# An Investigation into the Effect of Cooperative Learning Methodology on the Development of Social Skills in Fifth-Grade Students in District 1 of Zanjan City in 2010-2011 Academic Year

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## ABSTRACT

The present study investigates the effect of Cooperative Learning (CL) methodology on social skills of fifth-grade male students in governmental elementary schools in District 1 of Zanjan City in 2010-2011 academic year, using the experimental (intervention) methodology. The statistical population of this study includes all governmental elementary schools for boys that are located in District 1 of Zanjan City and are in the fifth grade which totally are 19 schools. Of these schools, one was randomly selected as the sample and of the 9 fifth-grade classes of this school, one 30-student class was again randomly selected as the study group and another 30-student class was chosen as the control group. Gresham and Elliot's (1990) Social Skills Rating System (SSRS) questionnaire was used for collecting data in the pre-test and post-test stages. This questionnaire with 30 questions measures the social skills related to the students in this study, including respecting others, performing duties, cooperation, observation of regulations, finding friends, sense of responsibility, tolerance, group activities, and critical thinking. The validity and reliability of this questionnaire have repeatedly been investigated and confirmed respectively using factor analysis technique and Chronbach's alpha in Iran as well as in this study. Given the study goal, in the next stage, the collected data was analyzed. The results indicated that in the study group there are significant differences between means of students' "social skills" in the pre-test and post-test results with regard to all the factors under study. In other words, the dependent variable of student's "social skills" was significantly increased with regard to all its factors after applying the independent variable of CL while controlling other conditions. The findings of this study are consistent with the other existing facts and theories.
**KEY WORDS:** Social Skills, Cooperative Learning (CL), male students, fifth gread students.

## 1. INTRODUCTION

Since school is a social institution that reflects the culture that transfers a particular viewpoint and ideology to children, it must pay special attention to the issue of "social skills". However, social skills have always been ignored in the curriculums and are only remembered when students show improper behaviors in contrast with what school authorities demand. This situation is probably due to overemphasis on the limited teaching of skills that teachers themselves consider valuable as well as their irresponsibility in teaching social skills as if such skills are not within the boundaries of their responsibilities (Slamoski and Don, 1996 as cited in Jamshidi 2005).

One of the most effective factors affecting the formation of children's character and particularly their social character is social interactions they experience inside schools, where the interaction of students with their peers and teachers in the classroom and during education is of particular significance. The better the social interactions between students and their teachers, the more enhanced the learning of social skills, as in the complicated world we are living in today, it is not possible or at least not proper to learn without having constructive interactions with other. A student who has acquired the necessary social skills is one who can adapt themselves with their surroundings or can avoid conflicting verbal or physical situations through establishing relationships with others. Such students demonstrate behaviors that lead to positive psychological and social consequences such as acceptance by peers and effective communication with others. On the other hand, those who have not acquired the necessary social skills usually suffer from behavioral disorders, are not accepted by their peers, are not popular among people of the same age or among adults, and can't get along with teachers or other professionals. Most of these social skills need to be taught in the schools by proper teaching methods. However, with the traditional educational methodologies in which the students are not practically involved in the process of education, these skills could not be taught. Therefore, the present study attempts to investigate the effect of teacher's methodology, which reflects the nature of

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classroom social interactions, on the development of social skills in students. Therefore, the Cooperative Learning (CL) methodology as an interactive methodology in which the social interactions between students and teachers are so high, was selected and administrated experimentally.

The ultimate objective of CL is achieve great mental activities. In fact, in spite of the existing differences in the administration of this methodology, the following five components seem to be fundamental in CL: positive correlation, individual sense of responsibility, face-to-face interaction, social skills, and group processing). These components get the teachers rid of mere speeches and get the students rid of undue repeating their knowledge. In addition, CL provides opportunities in which the learners could succeed in situations such as teamwork, communications, effective coordination, and task division. Therefore, it seems that students in CL situations are more active compared with other methodologies (Mirza Mohammadi, 2004:17).

Since there are various social skills and since different active methodologies have been proposed by scholars of the field, the present study investigates 9 skills (respecting others, carrying duties, cooperation with others, observation of regulations, finding friends, sense of responsibility, tolerance, group activities, and critical thinking) as the dependent variable and CL as the independent variable. In order to carry out the investigation, CL is used as one of the active methodologies that is more consistent with the objectives and experimental methodology and it has been administrated in the randomly selected fifth-grade class in one of governmental male schools in District 1 of Zanjan city. An elementary school was selected since it has the same teacher for all subjects and the fifth-grade was selected because of ease of implementation.

As mentioned earlier, the main question in the present study is: "to what extent social skills in students could be developed through CL?"

## 2. Theoretical Framework and Background of the Study

This part of the study uses the theories related to the development of social skills in children due to their relationship with general individual characteristics and relationship between stage of development and development of social skills. Undoubtedly, stage theories are not only the factors of social development, but also contribute to determination of social skills teaching path. Many theories have been proposed by scholars and some are to be explained in this section.

