



MALAYSIAN ONLINE JOURNAL OF EDUCATIONAL MANAGEMENT (MOJEM)

JULY 2016, VOLUME 4, ISSUE 3, 37 - 51

E-ISSN NO: 2289 – 4489

THE IMPACT OF A COOPERATIVE LEARNING MODEL ON STUDENTS' SELF-MOTIVATION AND ACADEMIC PERFORMANCE IN HIGH SCHOOL

Ayoub Garshasbi, Kourosh Fathi Vajargah (PhD) & Mahboube Arefi
(PhD)

Shahid Beheshti University
Tehran, IRAN

Corresponding Author:
Shahid Beheshti University, IRAN
Email: auob1001@gmail.com

ABSTRACT

This study aimed at investigating the impact of a Cooperative Learning Model on self-motivation and academic performance in high levels of learning in students. The method of the study was quasi-experimental and the educational action was performed in two experimental groups; Hamyar Dabir cooperative teaching was employed in one group and in the other group, the same method together with students' self-assessment for eight 90-minutes sessions were employed. The population consisted of all male students in third grade of high school in Birjand city and the sample consisted of 54 individuals in the form of three groups each consisting of 18 individuals (two experimental groups and one control group). The sample was selected using purposive sampling and the study tools consisted of a part of Motivated Strategies for Learning Questionnaire (MSLQ) by Pintrich and De Groot (1990) and a researcher-made geometry academic progress test for measuring low and high levels of cognitive domain. One-way analysis of variance and Tukey test were used for investigating the self-motivation test data. For analyzing the data from academic achievement test mixed analysis of variance was used. The main findings of the study indicate that "cooperative learning and self-assessment" are effective in improving "self-motivation" of students in geometry course. Also, "cooperative learning and self-assessment" had significant impact on and created difference in components of self-motivation or "motivational beliefs" in the groups. In addition, Hamyar Dabir (cooperator with teacher) cooperative learning model and self-assessment had positive impact on both high and low levels of learning of students in the cognitive domain.

Keywords: Cooperative learning, Hamyar Dabir model, self-motivation,



MALAYSIAN ONLINE JOURNAL OF EDUCATIONAL MANAGEMENT (MOJEM)

INTRODUCTION

In the last two decades, education experts have paid more attention to cognition and motivation. Cognition involves some mental abilities and actions such as knowledge, understanding, discerning and thinking and motivation is related to issues such as emotions and valuation. Most psychologists such as Zimmerman (1995), Bandura (2000), and Schunk (1989) pay attention to both cognition and motivation and their role in learning and based on new theories such as self-regulated learning, cognition and motivation and educational interaction components are considered as an interrelated set.

Self-regulation learning is based on how students adjust learning in themselves in terms of metacognition, motivation and behavior (Zimmerman, 1995). Based on self-regulation learning theory, meta-cognitive processes, effort and strategy of students form self-regulation. The purpose of self-regulation is that students have the skills to design and control and direct their own learning process. They tend to learn, and to assess the entire learning process (Berry, 1992).

Motivational belief in self-regulation learning theory is exactly the same motivational belief that Anderson and Krathwohl (2001, as quoted in Saif, 2005) call self-motivation in their knowledge theory. In reviewing Bloom's cognitive goals, they consider self-motivation as the highest cognitive goal.

"Self-motivation is consisted of three sets of motivational belief: 1.self-efficacy beliefs: these belief refers to students' judgments regarding their abilities for gaining success in a specific task. 2. Students' beliefs regarding goals or the reasons for doing task (for example learning for gaining a good grade). 3. "Value and interest beliefs" which indicates students' perception of personal interests such as liking tasks and the importance and usefulness of that task for them. Awareness of these different motivational states aids students to control and supervise their learning and it is very useful in their success" (p. 221).

Some studies (Al Khatib, 2010; Artino, 2008) indicate that motivational beliefs are one of the two main components in students' performance. But they have less to address the issue of: how to increase the motivational beliefs or how to improve self-motivation in students?

For answering the above question, the principles of self-motivated learning should be investigated. One of the major theories regarding self-motivated learning nowadays is self-regulation learning. According to Bandura's triadic theory, the basis of self-regulating learning is social cognition. In his view, the activities of students' learning processes are determined by three factors: personal, environmental, and behavioral (Bandura, 1986).

It seems one of the most efficient and effective learning methods in the social cognition field can be application of cooperative learning in the classroom. For a long time in the Iranian educational system, teachers have encouraged students to memorize and repeat scientific concepts by emphasizing traditional methods especially speech and although the students' activeness, mental growth and free thinking is talked about in scientific and educational and even administrative places, in practice such views have become mere propaganda. The dominant style for most Iranian schools is traditional which means the students face less challenging opportunities for learning educational concepts and fewer opportunities are created for interaction, consultation, cooperation, discussion and communication between teachers and students and among students themselves. The students are encouraged to learn by parroting and competition substitutes for cooperation (Keramati, 2003).

