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# Female and Male Students' Perceptions of Cooperative Learning in the Fields of Educational Sciences and Counselling

**Alireza Ahmadi**[1]
**Mohammad Reza Keramati** [2] **(**Corresponding author**)**
**Javad Por Karimi**[3]

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**ABSTRACT**

Despite the importance of cooperative learning in university classrooms, few studies have been conducted as a comparative form in terms of field of study and gender. Therefore, the present study seeks to study the perception of students of Educational sciences and Counselling from cooperative learning in university classrooms in terms of disciplines and gender. In this study two classes in the field of Educational sciences and Counseling at the University of Tehran were selected. Qualitative data were collected through unstructured interviews and data were analysed using Atlas-ti Software. The analysis of students' descriptions of implementing cooperative learning in classroom environment showed four categories including quality of learning, life skills, classroom environment, and opportunities for improvement. Findings indicated that female students paid more attention to the quality of learning and male students paid more attention to opportunities for improvement. However, the percentage of participants' attention to the quality of learning in the cooperative learning class was more than the other three categories. University instructors can turn challenges into an opportunity to improvement by proper implementation of cooperative learning in university classrooms. Also Counselling students paid more attention to opportunities for improvement than Educational sciences students. Findings of this study have important applications in improving the quality of teaching methods of faculty members. The results, while encouraging instructors to learn more about cooperative learning, provide new insights for them about students' interests and concerns. The findings of the study encourage faculty members to turn the challenges into an opportunity for their teaching improvement.

[1] M.A Student, Department of Educational Planning and Management, Faculty of Psychology and Education, University of Tehran, Email: alireza.ahmadi1349@gmail.com
[2] Associate Professor, Department of Educational Planning and Management, Faculty of Psychology and Education, University of Tehran, Email: mkeramaty@ut.ac.ir
[3] Assistant Professor , Department of Educational Planning and Management, Faculty of Psychology and Education, University of Tehran, Email: jpkarimi@ut.ac.ir

## 1. Introduction

Despite the rapid changes in the present century in all aspects of life, teachers' teaching methods have not changed. Although the blackboard has been replaced by whiteboards, benches have been replaced by movable chairs; teachers and university instructors continue to use traditional methods. Teachers are expecting students to listen to them. Group discussion has little place in the classroom, and if a question is asked, it does not make students think about the material, but rather tries to prepare students for the exam. These conditions have led to the expansion of superficial learning at all levels and disciplines (Keramati, 2016). Surface learning is one of the key criticisms of colleges and universities (Umbach & Wawrzynski, 2005). As a result, many instructors try to find solutions in order to inspire their students to be more actively engaged in their learning (Herrmann, 2013). Students who actively learn not only learn better but also enjoy learning more. Even if the instructor is the best speaker and lectures throughout the lesson, learning may take place, but this type of learning is not as complete, comprehensive, and sustainable as the learning that takes place in the active situation (Keramati, 2016). We learn 10% of what we read, we learn 20% of what we hear, we learn 30% of what we see, we learn 50% of what we hear and see, we learn 70% of what we discuss with others, we learn 80% of what we experience, we learn 90% of what we teach others (Jolliffe, 2007). Studies have revealed that cooperative learning as an active approach can be useful (Carr, Palmer & Hagel, 2015; Van Ryzin & Roseth, 2018). Cooperative learning is a form of instruction in which students are organized into groups to complete tasks cooperatively, to assist each other, to solve problems, to share materials, and to participate in discussions (Emmer & Everetson, 2013).