### Freudian Theory (1910)

In his theory of psychological analysis, Freud provides a five-stage system for development based on psycho-sexual structures. Each stage with emphasis on biological interactions (from birth to 1 year: oral; 1-3 years: anal; 3-5 Oedipus; 5-12 years: latency; 12-puberty: genital) is indicative of conflicts in ordinary human experiences which should be analyzed. In this theory, it is inferred socially that children need to go through each critical stage with success so that they would be able to achieve positive behavior or features. Sometimes, the opposite occurs. In other words, children are not able to deal with the related conflicts. For instance, the mother or the main guardian is considered the main source of a child's initial behavior and the expansion of the child's interactions inside or outside the house is gradual. The main issue in Freudian theory is the necessity to resolve the conflicts so that the child theoretically understands their gender, their parents, learns about establishing interactions with other, and encounters two feelings of "envy" and "aggression". In the latency stage, i.e. the period in which the number of friends of the same age and attachment to school increases, relationship with people of the same age, rather than with adults, is considered one of the factors of successful development (Cartilage and Milburn, 1985 as cited in Nazarinezhad, 2007:36).

### Ericson's Theory (1963)

As a development of Freudian psychoanalysis, Ericson provides a similar system of social development that begins from birth to puberty. At each stage, the child overcomes a series of conflicts and mainly through development of social behavior. He believes that a child, who is desirably socialized, has successfully gone through all eight stages which begin with trust in others and reach their peak in puberty and has a logical presence in the society. Based on Ericson's theoretical framework, with the development of initial social behavior, the child can establish relationships with parents and first guardians, and acquire the necessary skill to have transactions and to convey their needs to others. A small child must be able to pay attention to adults' demands to establish order in different physical actions and during movement in the surrounding environment. The social reactions created by the first guardians appear through the development of relationships with siblings, parents and people of the same age as well as with adults, thus the behaviors that are accompanied by some sort of independence and communication gain an added value. In any social development process, the initial social behaviors of parents and guardians teach things to children through responses and examples. Training programs of social skills for older children just repeat the initial stages of development in a way that exists in the classroom or the therapy environment (ibid).

**Jean Piaget's theory (1964)**

In the theories proposed by Freud and Ericson, psychological factors have been emphasized for social development. However, the theory by Piaget relies on the cognitive aspect. In this system, Piaget relates the child's behavior in a game to the game rules and the game type, identifying four stages:

a. Movement development 2. Self-centeredness      c. Mutual cooperation
d. Development of moral principles

In the first stage, which is called movement development, the child's game has individual and movement-based nature. When children reach the ages of 2 to 5, they get closed to the second stage, i.e. self-centeredness, and they employ certain rules and regulations for their daily activities. This type of use of regulations is not based on moral judgments, but is the result of observing adults and older children acts, whose criteria are considered accurate in their viewpoint.

When children reach the third stage, i.e. mutual cooperation, their belief in the definiteness of external rules is balanced. Thus, they themselves set certain rules and regulations based on particular circumstances. At this stage, others' interests play a major role in rule setting. At the age of about 11 or 12, children enter the last stage while they are familiar with moral principles needed to establish social order. At this period, children realize the interactive importance of rules and regulation, the importance of observing other people's rights as well as the regulations of social system and learn all these as a mechanism to preserve the individual rights. Although this model shows moral development at different stages, the stages are linked to each another. This is due to the fact that the elements of each stage are present in the next stages as well. For instance, the aspects of mutual cooperation and movement development are also present at the self-centeredness stage. Piaget believes that in the above stages, the difference between behavioral patterns is specific (ibid: 37).

**Kohlberg's Theory (1969)**

In his six-stage development theory, Kohlberg stated that the process of moral changes start with selfish thoughts until it reaches the acquisition of stability and order and the highest level, that is where the individual obeys internal rules and shows a behavior that is accompanied by belief and common sense rather than mere abeyance of rules and regulations. In Kohlberg's model, the children who commit criminal actions act at the low level, i.e. selfishness, which emphasizes on personal interests and avoidance of punishment. Using this framework, direct and gradual teaching of different stages of development is recommended to correct social behaviors.

**Eisenberg's Theory (1973)**

It seems that some children have particular characters and show particular social behaviors more than other children. Mingling with people and compatibility are features which are usually related to the benefits of paying attention to others and generosity. The children who easily express their feelings and are more sociable show more tendency to communicate with people of the same age and try to help them. In pre-elementary schools, determination in the form of weak aggression is related to certain high-degree social behaviors.

Generally, the results obtained from different studies indicate that talented children, easily express their feelings for certain social behaviors. Social skills include determination and compatibility. In other words, social children accept people easier, are socially deserving and compatible, and respond to feelings. Therefore, the factor of intelligence probably makes it easier for individuals to do certain social behaviors in certain contexts.

Most theorists, researchers, and specialists who deal with children state that empathy (which includes understanding thoughts, feelings, and viewpoints of other people) is the necessary prerequisite for philanthropy and social behaviors usually occur automatically and simultaneously, without prior thinking (Talkhabi, 2003:25).