In contrast, cooperative learning helps students to free themselves from the mentality that teachers are the only source of knowledge and information (Slavin, 1984). Cooperative learning familiarizes students with problem solving besides preparing them for the working world and reinforcing the feeling of cooperation (Cooper, 1995). Some studies have shown the effects of cooperative learning on language learners' academic achievements such



MALAYSIAN ONLINE JOURNAL OF EDUCATIONAL MANAGEMENT (MOJEM)

as grammar achievement (Ghorbani, 2012) reading (Kocyigit, 2013; Odwan, 2012; Pan & Wu, 2013), writing (Shuhua, 2009) and motivation (Pan & Wu, 2013; Abass, 2008; Zhou, 2012).

Different studies regarding cooperative learning deal with investigating the impact and the relationship of cooperative learning with other factors:

Various studies (Cohen, 1994; Farrell, 1999; Hung, 2001; Ronald, 1997; Shmucker, 2002 as cited in Keramati, 2003, p. 38) have indicated that cooperative learning strengthens the feeling of cooperation, increases desire for learning and feeling of personal and group responsibility, develops the criticizer and criticism-accepting temperament, increases listening ability, improves emotional relationships, enhances trust, mutual respect, and verbal abilities, increases self-leadership skills and reduces anxiety, dependency of the student on teacher and thus increases the growth of social skills as each of these impacts is in fact a type of social skill resulting from implementing cooperative learning method.

The results of studies by Sharon (as cited by Behrangi, 2004) indicates that:

“students that are in classes under cooperative learning method in two or several individual groups, teach each other and benefit shared rewards and compared to students that get educated with individual and traditional method of education, have more knowledge of the course contents. Also, this method creates common responsibility, interaction and more positive feelings towards tasks and other individuals and creates better relationship in the groups and results in a better self-image for students with weak academic background”(p.279).

Behrangi and Aghayari (2004) conducted a quasi-experimental study on the jigsaw cooperative teaching model as independent variable and student academic achievement as the dependent variable. In this study 111 individuals out of 210 students in three classes out of six classes of fifth grade students from a school in district 2 of Robot Karim city were selected randomly as experimental group and the remaining 99 students were made the control group. The control group learned the topics in the traditional way and based on teachers' efforts while the experimental group underwent cooperative learning method of jigsaw type. The results indicated significant difference in student academic progress between the control and experimental groups and significant increase in learning and academic progress in the jigsaw model. The results indicated direct and effective educational impacts of the model on student academic progress.

Seirafi (1995) indicated that academic progress of students educated by cooperative learning is more than that of students educated through lectures. The studies conducted by Ayoubi (1998) and Kanani(1999) in high schools and studies by Mobini (1998), Tajrobekar (2001). Ali-Ismaili (2006) conducted a study comparing the effectiveness of traditional and cooperative methods in the composition course in middle school. The independent variable in this study (cooperative teaching) was implemented for 4 months on the experimental group; another group was assigned as the control. By using one way analysis of variance on the pretest and posttest scores he concluded that cooperative teaching results in increasing students' mean scores in the composition course.

Effandi, Chin, and Daud (2010) conducted a quasi-experimental study on cooperative learning effect on students' Mathematics achievement and attitude toward Mathematics. The results of this study indicated that cooperative learning had positive impact on students' success in mathematics and their attitude toward mathematics. Also, Pan and Wu (2013) conducted an experimental study investigating how cooperative learning affects English reading comprehension and learning motivation of EFL freshmen through comparing cooperative teaching and traditional lecture approach. The results of this study indicated that cooperative learning has positive effect on English reading comprehension of students, especially mediocre and low-skilled students. Also, cooperative learning had significant positive impact on students' motivation for English learning. Similarly, in a quasi-



MALAYSIAN ONLINE JOURNAL OF EDUCATIONAL MANAGEMENT (MOJEM)

experimental study on female university students, Wang (2012) indicated that cooperative learning has a significant impact on motivation for progress in female students.

In summing up the conducted studies it can be observed that in most studies on cooperative learning a comparison of cooperative approach and traditional approach in terms of academic progress has been done and most of these studies have concluded that cooperative learning methods are superior. The new wave of studies on cooperative learning should focus on its impact on other major components in education and they should try developing cooperative learning methods. It is obvious that efforts for developing cooperative teaching patterns and providing new combinational patterns and recognizing their impacts on new subjects of cognitive domain such as self-motivation and cognitive levels can help in better fulfilling higher objectives of education. Thus, by reliance on theoretical and research background of cooperative learning a model called Hammiar Dabir (cooperator with teacher) cooperative learning was designed by the researcher Also, in this study the combination of “self-assessment”-- as the second independent variable-- and cooperative learning has been studied as it can have complementary and effective impact on cooperative learning (Ross, Rolheiser, & Hoaboam-Gray, 1998).