Cooperative learning was unknown until the 1960s, when competitive learning dominated, but it was challenged by individual learning, which was largely based on Skinner's work on programmed learning. Nowadays, educational practices and ideas have changed, and cooperative learning is considered an acceptable educational approach at all disciplines and levels of education. It is currently used in schools and universities around the world in a variety of subjects and all age and gender groups (Gillis, 2008). Cooperative learning is based on the social interdependence theory which suggests that when students are interdependently linked, they will work together with each other to attain their objectives. It comprises five basic features including positive interdependence, face to face interaction, individual accountability, interpersonal skills, and group processing (Johnson & Johnson, 2009). The defining features of cooperative learning vary

depending on the special implementation (Cohen, 1994; Slavin, 1996), but common features among these variations include positive interdependence, face to face interaction, individual accountability (Emmer & Everetson, 2013). The term "cooperative learning" refers to students' mutual learning which inspires them to learn together cooperatively producing new academic achievements, rather than engrossing the content provided by the instructor. This approach suggests the usage of small groups of university students in a real or virtual class. In this context class tasks are set in such a procedure that all members of the team become interdependent, but appropriately self-directed to master the content as well as to solve academic problems. Cooperative learning was developed by a group of teachers from Goldsmith's College, University of London in Great Britain in the mid-1960s (Sumtsova & et al, 2018). Later, in the 1980s, many progressive teachers all over the world took an interest and several teams of researchers from the University of Johns Hopkins, Minnesota State University and Jonathan David Aronson's team from California developed a detailed methodology for this approach. Since that time the problem of organizing the educational process by means of cooperative learning was considered and examined in the literature by researchers internationally (Sumtsova & et al, 2018).

The term cooperative learning refers to an approach in which students work together in small heterogeneous groups (usually four people) to achieve common goals and, in addition to being responsible for their own learning, also feel responsible for the learning of others. Thus, cooperative learning does not simply mean placing the student in a group to achieve a specific learning goal, but also teaching strategy aimed at strengthening learning, building trust in others, fostering critical thinking, building friendships between the gender, and paying attention to racial and ethnic differences and it has been designed to take into account diversity (Keramati, 2017). It is an approach through which students work together in heterogeneous groups in terms of academic achievement, race, language, culture, and gender to maximize their own learning and others (Gillies, 2008). Cooperative learning is an effective teaching (Van Ryzin & Roseth, 2018) that is applied to strengthen learning (Cámara-Zapata & Morales, 2020; O'Connor, Michaels, Chapin & Harbaugh, 2017), and critical thinking capacities (Erdogan, 2019), to improve communicative abilities (Dendup & Onthanee, 2020), to improve the academic motivation (Sanaie, Vasli, Sedighi & Sadeghi, 2019) and also to increase interaction between students (Nicole & Johannes, 2019). Students are better able to identify and demonstrate their abilities when they work together in groups and receive help or assistance from their peers. University students, has high ability and experience to communicate effectively with their colleagues. In the cooperative learning approach, these capabilities are used optimally (Keramati, 2019). Faculty members can facilitate this interaction

(Gillies, 2016). In order to facilitate these interactions, it is better for the group composition to be different in terms of gender, field of study, experience, academic success, language and culture (Gillies, 2010), because research shows that the more heterogeneous the composition of group members, the higher the group's efficiency (Cohen, 2014). Faculty members can take advantage of their unique abilities by correctly placing each of the students in the groups (Keramati, 2019). Defining clear expectations play a crucial role in the implementation of cooperative learning (Sumtsova & et al, 2018). According to Zhu (2012), cooperative learning is a social interaction that includes a group of learners where members obtain and share experience or knowledge. It also provides us with various forms of interaction learners can use to gain new knowledge (Sumtsova & et al, 2018).

In University classes, students need to study together in small groups, based on tasks such as seminars, presentations, and group projects. This is why, some investigators have deliberate active learning and its profits in university classes compared with the traditional method of teaching-learning (Cohen, 2014; Masek, 2019; Xue & Lingling, 2018), profits such as creating learning opportunities, reinforcing motivation (Gisbert & et al, 2017), and high academic performance (Swanson, McCulley, Osman, Lewis, & Solis, 2019), gaining a deep understanding of the subject matter (Estébanez, 2017), creating meaningful learning, and inspiring commitment on assignments of learning (Gillies & Nichols, 2015). Despite these benefits, cooperative learning has some constraints (De Hei, Strijbos, Sjoer, & Admiraal, 2015; Gillies, 2010; Janssen, Erkens, Kirschner, & Kanselaar, 2012; Miyake & Kirschner, 2014). Constraints such as negative attitude to collaboration (Laal, 2012), dependence on others for problems solving (Nokes-Malach et al., 2015), the lack of time considered in the curriculum (Buchs et al, 2017), the loss of teaching time for subject matter (Lumpe et al, 1998), students' lack of group work skills (Janssen & Wubbels, 2018), sense of misunderstanding in students (Hennebry & Fordyce, 2018), students' individual differences including gender, age, education, and English language skills (Chen & Squires, 2007), and low instructors' knowledge (Völlinger & Supanc, 2019). Of course, in this regard, some studies such as Nguyen-Phuong-Mai (2019), Hirst and Slavic (2001) and Slavin (1996) have found diversity useful.