**Urie Bronfenbernner's Theory (1989)**

Behaviorist theories consider development mainly as the result of the performance of the organism environmental stimuli; however, the biological theory of development regard development as the result of biological factors and the organism genetic model, thus environmental factors will be necessary for appearance and reflection of the biological potentials. People live in different social and cultural environments and each individual is at the same time experiencing a series of different environmental factors.

On the whole, the contextual models of development are different. Some emphasize on the biological contexts, some on physical conditions, and some other on social contexts. One of the contextual models of development with regard to social skills of the child is ecological systems theory that was proposed by Bronfenbernner (1979-1989). This theory focuses on the daily environment of an individual and its effect on development.

According to Bronfenbernner, most current theories of psychology of development is the knowledge about strange behaviors of children in strange and unusual situations and with strange and unusual adults in a very short period of time…Development should be studied not only in the house but also anywhere such as school, alley, and district (Researcher, 2005:15).

**Charles Horton Cooley's Theory (revolutionary process of development)**
Cooley is of the conviction that the concept of "self" is first formed in childhood and is re-assessed in one's lifetime whenever an individual experiences a new social situation. He believes that the concept of self-image is composed of three main elements that were mentioned above. Therefore, to Cooley people's thought about one another form social facts and these facts enable individuals to develop their images of "self" (Sotoodeh, 2008: 40).

**Bandura's Social Learning Theory (1977)**
Bandura (1977) believed that from social learning viewpoint, people are neither stimulated by internal forces nor environmental stimuli, but psychological functions are formed based on mutual interaction between the individual and the determining environmental factors (Bandura, 1986 as cited in Seif, 2000).
In more exact sense, Bandura says that the individual, the environment and the individual's behavior have mutual interaction with one another and none of these three elements could be considered the determinant of human behavior on its own. Bandura demonstrated this three-lateral interaction as below and called it "mutual determinism".
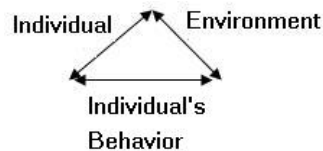


Based on the theory of reciprocal determinism by Bandura, environment does not affect people's behavior on its own and the effect of environment on different people is not the same, but the performance of an individual in a particular environment determines what aspects of that environment affect the individual. In other words, the behavior could build the environment (Bandura, 1986 as cited in Seif, 2000).

**3. The Study's Hypotheses**
1. CL methodology is effective in development of the skills related to "respecting others".
2. CL methodology is effective in development of the skills related to "carrying duties".
3. CL methodology is effective in development of the skills related to "cooperation with others".
4. CL methodology is effective in development of the skills related to "observance of rules".
5. CL methodology is effective in development of the skills related to "finding friends".
6. CL methodology is effective in development of the skills related to "sense of responsibility"
7. CL methodology is effective in development of the skills related to "group activities"
8. CL methodology is effective in development of the skills related to "tolerance".
9. CL methodology is effective in development of the skills related to "critical thinking".

**4. METHODOLOGY OF THE RESEARCH**

The present study is experimental (intervention) and has pre-test and post-test approach with a control group. The training was done for the study group in a period of six months using CL methodology. Meanwhile, the control group was following its usual daily program. After implementation of the training program, the test was again administrated on both groups. Then the results gained by the study group and the control group was compared with regard to the level of social skills.

**5. Data Collection Tool and Method**
Data collection in this study was done using Gresham and Elliot's (1990) Social Skills Rating System (SSRS) questionnaire. This questionnaire with 30 questions measures the social skills related to the students in this study, including respecting others, performing duties, cooperation, observation of regulations, making friends, sense of responsibility, tolerance, group activities, and critical thinking. The questionnaire was separately distributed by the teacher at two stages (pre-test and post-test) between the control and study groups.
Since this study is experimental, the data collection tool was separately filled out by the two groups at two stages (pre-test and post-test). In order to collect the data, first the pre-test was

administrated for both control and study groups. Then the study group had six months of experience with CL methodology. At the end, the post-test was administrated on both groups.

### 6. Statistical Population of the Study

The statistical population of this study includes all governmental elementary schools for boys that are located in District 1 of Zanjan City and are in the fifth grade which totally are 19 schools. Of these schools, one was randomly selected as the sample and of the 9 fifth-grade classes of this school, two classes were selected as the study and control groups.

### Sampling and Sample Size

In this study, the 13Aban Institute for boys, that had 9 fifth-grade classes, was randomly selected and two 30-student classes were randomly selected as the control and study groups. In order to make sure that the study group and the sample group had the same conditions, in addition to the criteria that were first selected, the other programs during the study, such as holding field works, showing movies, and other extra-curriculum educational activities were the same for both classes. Even the physical spaces of the classes were not changed.

### ANALYSIS OF THE DATA

All statistical data were analyzed by SPSS software using both descriptive and inferential analysis. In order to test the hypotheses, t-test was used for the correlated groups based on the study's objectives and methodology. It should be mentioned that the observer in this study was an individual and the level of analysis was group (class).