In “students’ self-assessment” it is emphasized that students should be aware of self-learning and the knowledge and information they have and they should know their own abilities and limitations. Also, they should be committed to self-learning and should be responsible and should not be waiting for someone to supervise their learning. For example the student can talk about or write on the questions that they have not answered and courses the questions have been from (courses studied or not studied by them), their errors, their performance in each course or the duties in the group and what they have done and whether they made any progress or not (Brahmer & Harmatys, 2009). Through such an attitude, first, the researcher challenged the method of Hamyar Dabir in a quasi-experimental situation and then investigated self-assessment with complementary aspect to see whether this new method can increase student self-motivation, and whether this new method can improve academic progress in high levels of learning. Accordingly, the following hypotheses have been formed:

- H₁. The cooperative learning Model (Hamyar Dabir) and self-assessment impact the increase self-motivation of students in third grade of high school.*
- H₂. The cooperative learning Model (Hamyar Dabir) and self-assessment impact academic progress in higher levels of learning.*

DESIGN OF THE STUDY

In terms of aim of the study, this is a developmental study and in terms of the way the data are collected, this is a quasi-experimental study because the independent variable (teaching method) is manipulated; other variables except dependent variable are kept constant and are controlled; and the impact of independent variable on dependent variable is observed.

Table 1

Design of the Study

Groups	pretest	Independent variable	posttest
Experimental group 1	T1	X1	T2
Experimental group 2	T1	X2	T2
Control group	T1	-----	T2



MALAYSIAN ONLINE JOURNAL OF EDUCATIONAL MANAGEMENT (MOJEM)

In this study two experimental groups and one control group were used. Self-motivation pretest was performed in three levels and academic achievement pretest was performed in two levels in all groups. In the first experimental group Hamyar Dabir cooperative learning was used and in the second experimental group Hamyar Dabir cooperative learning together with self-assessment was used. The control group was taught using the traditional teaching method.

The data in this study were obtained through completion of the self-motivation questionnaire and academic progress test in geometry course by subjects in the control group and experimental groups after manipulating the independent variable. In this study central indicators and dispersion (mean and standard deviation) were used. Also, for investigating the study hypothesis that cooperative learning impacts on academic progress, one way analysis of variance, Tukey test and two way analysis of variance were used.

Population & Sampling

The population consisted of all male students in third grade of high school in Birjand city and the sample consisted of 54 individuals in the form of three groups each consisting of 18 individuals (two experimental groups and one control group). The sample was 3 classes in a high school. The method of sampling was purposive sampling. For accurate comparison and in order to maintain similarity of social and economic situation and academic progress of the students, the selected sample in this study consisted of male students in the third grade of high school from three classes studying mathematics and physics in one of Birjand city's high schools. Two classes were studied as experimental groups and one group as the control group from the same high school. The experimental groups studied geometry under Hamyar Dabir cooperative learning method for eight sessions.

The teaching method performed in this study was researcher made Hamyar Dabir cooperative learning method. This method combines traditional schooling and jigsaw cooperative method that has been used in this study after creating some innovations. In this study cooperation for learning among students was highly important. This method had two aspects, one inside school and the other outside school. In inside school aspect the teacher used jigsaw teaching method for teaching the subject and in outside school aspect he used traditional teaching. In this section the brightest students were selected by the teacher based on academic background and they were issued cooperation decree and wage (from the school financial resources). Students were classified into weak, average and strong based on performance, their previous scores and the teacher's knowledge of them. And then they were divided into three-membered groups and in each group the three types of students were included. In the next stage, for improving relationships the groups were asked to choose an appropriate group name and sign for themselves. Then each group was given a guideline for group activities. Then the predicted stages were implemented as follows:

- **Preparation stage:** this stage involved preparing the course by the teacher.
- **Presentation stage:** included two stages:
 - a. The course content was presented to students by teacher in the form of jigsaw method and some exercises related to the subject of the class were given to groups as group exercises outside the class.
 - b. In this stage the teacher explained the subject of the course and tasks for selected students (cooperators with teacher).
- **Application stage:** in this stage the cooperators with teacher performed teaching and solving exercises given by the teacher, in the form of jigsaw groups in their groups outside school.



MALAYSIAN ONLINE JOURNAL OF EDUCATIONAL MANAGEMENT (MOJEM)

- **Evaluation stage:** in this stage the activity and reports of cooperators with teacher regarding the activities of all students were evaluated by the teacher. In this stage the teacher tried to correct the incorrect learning and to deepen learning.

