (7) "Lecturer's weak ability to control the room during the scientific experiments" with the arithmetic mean (2.11) and standard deviation (0.24), paragraph number (39) "Lecturers' weak scientific ability to engage students in cooperative learning skills in laboratories" with the arithmetic mean (2.01) and standard deviation (2.11), paragraph number (30) "The scarcity of special records that facilitate planning, evaluation and follow-up of student learning cooperatively" with the arithmetic mean (1.22) and standard deviation (1.98), were the lowest difficulty at Salahadin University in lecturers' view point. They are administrative and technical, and lecturers difficulties, as (Eng, Li Li and Julaihi 2013) confirms that "In addition to lecturer's knowledge of course and syllabus, lecturer's flexibility, and stability of structure, lecturer who is full of enthusiasm and passion is believed to have the ability to deliver content of syllabus and knowledge effectively to students. They are co-learners with the students and have the abilities to show to their students in today's society". (Kubat 2018) confirms that "The lack of knowledge on such differences amongst students may cause students not to participate in the learning-teaching process and thus academic failure. Discipline problems in the class can be

reduced when the students are directed to meaningful activities and directed to their own interests and abilities. In addition, the influence of the students on the student and the socialization of the student have a very important place in the classroom method". (Wang 2007) confirms that "Universities should set up professional organization or workshop for pedagogical exchanges to consult each other, to share teaching experiences, to express their difficulties and to brainstorm instructional methods so as to promote lecturers' professional development". All the other difficulties were middle difficulties, they are student, lecturer, technical and administrative difficulties, and material difficulties. As (Moges 2019) claims that "students learn more by doing something active than by simply watching and listening has long been known to both cognitive psychologists and effective teachers".

- In response to the second research question: "What are the differences of the difficulties of applying cooperative learning in the scientific laboratories from lecturers view point according to the sex (Males) between Soran University and Salahadin University?"

The differences of the difficulties of applying the cooperative learning at the scientific laboratories according to sex (Males), Soran University male lecturers had more difficulties than Salahadin University male lecturers, where (44) paragraphs had moral significance for Soran University while only (3) paragraphs had moral significance for Salahadin University. According to the calculated T-value to detect the differences, the highest differences was in paragraph (44) "Non-responsibility sense of some students for the tasks assigned to them in the laboratory" with calculated T-value (8.38) that has moral significance for Soran University. (Akinbobola, 2015) argues that "It is clear that in order to achieve more meaningful learning there is a need for the students to change their attitudes and approaches to learning and for active, student-centered teaching learning experiences to be incorporated into the curriculum". (Gorgônio, et al., 2017) confirms that "Group members don't contribute or put in the time to showing up and meeting deadlines and they are confused and working in a group exacerbates the confusion". The lowest differences was in paragraph number (21) "Providing a rare of the centralized guidance for everyone in the laboratory" with calculated T-value (1.74) that has moral significance for

Soran University. (McLeod, 2015) notes that "There have been serious accidents in academic labs in recent years including fatalities that could have been prevented with the proper use of protective equipment and safer laboratory procedures".

- In response to the second research question: "What are the differences of the difficulties of applying cooperative learning in the scientific laboratories from lecturers view point according to the sex (Females) between Soran University and Salahadin University?"

The differences of the difficulties of applying the cooperative learning at the scientific laboratories according to sex (Females), Soran University female lecturers had more difficulties than Salahadin University female lecturers, where (42) paragraphs had moral significance for Soran University while only (5) paragraphs had moral significance for Salahadin University. According to the calculated T-value to detect the differences, the highest differences was in paragraph (19) "Lecturer's few acquaintance and convergence with groups during teaching in the laboratory" with calculated T-value (9.15) that has moral significance for Soran University, as (Chen, 1999) confirms that "A lecturer in the cooperative learning plays a role as a supporter, facilitator, observer, change agent, and adviser . lecturer's role is to arrange the students in heterogeneous groups, to provide students with proper materials, and to design structural systematic teaching strategy".

The lowest differences was in paragraph number (28) "Narrow spaces that blocks the movement of groups within the scientific laboratories "with calculated T-value (1.86) that has moral significance for Salahadin University, as (Organization 2002) confirms that "The laboratory must be designed to ensure proper ventilation throughout, with an active ventilation system and adequate space for circulation of students".

- In response to the third research question: "Compare the total results of the difficulties of applying cooperative learning in the scientific laboratories from lecturers view point between Soran University and Salahadin University"

As its shown in table (2), the total results indicates that in general Soran University lecturers with (3.67) arithmetic mean have more difficulties than Salahadin University lecturers with (3.24) arithmetic mean, and the calculated T-value was (4.33) between them.

Table (4): Total results of arithmetic means, standard deviations, calculated T-value test, schedule T-value and the degree of freedom between Soran University and Salahuddin University from the lecturers view point

University	Number of lecturers	Arithmetic mean	Standard deviation	Schedule T-value	Calculated T-value	Freedom degree	Significance
Soran University	44	3.67	0.73	1.62	4.33	151	Significance
Salahadin University	109	3.24	0.92				

Table (2) shows the total results of arithmetic means, standard deviations, calculated T-value test, schedule T-value and the degree of freedom between Soran University and Salahuddin University from the lecturers view point. As its shown (44) lecturers from Soran University have the total arithmetic mean (3.67) and (109) lecturers from Salahadin University have the total arithmetic mean (3.24) with the calculated T-value (4.33). This result means that, Soran University lecturers have more difficulties than Salahadin University lecturers.