### 7. Reliability and Validity of the Tools

The questionnaire designed by Gresham and Elliot (1990) to assess children's social skills has been repeatedly used in Iran. According to Beh Pazhooh et al. (2005), in order to test the validity of this scale in the Iranian society, the factor analysis was done on 160 people. Factor analysis was done through dividing into main elements and the questionnaire's key with three factors. Using Varimax rotation, the coefficient of 0.863 was obtained that is significant and satisfactory (Beh Pazhooh et al., 2005:63). Also, about the result of Chronbach's alpha test, the coefficient of this test for statements of the dependent variable of " social skills" equals 0.91 which is higher than the standard level of 0.70, indicating that these statements have a great level of correlation and are a proper and desirable tool for measuring the variable under study.

### 8. Findings

This part of the study deals with investigation of the correlation between the variables stated in the study's hypotheses and analyzes the process of applying the independent variable on the dependent variable in all of its aspects in the study group. Then, we will have a generic analysis of the study's variables in the control group.

**$H_1$: CL methodology is effective in development of the skills related to "respecting others".**

Table 1. Descriptive Data related to $H_1$

| Groups | Number | Mean | Standard deviation | Standard deviation error |
|---|---|---|---|---|
| Study group's pre-test | 30 | 20.83 | 3.48 | 0.636 |
| Study group's post-test | 30 | 26.06 | 2.29 | 0.400 |

Table 2. Analytic Data related to $H_1$

| Groups | Absolute value of mean difference | Sd | T value | df | Level of significance |
|---|---|---|---|---|---|
| Study group's pre-test Study group's post-test | 5.23 | 4.14 | 6.90 | 29 | 0.000 |

**Description and Interpretation:** since the variable under study deals with two different states of the same sample, in order to test this hypothesis, t-test for correlated groups is used and the results are demonstrated in the table above. Based on the results of the t-test, the t value of 6.908 in the degree of freedom of 29 is significant below the level of 0.01. Therefore, it could be said with 99% confidence that there is a significant difference between the means of pre-test and post-test in the study group. In addition, the descriptive data of this test indicates that the mean the "respecting others" skill in the post-test of the study group is 26.06, which is about 5.23 units higher than the same mean for the

control group, i.e. 20.83. Hence, the study's hypothesis saying that CL methodology affects the development of the skills related to respecting others is confirmed.

**H$_2$: CL methodology is effective in development of the skills related to "carrying duties".**

Table 3. Descriptive Data related to H$_2$

| Groups | Number | Mean | Standard deviation | Standard deviation error |
|---|---|---|---|---|
| Study group's pre-test | 30 | 14.30 | 1.76 | 0.32 |
| Study group's post-test | 30 | 15.66 | .80 | 0.14 |

Table 4. Analytic Data related to H$_2$

| Groups | Absolute value of mean difference | Sd | T value | df | Level of significance |
|---|---|---|---|---|---|
| Study group's pre-test Study group's post-test | 1.36 | 1.94 | 3.93 | 29 | 0.000 |

**Description and Interpretation:** since the variable under study deals with two different states of the same sample, t-test for correlated groups is used to test this hypothesis and the results are demonstrated in the table above. Based on the results of the t-test, $t$ value of 3.93 in the degree of freedom of 29 is significant below the level of 0.01. Therefore, it could be said with 99% confidence that there is a significant difference between the means of pre-test and post-test in the study group. In addition, the descriptive data of this test indicates that the mean score of the skills related to "carrying duties" in the post-test for the study group is 15.66, which is about 1.36 units higher than the same mean for the control group, i.e. 14.30. Hence, the study's hypothesis saying that CL methodology affects the development of the skills related to carrying duties is confirmed.

**H$_3$: CL methodology is effective in development of the skills related to "cooperation with others".**

Table 5. Descriptive Data related to H$_3$

| Groups | Number | Mean | Standard deviation | Standard deviation error |
|---|---|---|---|---|
| Study group's pre-test | 30 | 9.53 | 1.94 | 0.354 |
| Study group's post-test | 30 | 11.36 | 1.29 | 0.237 |

Table 6. Analytic Data related to H$_3$

| Groups | Absolute value of mean difference | Sd | T value | df | Level of significance |
|---|---|---|---|---|---|
| Study group's pre-test Study group's post-test | 1.83 | 2.39 | 4.19 | 29 | 0.000 |

**Description and Interpretation:** since the variable under study deals with two different states of one sample, t-test for correlated groups is used to test this hypothesis and the results are demonstrated in the table above. Based on the results of the t-test, $t$ value of 4.19 in the degree of freedom of 29 is significant below the level of 0.01. Therefore, it could be said with 99% confidence that there is a significant difference between the means of pre-test and post-test in the study group. In addition, the descriptive data of this test indicates that the mean score of the skills related to "cooperating with others" in the post-test for the study group is 11.36, which is about 1.83 higher than the same mean for the control group, i.e. 9.53. Hence, the study's hypothesis saying that CL methodology affects the development of the skills related to cooperating with others is confirmed.