Previous studies have documented the advantages of cooperative learning in Iran (Keramati, 2007, 2008, 2009, 2010, 2011, 2012, 2017; Keramati & Gillies, 2021) and other countries including Australia (Chiu & Cheng, 2017; Gillies, 2011; Gillies & Boyle, 2010; Johnson & Johnson, 2009; Volet & Mansfield, 2006), but fewer studies have specifically studied students'

perceptions of cooperative learning in terms of discipline and gender in form of comparative study in Iran and other countries. One study conducted in Iran showed that cooperative learning has an effect on the academic achievement of male and female students in the fifth grade of elementary school and its impact on academic achievement of female students in mathematics course is more than males (Keramati, 2007). However, such studies have rarely been conducted in higher education settings, especially in Iran. Moreover, little comparative research on cooperative learning seems to have been conducted in other countries with different social, religious, and cultural systems (Tran, 2019; Nguyen-Phuong-Mai, 2019). In addition to the above reasons for the need to conduct the present study, it should be said that cooperative learning is widely employed in primary and secondary schools (Hussien, 2020; Sutarman, & Mulyati, 2019), but little evidence is available on cooperative learning in higher education settings. The purpose of this study was to compare the students' perceptions of cooperative learning in terms of gender and fields of study (Education and Counselling) by answering the following questions:

- What are the similarities and differences between Educational science and counselling students in understanding cooperative learning?
- What are the similarities and differences between male and female students of Educational sciences and Counselling regarding their understanding of cooperative learning?

## 2. Research Method

Since this study is designed to represent students 'lived experience, it is a comparative qualitative research using phenomenological approach. Participants were undergraduate students in the field of Educational sciences and Counseling in the Faculty of Psychology and Education, University of Tehran. Accordingly, out of 50 students, 41 students (9 female and 8 male students in the field of Educational sciences and 14 female and 10 male students in the field of Counseling) participated in the interview. Sampling was purposeful and out of 50 students in the two fields studied, 41 volunteered to participate in the interviews. Unstructured interview is inherently flexible and dynamic, and encourages the interviewee to discuss (Tracy, 2019). In the present study, in order to better understand the students' lived experience of CL unstructured interviews were selected. The interview question was: What did you notice was happening in this class? Therefore, because the interview was unstructured, a major question was considered for the interviews. However, new questions arose during the interviews. “A criterion-based selection requires the researcher to identify criteria that the study must address” (Cohen, Manion & Morrison, 2018, p307). Therefore, the criteria used involved: implementation of CL in the class,

willingness of students to work with each other, and the presence of participants for more than 80% of the classroom sessions. The average interview time for each interviewee was 65 minutes. Interviews were conducted by two M.A students in the fields of Educational sciences. One of them audio-recorded the participants' answers with their permission while the other one took notes during the interview. Each interview was checked for accuracy by interviewers. Data were analysed using Atlas-ti software. Statements classified by two independent judges. Inter-rated reliability was 94%. "A standard protection for participants is often the guarantee of confidentiality and privacy, withholding participants' real names and other identifying characteristics" (Cohen, Manion & Morrison, 2018, p306). Accordingly, all participants were de-identified and numbers were assigned to each participant (e.g. PE 1, PE 2, etc. for participants in the field of Educational sciences, and PC 1, PC 2, etc. for participants in the field of Counselling). Participants were assured that their personal information was protected. They were advised of the right to stop participating at any time if they felt uncomfortable. It was observed that some students did not participate in the discussion for reasons such as embarrassment and fear of disclosing their words, the interviews were conducted individually. Thematic analysis was the main method of data analysis. Atlas-ti software was used instead of the manual method to increase the accuracy of the analysis.