6. CONCLUSIONS

1. The curricula has an essential effect on applying cooperative learning be more effective and successful.
2. Cooperative learning strategies should be more focused on, so lecturers could be able to apply it professionally.
3. The difficulties were difference between Soran university and Salahadin University in terms of lecturers, students, technical and administrative, and materials.
4. Salahadin University has a larger number of students than Soran university, this is what makes the cooperative learning harder for lecturers to apply.
5. Lack of materials and instruments in the laboratories is one of the main reasons that makes cooperative learning does not apply in a proper way.
6. Both male and female lecturers at Soran University has more difficulties than male and female lecturers at Salahadin University.
7. According to the T-test for detecting the differences of the difficulties between the Soran University and Salahadin University, most of the difficulties had moral significant for Soran University otherwise a few paragraphs had moral significant for salahadin university.

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APPENDIXES

- The questionnaire

N.	Paragraphs	Always	Extremely	Sometimes	Rarely	Never
1	Insufficient caring about places where students sit in terms of number and comfort in groups within scientific laboratories.					
2	The presence of sources of dispersion within or outside the scientific laboratories during cooperative learning.					
3	Lack of proper lighting and ventilation in the laboratories.					
4	Rareness of teaching means and illustrations for cooperative learning in laboratories					
5	Small laboratory halls to do laboratory experiments.					
6	Lack of means of sound insulation during the cooperative groups work.					
7	Lecturer's weak ability to control the room during the scientific experiments.					
8	Lecturer's Weak personality and intelligence to work with groups within scientific laboratories.					
9	Lack of equipment and materials for scientific experiments in the laboratories.					
10	Lack of providing the necessary safety guidelines for using the materials and equipment in the laboratories.					
11	Choosing a non-suitable Group leader for the cooperative learning group.					
12	Lack of a scientific standard for the distribution of students within the groups.					
13	Not all individuals within the group participate in discussions of scientific experiments in the laboratories.					
14	Lack of the proportion of students between groups in the laboratory.					
15	Randomly distributing students to groups without knowing their scientific levels.					
16	Most curricula are not designed to cooperative learning					
17	Lack of proper psychological environment for students in the laboratory.					
18	Discouraging students work in the cooperative groups.					
19	Lecturer's few acquaintance and convergence with groups during teaching in the laboratory.					
20	Non-clarity of cooperative learning objectives by the lecturer in the curricula of scientific laboratories.					
21	Providing a rare of the centralized guidance for everyone in the laboratory.					
22	Not caring about the individual differences in the scientific activities in the laboratory.					
23	Scarcity of lecturer's evaluation of students' performance to reward active and guide inactive.					
24	The large number of students in the laboratory and the difficulty of lecturer's movement between groups.					
25	Short time of the laboratory lecture for some scientific experiments.					
26	Rareness of availability of special educational resources that can be used for cooperative learning.					

27	Weak financial resources needed by scientific materials in laboratories to apply cooperative learning.
28	Narrow spaces that blocks the movement of groups within the scientific laboratories.
29	Lack of furniture and supplies necessary for cooperative learning from chairs, tables and more.
30	The scarcity of special records that facilitate planning, evaluation and follow-up of student learning cooperatively.
31	Negative attitudes of the administration towards cooperative learning for fear of provoking chaos due to the work of cooperative groups.
32	Lecturers have limited time, which prevents them from preparing for cooperative learning.
33	Discouraging lecturers to apply cooperative learning in scientific laboratories.
34	Lecturers are feared to provoke anarchy in the laboratories while implementing cooperative learning.
35	Lecturers' weak conviction of cooperative learning strategies.
36	Lack of a comfortable psychological enviroment for the lecturer in the laboratories during cooperative learning.
37	Lecturers' weak ability to promote skills and methods of reinforcement.
38	Lecturers' lack of time management skills during the application of cooperative learning within the scientific laboratories.
39	Lecturers' weak scientific ability to engage students in cooperative learning skills in laboratories.
40	Managing scientific laboratory lessons by new lecturers alone, without the assistance of experienced lecturers.
41	Lecturers' insufficient caring about the social aspects during the distribution of students to cooperative learning groups within the scientific laboratories.
42	Lecturers lack of experience of selecting the appropriate number of students during forming cooperative learning groups within scientific laboratories.
43	Some students do not follow the rules of work in cooperative learning groups in laboratories and during experiments, which causes chaos and discipline.
44	Non-responsibility sense of some students for the tasks assigned to them in the laboratory.
45	Some students try to impose their opinions while working in groups.
46	Competition and not trusting among the cooperative group members.
47	The idea of giving the same degree to all in the same group of some students and the correlation of his degree in the scientific experiment with the degree of group members.