**H$_4$: CL methodology is effective in development of the skills related to "observation of regulations".**

Table 7. Descriptive Data related to H$_4$

| Groups | Number | Mean | Standard deviation | Standard deviation error |
|---|---|---|---|---|
| Study group's pre-test | 30 | 11.43 | 1.59 | 0.29 |
| Study group's post-test | 30 | 14.80 | 0.80 | 0.14 |

Table 8. Analytic Data related to H$_4$

| Groups | Absolute value of mean difference | Sd | T value | df | Level of significance |
|---|---|---|---|---|---|
| Study group's pre-test Study group's post-test | 3.366 | 1.809 | 10.19 | 29 | 0.000 |

**Description and Interpretation:** since the variable under study deals with two different states of one sample, t-test for correlated groups is used to test this hypothesis and the results are demonstrated in the table above. Based on the results of the t-test, *t* value of 10.19 in the degree of freedom of 29 is significant below the level of 0.01. Therefore, it could be said with 99% confidence that there is a significant difference between the means of pre-test and post-test in the study group. In addition, the descriptive data of this test indicates that the mean of the skills related to "observation of regulations" in the post-test of the study group is 14.80, which is about 3.37 higher than the same mean for the control group, i.e. 11.43. Hence, the study's hypothesis saying that CL methodology affects the development of the skills related to observation of regulations is confirmed.

**$H_5$: CL methodology is effective in the development of the skills related to "finding friends".**

Table 9. Descriptive Data related to $H_5$

| Groups | Number | Mean | Standard deviation | Standard deviation error |
|---|---|---|---|---|
| Study group's pre-test | 30 | 19.03 | 3.52 | 0.644 |
| Study group's post-test | 30 | 23.03 | 2.07 | 0.379 |

Table 10. Analytic Data related to $H_5$

| Groups | Absolute value of mean difference | Sd | T value | df | Level of significance |
|---|---|---|---|---|---|
| Study group's pre-test Study group's post-test | 4.00 | 4.07 | 5.37 | 29 | 0.000 |

**Description and Interpretation:** since the variable under study deals with two different states of one sample, t-test for correlated groups is used to test this hypothesis and the results are demonstrated in the table above. Based on the results of the t-test, *t* value of 5.37 in the degree of freedom of 29 is significant below the level of 0.01. Therefore, it could be said with 99% confidence that there is a significant difference between the mean scores of pre-test and post-test in the study group. In addition, the descriptive data of this test indicates that the mean score of the skills related to "finding friends" in the post-test of the study group is 23.03, which is about 4.00 higher than the same mean for the control group, i.e. 19.03. Hence, the study's hypothesis saying that CL methodology affects the development of the skills related to finding friends is confirmed.

**$H_6$: CL methodology is effective in the development of the skills related to "sense of responsibility".**

Table 11. Descriptive Data related to $H_6$

| Groups | Number | Mean | Standard deviation | Standard deviation error |
|---|---|---|---|---|
| Study group's pre-test | 30 | 9.33 | 1.66 | 0.304 |
| Study group's post-test | 30 | 11.66 | 0.80 | 0.146 |

Table 12. Analytic Data related to $H_6$

| Groups | Absolute value of mean difference | Sd | T value | df | Level of significance |
|---|---|---|---|---|---|
| Study group's pre-test Study group's post-test | 2.33 | 1.80 | 1.07 | 29 | 0.000 |

**Description and Interpretation:** since the variable under study deals with two different states of one sample, t-test for correlated groups is used to test this hypothesis and the results are demonstrated in the table above. Based on the results of the t-test, *t* value of 7.07 in the degree of freedom of 29 is significant below the level of 0.01. Therefore, it could be said with 99% confidence that there is a significant difference between the mean scores of pre-test and post-test in the study group. In addition, the descriptive data of this test indicates that the mean score of the skills related to "sense of responsibility" in the post-test for the study group is 11.66, which is about 2.33 higher than the same mean for the control group, i.e. 9.33. Hence, the study's hypothesis saying that CL methodology affects the development of the skills related to sense of responsibility is confirmed.

**$H_7$: CL methodology is effective in the development of the skills related to "group activities".**

Table 13. Descriptive Data related to $H_7$

| Groups | Number | Mean | Standard deviation | Standard deviation error |
|---|---|---|---|---|
| Study group's pre-test | 30 | 9.56 | 1.94 | 0.357 |
| Study group's post-test | 30 | 11.50 | 1.07 | 0.196 |

Table 14. Analytic Data related to $H_7$

| Groups | Absolute value of mean difference | Sd | T value | df | Level of significance |
|---|---|---|---|---|---|
| Study group's pre-test Study group's post-test | 1.93 | 2.25 | 4.96 | 29 | 0.000 |

**Description and Interpretation:** since the variable under study deals with two different states of one sample, t-test for correlated groups is used to test this hypothesis and the results are demonstrated in the table above. Based on the results of the t-test, *t* value of 4.69 in the degree of freedom of 29 is significant below the level of 0.01. Therefore, it could be said with 99% confidence that there is significant difference between the mean scores of pre-test and post-test in the study group. In addition, the descriptive data of this test indicates that the mean score of the skills related to "group activities" in the post-test for the study group is 11.50, which is about 1.94 higher than the same mean for the control group, i.e. 9.56. Hence, the study's hypothesis saying that CL methodology affects the development of the skills related to group activities is confirmed.