## 3. Findings

This section Atlas-ti software facilitated data analysis in this study. In the first stage of coding, the researcher extracted 211 quotations from a total of 41 interview files and from these quotations, a total of 528 open codes were extracted. Quotations grouped into 4 main categories including quality of learning, life skills, learning environment, and opportunities for improvement. Figure 1 shows the percentage of attention of participants to these categories and reveals how important each of these categories was to the participants in the cooperative learning class.

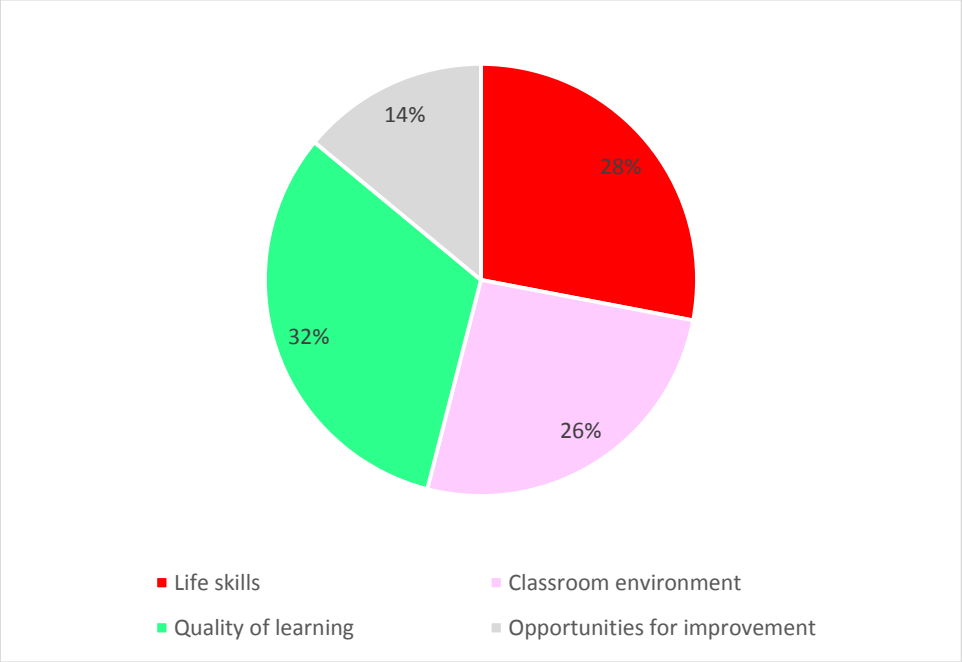


Figure 1: Main categories extracted from the interviews in terms of percentage

*Quality of learning*

Most participants believed that cooperative learning had improved the quality of their learning. They believed that cooperative learning increased their motivation to learn. They expressed their positive perceptions of cooperative learning in different statements:

> In the educational planning class, an attempt was made to implement an approach called cooperative learning. Cooperative learning is an approach that will nurture creativity, knowledge production and social skills in learners (PE 7).

One of the participants in the field of Counselling also expressed his satisfaction with this approach in another way:

> In this form of cooperative learning, I could understand the lesson well and ask questions if I had any questions. I wish other classrooms would be held in the same way (PC 23).

In this regard, another participant said:

> In our group, the different priorities of Islamic non-governmental schools were discussed with other non-governmental schools, and we realized that the different goals of schools have an effective role in determining their priorities, and as a result, each requires different educational programs. Doing this process would make the material approved in

> the minds of the students during the session and the learning would be done more effectively (PE 9).

And the participant 11 stated:

> In cooperative learning class, we learned the lesson with the help of each other calmly and away from the test anxiety (PC 11).