**$H_8$: CL methodology is effective in the development of the skills related to "tolerance".**

Table 15. Descriptive Data related to $H_8$

| Groups | Number | Mean | Standard deviation | Standard deviation error |
|---|---|---|---|---|
| Study group's pre-test | 30 | 21.00 | 4.20 | 0.767 |
| Study group's post-test | 30 | 23.96 | 2.10 | 0.365 |

Table 16. Analytic Data related to $H_8$

| Groups | Absolute value of mean difference | Sd | T value | df | Level of significance |
|---|---|---|---|---|---|
| Study group's pre-test Study group's post-test | 2.96 | 3.67 | 4.42 | 29 | 0.000 |

**Description and Interpretation:** since the variable under study deals with two different states of one sample, t-test for correlated groups is used to test this hypothesis and the results are demonstrated in the table above. Based on the results of the t-test, *t* value of 4.42 in the degree of freedom of 29 is significant below the level of 0.01. Therefore, it could be said with 99% confidence that there is significant difference between the mean scores of pre-test and post-test in the study group. In addition, the descriptive data of this test indicates that the mean score of the skills related to "tolerance" in the post-test for the study group is 23.96, which is about 2.96 higher than the same mean for the control group, i.e. 21.00. Hence, the study's hypothesis saying that CL methodology affects the development of the skills related to tolerance is confirmed.

**$H_9$: CL methodology is effective in the development of the skills related to "critical thinking".**

Table 17. Descriptive Data related to $H_9$

| Groups | Number | Mean | Standard deviation | Standard deviation error |
|---|---|---|---|---|
| Study group's pre-test | 30 | 11.6 | 1.57 | 0.287 |
| Study group's post-test | 30 | 12.56 | 0.89 | 0.163 |

Table 18. Analytic Data related to $H_9$

| Groups | Absolute value of mean difference | Sd | T value | df | Level of significance |
|---|---|---|---|---|---|
| Study group's pre-test Study group's post-test | 1.50 | 1.81 | 4.52 | 29 | 0.000 |

**Description and Interpretation:** since the variable under study deals with two different states of one sample, t-test for correlated groups is used to test this hypothesis and the results are demonstrated in the table above. Based on the results of the t-test, *t* value of 4.52 in the degree of freedom of 29 is significant below the level of 0.01. Therefore, it could be said with 99% confidence that there is a significant difference between the mean scores of pre-test and post-test in the study group. In addition, the descriptive data of this test indicates that the mean score of the skills related to "critical thinking" in the post-test for the study group is 12.56, which is about 1.50 higher than the same mean for the control group, i.e. 11.06. Hence, the study's hypothesis saying that CL methodology affects the development of the skills related to critical thinking is confirmed.

**A generic analysis of the hypotheses related to the pre-test and post-test of the control group**

Table 19. The descriptive data related to pre-test and post-test for the control group

| Factors of social skills | Groups | Number | Mean | Sd | Sd of error |
|---|---|---|---|---|---|
| Respecting others | Control group's pre-test | 30 | 18.70 | 2.33 | 0.426 |
| | Control group's post-test | 30 | 19.06 | 2.27 | 0.415 |
| Carrying duties | Control group's pre-test | 30 | 12.40 | 1.45 | 0.265 |
| | Control group's post-test | 30 | 11.86 | 1.85 | 0.338 |
| Cooperation with others | Control group's pre-test | 30 | 9.33 | 1.42 | 0.259 |
| | Control group's post-test | 30 | 8.83 | 1.59 | 0.291 |
| Observation of rules | Control group's pre-test | 30 | 10.50 | 1.79 | 0.327 |
| | Control group's post-test | 30 | 10.40 | 1.47 | 0.265 |
| Finding friends | Control group's pre-test | 30 | 17.96 | 2.34 | 0.427 |
| | Control group's post-test | 30 | 16.26 | 2.44 | 0.447 |
| Sense of responsibility | Control group's pre-test | 30 | 9.43 | 1.38 | 0.252 |
| | Control group's post-test | 30 | 8.50 | 1.38 | 0.252 |
| Group activities | Control group's pre-test | 30 | 9.53 | 1.47 | 0.270 |
| | Control group's post-test | 30 | 8.70 | 1.53 | 0.280 |
| tolerance | Control group's pre-test | 30 | 19.30 | 2.32 | 0.423 |
| | Control group's post-test | 30 | 18.66 | 2.15 | 0.393 |
| Critical thinking | Control group's post-test | 30 | 11.70 | 2.61 | 0.477 |
| | Control group's pre-test | 30 | 10.83 | 1.55 | 0.283 |

Table 20. The Inferential data related to pre-test and post-test for the control group

| Factors of social skills | Groups | number | Absolute value of mean difference | Sd | T value | df | level of significance |
|---|---|---|---|---|---|---|---|
| Respecting others | Control group's pre-test | 30 | 0.366 | 0.382 | 0.960 | 29 | 0.345 |
| | Control group's post-test | 30 | | | | | |
| Carrying duties | Control group's pre-test | 30 | 0.533 | 0.327 | 1.627 | 29 | 0.115 |
| | Control group's post-test | 30 | | | | | |
| Cooperation with others | Control group's pre-test | 30 | 0.500 | 0.257 | 1.980 | 29 | 0.057 |
| | Control group's post-test | 30 | | | | | |
| Observation of rules | Control group's pre-test | 30 | 0.100 | 0.347 | 0.288 | 29 | 0.775 |
| | Control group's post-test | 30 | | | | | |
| Finding friends | Control group's pre-test | 30 | 1.700 | 0.597 | 2.847 | 29 | 0.008 |
| | Control group's post-test | 30 | | | | | |
| Sense of responsibility | Control group's pre-test | 30 | 0.933 | 0.283 | 3.294 | 29 | 0.003 |
| | Control group's post-test | 30 | | | | | |
| Group activities | Control group's pre-test | 30 | 0.833 | 0.279 | 2.977 | 29 | 0.006 |
| | Control group's post-test | 30 | | | | | |
| tolerance | Control group's pre-test | 30 | 0.633 | 0.408 | 1.552 | 29 | 0.132 |
| | Control group's post-test | 30 | | | | | |
| Critical thinking | Control group's post-test | 30 | 0.866 | 0.524 | 1.652 | 29 | 0.109 |
| | Control group's pre-test | 30 | | | | | |

**Description and Interpretation:** since the variables under study deal with two different states of one sample, t-test for correlated groups is used to test the hypotheses and the results are demonstrated in the table above. Based on the results of the t-test, the t-values as stated in the table in the degree of freedom 29 are only significant for the indices of "finding friends", "sense of responsibility", and "group activities". Based on the data in the first descriptive table for this test, it could be seen that the mean score related to post-test for the control group is lower than the mean score of the pre-test for the abovementioned indices. Therefore, the difference of mean scores and the meaningfulness of this test for these three indices are indicative of the reduction of social skills in the control group. On the other hand, there is not a significant difference between the mean scores obtained in pre-test and post-test by the control group with regard to the three mentioned indices above. In addition, descriptive data related to this test indicate that there is not significant difference between mean scores of social skills related to the other five factors. Therefore, it could be said that social skills in the control group do not show any difference or even show a decline in the post-test as compared to the pre-test.

**A generic analysis of the hypotheses related to the pre-test and post-test of the study group**

Table 21. The descriptive data related to pre-test and post-test for the study group

| Factors of social skills | Groups | Number | Mean | Sd | Sd error |
|---|---|---|---|---|---|
| Respecting others | Study group's post-test | 30 | 20.83 | 3.484 | 0.636 |
| | Study group's pre-test | 30 | 26.06 | 2.196 | 0.400 |
| Carrying duties | Study group's post-test | 30 | 14.30 | 1.764 | 0.322 |
| | Study group's pre-test | 30 | 15.66 | 0.802 | 0.146 |
| Cooperation with others | Study group's post-test | 30 | 9.53 | 1.942 | 0.354 |
| | Study group's pre-test | 30 | 11.36 | 1.299 | 0.237 |
| Observation of rules | Study group's post-test | 30 | 11.43 | 1.590 | 0.290 |
| | Study group's pre-test | 30 | 14.80 | 0.805 | 0.147 |
| Finding friends | Study group's post-test | 30 | 19.03 | 3.528 | 0.644 |
| | Study group's pre-test | 30 | 23.03 | 2.758 | 0.379 |
| Sense of responsibility | Study group's post-test | 30 | 9.33 | 1.667 | 0.304 |
| | Study group's pre-test | 30 | 11.66 | 0.802 | 0.146 |
| Group activities | Study group's post-test | 30 | 9.56 | 1.941 | 0.354 |
| | Study group's pre-test | 30 | 11.50 | 1.074 | 0.196 |
| tolerance | Study group's post-test | 30 | 21.00 | 4.201 | 0.767 |
| | Study group's pre-test | 30 | 23.96 | 2.108 | 0.385 |
| Critical thinking | Study group's post-test | 30 | 11.06 | 1.574 | 0.287 |
| | Study group's pre-test | 30 | 12.56 | 0.897 | 0.163 |

Table 22. The analytic data related to pre-test and post-test for the study group

| Factors of social skills | Groups | number | Absolute value of mean difference | Sd | T value | df | level of significance |
|---|---|---|---|---|---|---|---|
| Respecting others | Study group's post-test | 30 | 5.23 | 4.149 | 6.90 | 29 | 0.000 |
| | Study group's pre-test | 30 | | | | | |
| Carrying duties | Study group's post-test | 30 | 1.36 | 1.902 | 3.93 | 29 | 0.000 |
| | Study group's pre-test | 30 | | | | | |
| Cooperation with others | Study group's post-test | 30 | 1.83 | 2.393 | 4.19 | 29 | 0.000 |
| | Study group's pre-test | 30 | | | | | |
| Observation of rules | Study group's post-test | 30 | 3.36 | 1.809 | 10.19 | 29 | 0.000 |
| | Study group's pre-test | 30 | | | | | |
| Finding friends | Study group's post-test | 30 | 4.00 | 4.076 | 5.37 | 29 | 0.000 |
| | Study group's pre-test | 30 | | | | | |
| Sense of responsibility | Study group's post-test | 30 | 2.33 | 1.806 | 7.07 | 29 | 0.000 |
| | Study group's pre-test | 30 | | | | | |
| Group activities | Study group's post-test | 30 | 1.93 | 2.256 | 4.69 | 29 | 0.000 |
| | Study group's pre-test | 30 | | | | | |
| tolerance | Study group's post-test | 30 | 2.96 | 3.671 | 4.42 | 29 | 0.000 |
| | Study group's pre-test | 30 | | | | | |
| Critical thinking | Study group's post-test | 30 | 1.50 | 1.814 | 4.52 | 29 | 0.000 |
| | Study group's pre-test | 30 | | | | | |