*Life skills*

Participants believed that cooperative learning enhanced their personal and social skills. They believed that cooperative learning enhanced their positive attitude, self-confidence, and encouraged them to work patiently. We chose four quotes as samples from the different quotes:

> This class allowed students to think more creatively and try to provide stronger and better analysis in the group. It also had a positive effect on improving relationships between students (PE 17).
>
> Implementing cooperative learning in the educational planning class was very effective in getting students to think about and deepen the taught material. It also created an atmosphere of collaboration and participation among students. For example, in our group, my opinion and Ms. PE 12 were always different, and usually the members of the group argued so that we could reach a quick conclusion and get a logical result (PE 10).
>
> I usually do not easily connect with people, but I dare to start communicate with others in this class (PC 1).
>
> I usually talk a little. It was the first time I sat in a circle with my classmates, which made to express my ideas easily (PC 2).

*Learning environment*

Most of participants indicated that they feel comfortable in the CL classroom, participate in the class without stress, and express their opinions easily. One of the female participants said happily:

> I was so relaxed in the cooperative learning class that I did not feel the attendance of the instructor in the class (PE 14).

And when participant 19 was asked what did you notice was happening in this class? She eagerly waited for an answer:

> I had never experienced this method of teaching during my study. In this class I learned to explain my view simply (PC 19).

Participants stated that one of the most main factors in their attendance in the classroom was the attractiveness of the class. One of male students in the field of Educational sciences said:

> This class was not boring and I did not feel the time pass (PE 9).

One of female students in the field of Counselling said:

> In this class was no competition in the classroom environment and the group members could simply state their opinions (PC 22).

*Opportunities for improvement*

According to the participants quotes, getting used to the competitive methods is one of the serious challenge to applying CL in university environments. For example participant 5 said:

> The truth is that the cooperative learning classroom experience has taken me to a quagmire where I have the most fun in the shortest time possible and I only feel good for 1 to 2 hours a week (PE 5).

And another participant regarding challenges of cooperative learning said:

> Students are familiarized to transmission methods and expect instructors to offer as much information as possible in the shortest possible time. For this reason, in classes that do not use lecture, they are worried that they will miss the content (PC 6).

Some participants stated that the form of the chairs is anti-interactive, and change them to a circle took part of the class time and caused disorder. The quotes were similar. Four quotes are cited as examples.

At the first, it was hard to move the heavy chairs, and worst of all, the noise of chairs (PE 3).

Each session took a lot of time to arrange the chairs, and most importantly, because it was done in the middle of the class, the student lost focus and the teacher's speech was cut off (PC 20).

As far as the class and time environment at the university allowed, the instructor did his best to be patient and kind in implementing this approach, but the moving the chairs for designing of the teamwork was annoying (PE 8).

There were many shortcomings in the classroom that made it difficult to implement cooperative learning, the most important of which was the lack of circular chairs (PC 4).

Photo 1 shows a part of the cooperative learning class. As can be seen, the classroom chairs are arranged by the students, and because the some classes are run according to traditional methods such as lecturing and explaining, the students in cooperative learning class changed the chairs to the original form at the end of the class.

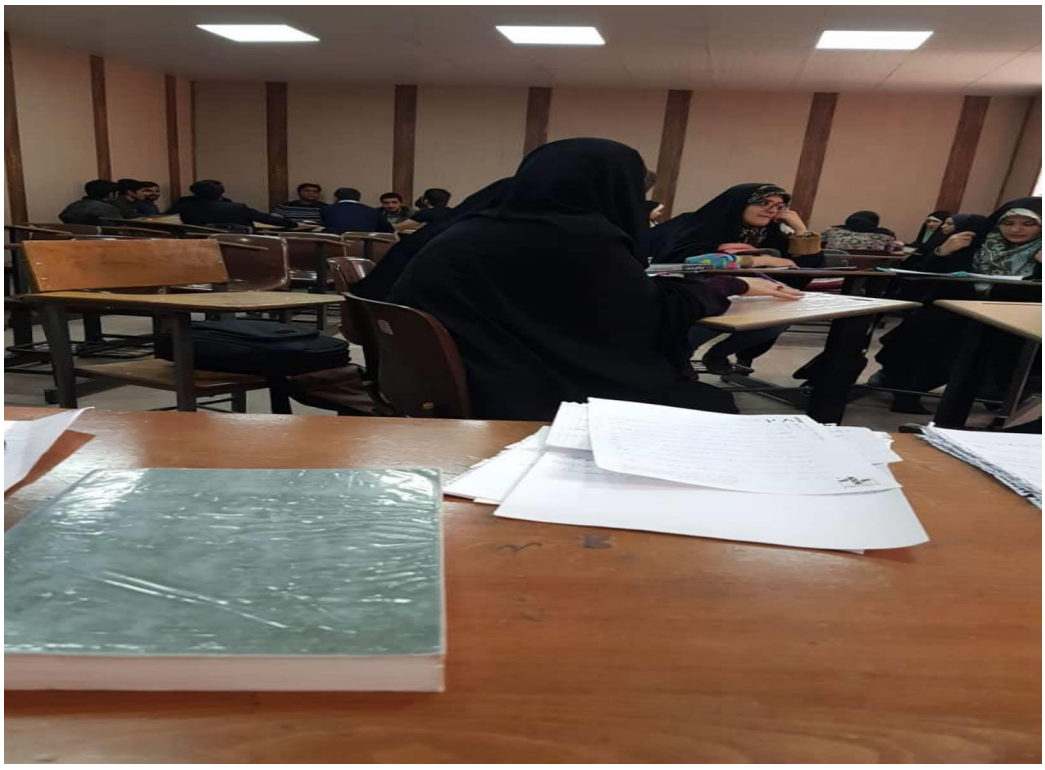

Photo 1: A part of the cooperative learning in Educational Planning Course, University of Tehran, Monday, May 2019.

One of the important results of the present study was that female participants paid more attention to the quality of learning than male participants. In contrast, male participants paid more attention to the challenges of cooperative learning than females (Figure 2).

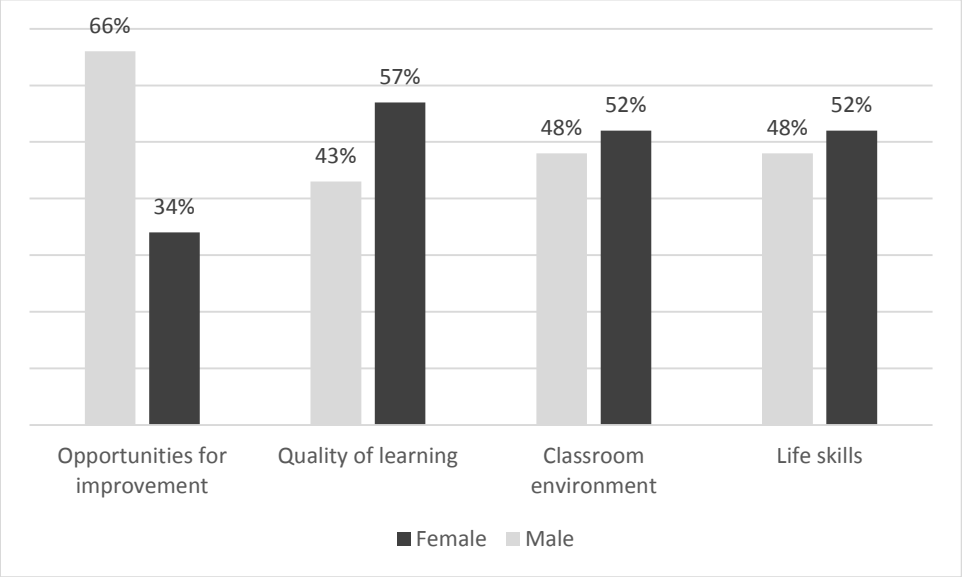


Figure 2: Comparison of students' perceptions of cooperative learning by gender

Analysis of qualitative data shows that Educational sciences students paid more attention to the quality of life skills and quality of learning that had improved in the cooperative learning class than counselling students. Although this difference was not large, it is an issue that could be examined in more detail in future research. In contrast, Counselling students paid more attention to the learning environment than students in the field of Educational sciences, as well as the challenges of the implementation of cooperative learning. Their emphasis on challenges was much greater than other categories, while this component was less considered by Educational sciences students (Figure 3).