**Description and Interpretation**: since the variables under study deal with two different states of one sample, t-test for correlated groups is used to test the hypotheses and the results are demonstrated in the table above.

Based on the results of the t-test, the t-values as stated in the above table are significant for all the factors of social skills. Based on data in the fourth descriptive table for this test, it could be seen that the mean score related to post-test for the study group is higher than the mean score of the pre-test for all the abovementioned factors. Therefore, the difference of mean scores and the significance of this test for all factors are indicative of the increase of social skills in the study group. Therefore, it could be said that due to controlling the conditions of the test, the increase in the level of social skills is the result of the application of the independent variable of CL methodology.

## 9. DISCUSSION AND CONCLUSION

Different theories have been proposed by psychological and sociological scholars to answer how and when human being's social behaviors are formed, what factors result in the suppression or lack of development of social skills and in contrast what factors result in the development of these skills. The present study has presented some of these theories. No surprise that all these theories are related to the subject of the study; however, the common point of all these theories is that the main part of human beings' social behaviors are formed through learning, interactions, and imitations of the environmental models. Thus, the main part of the character of people is the result of environmental experiences and learning. Many scholars are of the conviction that human being is a social creature whose needs are satisfied through interactions and actions that are based on conscious goals. That is why some people are in need of having constructive interactions and relationships with others to satisfy their needs. It is the type and nature of these interactions that forms the quality of social skills. In order to acquire positive and constructive social skills, people are in need of education. Most scholars believe that the best time for teaching social skills is the childhood, the best social environment is the school and the most effective method is group learning as children actively learn from adults as well as people of the same age. Therefore, in order to provide an environment for learning social skills, the modern methodologies, in which students actively and in groups take part in the process of education, need to be employed.

The findings of this study, which attempts to show the effect of learning environment (in which an individual consciously and freely experiences social interactions) on the formation of people's social skills, are all consistent with the theories stated in the second part. The common feature of all these theories is that individuals are influenced by their surroundings. The more the interactions of an individual with the surroundings, the learning would be higher. Models and confirmation of positive behavior play major roles in forming the learners' characters.

In this study, the learning environment is based on CL methodology as the desirable learning environment that accords with the theories stated, and it is the effective variable of the study and the social skills that form aspects of the social character of people are the dependent variables. Thus, here is a list of the experimental findings of the previous researchers that are in line with the findings of the present study:

If teachers look at children as the creatures that are going through the stage of growth, social skills and other aspects of skills in children will develop (Talkhabi, 2003). This is in line with the findings related to hypotheses 1 to 9 in this study that assume that children have low levels of social skills and develop these skills through learning.

Group discussions lead to the formation of relationships between individuals as well as social interactions. It is through group discussions that students learn to find and review the controversial issues and deal with different conditions and situations. Doing this, they feel that they are part of a group and are being accepted by the people of the same age. In addition, through groups discussions, which are among the strategies to teach social skills, students obtain self-leadership, self-management, and decision-making capabilities. Group discussions have positive effects with regard to behavioral problem, communication problem, choice of career, loneliness, and the like (Millroonan, 2001 as cited in Hasanzadeh, 2004).

The findings of this study are also consistent with the theory proposed by Vygotsky (1962) who believes that children build up their knowledge through social interactions with others (Biabangard, 2009:55). The concepts of Vygotsky's theory for teaching indicate that we need to provide children with plenty of opportunities so that they learn (through interactions) from their teachers or more talented friends (ibid). Therefore, this study provides an interactive learning environment through CL methodology to enhance the learning of social skills by students as compared with those who did not have this type of methodology.

The findings of this study are also in line with the results of the study by Rasool Sokhandan (2001). He demonstrated that teaching social skills significantly decreases behavioral problems in children. Since hypotheses 1 to 9 in this study all emphasize on teamwork and all have been confirmed, it could be said that children show fewer social problems when they are placed in groups as the factors of "respecting others", "finding friends", "tolerance" and the like confirm this statement. On the other hand, Khoshkam et al. (2008) concluded in their studies that teaching to resolve issues in groups significantly increases students' social skills and reduce their external behavioral problems.

On the whole, CL Methodology is a kind of active modern methodologies in which students are actively involved in the process of education and the teacher is the manager of this process (since students' social interactions with their teachers and peers is high). Thus, students' social skills develop and they act more successfully in their interactions with others. The results obtained from testing each and every hypothesis in this study provides reliable experimental and research basis for this general conclusion.

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