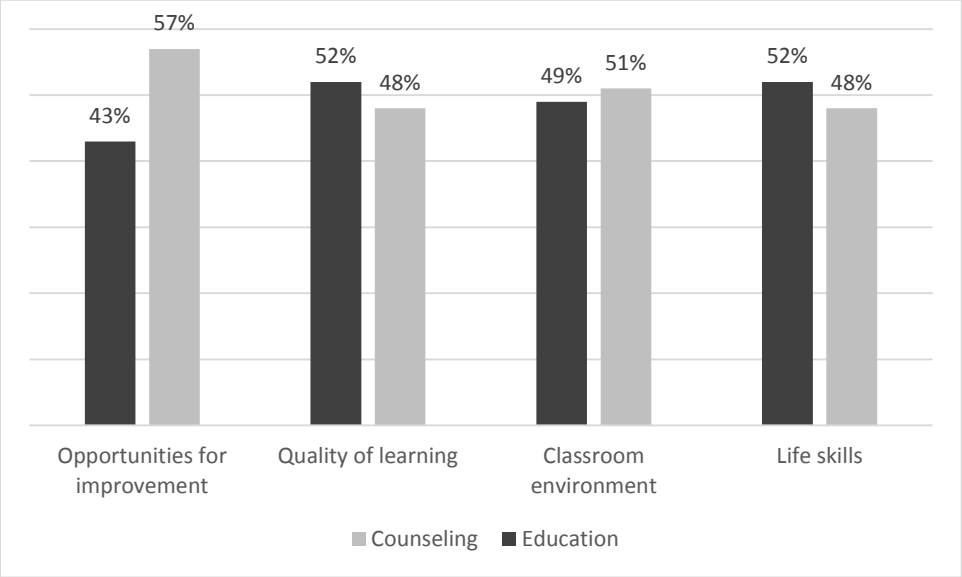


Figure 3: Comparison of students' perceptions of CL in the field of Educational sciences and Counselling

## 4. Conclusion

The data of this qualitative study were analysed using the latest version of Atlas-ti software. Based on interviews with students in the fields of Educational sciences and Counselling, at University of Tehran, it was revealed that the cooperative learning approach improves the quality of students' learning in both disciplines and between male and female students (similarities). Previous studies in Iran Keramati, 2007, 2008, 2009, 2010, 2011, 2012, 2017; Keramati & Gillies, 2021) and other countries (Chiu & Cheng, 2017; Gillies, 2011; Gillies & Boyle, 2010; Gillies & Nichols, 2015; Johnson & Johnson, 2009; Keramati & Gillies, 2021; O'Connor, Michaels, Chapin & Harbaugh, 2017; Volet & Mansfield, 2006) have confirmed this result. In this regard, Jolliffe (2007) specified that we learn 90% of what we teach others, and Keramati (2019) has stated that cooperative learning makes the most of students' learning ability. Other studies showed also cooperative learning is an effective teaching (Van Ryzin & Roseth, 2018) strengthens learning (Cámara-Zapata & Morales, 2020; O'Connor, Michaels, Chapin & Harbaugh, 2017), extends understanding of the subject matter (Estébanez, 2017), creates meaningful learning, and inspires commitment on assignments of learning (Gillies and Nichols, 2015). An interesting finding was that female participants paid more attention to the quality of learning than men (differences). Although

they believed that cooperative learning provided a good learning environment for learning and had an impact on the development of their life skills, they focus on the quality of learning as a main advantage of cooperative learning class. Keramati (2007) study also revealed the positive effects of cooperative learning on the academic achievement of female and male students in the fifth grade of elementary school in mathematics, but also showed that females benefit more from cooperative learning than males. This result was clearly seen in the present study, although the educational level in the present study is higher education; however the findings support each other. Possible explanation is that female students pay more attention to course objectives and grades. However, it is too early to conclude. Previous studies have also not reported a clear result. We encourage researchers to consider this issue in future research.

One of the most important categories obtained from qualitative analysis was the development of life skills in a cooperative learning environment. These skills were considered by the participants in both personal and social dimensions. Other studies have not ignored this category (Gillies & Boyle, 2011; Gillies, 2016; Virtanen & Tynjälä, 2019). Some point out that cooperative learning is effective in motivating learning (Sanaie, Vasli, Sedighi, Sadeghi, 2019) and developing critical thinking (Erdogan, 2019), while others emphasize interpersonal skills (Dendup & Onthanee, 2020; Nicole & Johannes, 2019; Sumtsova & et al, 2018; Zhu, 2012). In this study, it was found that female participants more than males have pointed to the strengthening of life skills in the cooperative learning environment, and also this attention has been more among Educational sciences students than Counselling students. These differences are new areas that can be pursued as research priorities. Qualitative data analysis showed that cooperative learning provides an appropriate environment for better learning by creating a calm, stress-free and pleasant atmosphere. Studies also support this finding (Eryilmaz & Cigdemoglu, 2019; Umbach & Wawrzynski, 2005). Although female participants paid more attention to the appropriate learning environment in the cooperative learning classroom than males, there was not much difference between students' perceptions of Educational sciences and Counselling.

The findings indicate that the implementation of cooperative learning in the university classroom faces challenges. Quotes show that many of these challenges are manageable and can serve as an opportunity to improve the quality of implementation of this approach. For example, we can change the traditional shape of chairs or as Emmer and Evertson (2013) stated, we can teach students the skills needed for teamwork, because as Chi and Wylie (2014) and also Gillies and Boyle

(2011) referred students with high and low prior knowledge help each other and gradually turn competitive habits into cooperative activities. But at the first, its implementation will face challenges. Over time, they can free themselves from traditional approaches, turn individual work into group work and then, turn group work into teamwork. Challenges in cooperative learning can turn into opportunities to improve the teaching-learning process as instructors gradually overcome them, because many challenges are manageable. Although we found that implementation of cooperative learning in the fields of Educational sciences and Counselling at the University of Tehran faces manageable challenges, but it provides a secure classroom environment for better learning and improves the quality of learning. This is important because grades are still very important for students in Iran. Therefore, improving the quality of learning can be effective in promoting students' academic achievement. We found also the kind of benefits varies at different disciplines in Faculty of psychology and Educational sciences at the University of Tehran. For example, the quality of learning was prominent in our research. Maybe another advantage would have been more important if this research had it been conducted in another discipline. One of the interesting results of our study was that female students were more likely than males to point out the quality of learning, and on the contrary, male students were more likely than females to see cooperative learning as challenges which can be turned into opportunities for improvement. We do not know the cause of these differences. Therefore, we suggest that next researchers investigate this important and interesting topic. What university lecturers can learn from the findings of this qualitative study is to pay attention to individual differences in learning environments, especially differences in gender and field of study. Another advantage of this study for teachers is that it motivates them to become more familiar with participatory learning to perform in the classroom. The results of this study also inform instructors that the implementation of cooperative learning naturally faces challenges and they can gradually overcome these challenges and turn them into opportunities to improvement.

There are four limitations in this study. First, religious beliefs in Iran did not allow the composition of the groups to be heterogeneous in terms of gender. Second, we do not know how students' positive responses to cooperative learning are related to their field of study. For example, if cooperative learning is implemented in the fields of economics, physic or mathematics, does it have the same results? we suggest that researchers study undergraduate and postgraduate students' perceptions of cooperative learning in courses other than Education and Counselling. Third, although students' perceptions were identified after the end of the semester, students may have been cautious in expressing their perceptions and not disclosing the whole truth.

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