Presentation of Hamyar Dabir Model

For explaining the structure of this model we describe four learning groups in class as follows. Each group has 4 students:

First group (A): includes (A1) student, (A2) student, (A3) student and (A4) student.

Second group (B): includes (B1) student, (B2) student, (B3) student and (B4) student.

Third group (C): includes (C1) student, (C2) student, (C3) student and (C4) student.

Fourth group (D): includes (D1) student, (D2) student, (D3) student and (D4) student.

Students whose numbers are 1 form specialized group 1 and a common issue and concept is given to them to master. Students whose numbers are 2 form specialized group 2 and a common issue and concept is given to them to master. And students whose numbers are 3 and 4 acts as above. The provisional expert groups get completely familiar with the section given to them and they create a way to transfer their knowledge to their initial and main groups. After the skilled groups did their job well, initial groups A to D (first to fourth) are formed again; then the students teach each other the sections they have worked on. For fulfilling individual learning of students, each student is tested for all sections. After this, the outside school part of the experimental plan begins by giving tasks to the main groups (A to D) and it was here that the cooperators with teacher (the strongest members of the group) began acting.

For the second experimental group, the self-assessment of the students was in the form of recording their daily notes on the classroom learning process, their problems in a specific subject, the level of participation in Hamyar Dabir classes and the like in cooperators with teacher groups. This type of self-assessment was applied together with the above method for teaching. The “self-motivation” questionnaire and academic progress pretest was distributed among the students in the three groups before the beginning of cooperative teaching and the score for each was calculated and recorded. Then for eight sessions the subject of the first class was provided to them in the aforementioned cooperative method (Hamyar Dabir) and the subject was provided to the second class by cooperative learning method together with self-assessment of students and the subject was provided to the students in the third group by the traditional method. And after this period again the “self-assessment” questionnaire and academic progress posttest were completed by the students.

Research Tool

In the present study a part of the Motivated Strategies for Learning Questionnaire (MSLQ) by Pintrich and DeGroot and a researcher-made geometry academic progress test for measuring low and high levels of cognitive domain have been used. Academic progress test consisted of 8 questions in low levels of cognitive domain and 8 questions in high levels of cognitive domain. The validity of this test was verified by the teachers in the district using expert method. The reliability for this test using Cronbach’s alpha was .79 in low levels of cognitive domain and equal to .81 in high levels of cognitive domain.

MSLQ questionnaire measured three different factors: 1. self-efficacy beliefs, 2. the students’ beliefs regarding the goals, and 3. value and interest beliefs. This included sentences in a 5-point Likert scale that students could answer each item by “highly agree” to “highly disagree”.



MALAYSIAN ONLINE JOURNAL OF EDUCATIONAL MANAGEMENT (MOJEM)

Keanchie, Pintrich, Smith, and Garcia conducted a study in 1993 investigating the internal consistency, reliability and validity of the MSLQ. In this study 356 subjects were selected from 36 different classes and 14 academic fields. The data were used for determining internal consistency, assessment of reliability, confirmatory factor analysis and investigation of goodness of fit. Overall, the results indicated that this test is a valid, reliable and useful tool for measuring motivation and learning strategies.

In another study Sachs, Law, and Chan used the learning process questionnaire for testing the validity of the MSLQ. In this study multivariate regression analysis, correlation and multiple factor analysis were employed. The results indicated that MSLQ is a completely valid test. For investigating the validity of this 22- item questionnaire content validity expert method was used and it was verified by the teachers in the district. These teachers were selected from the region's superior teachers.

Table 2

Subscales and Number of Questions of MSLQ Test

Self-motivation components	Number of questions
Students' beliefs regarding goals	8
Value and interest beliefs (the value of interest)	6
Self-efficacy beliefs	8

The first eight questions measured the students' beliefs regarding the goals (questions 1 to 8). Six questions (questions 9 to 14) measured the value and interest beliefs of students in the geometry course. And questions 15 to 22 measured self-efficacy beliefs of students. In this study the questionnaire reliability using Cronbach's alpha was determined equal to .83 in the scale of goal beliefs, .92 in the scale of value and interest and equal to .82 in the scale of self-efficacy beliefs.

The Method of Data Analysis

The data gained by performing the scales were analyzed using SPSS 15 software. From descriptive indicators mean and standard deviation were measured and analyzed. For investigating study's hypotheses in regard to cooperative learning and its impact on academic progress, one way analysis of variance, Tukey test and two way analysis of variance were used.

RESULTS

H₁: cooperative learning and self-assessment are effective in improving students' self-motivation towards geometry course.

Table (3) presents descriptive indicators, number, mean and standard deviation for experimental group 1, experimental group 2 and control group in pretest and posttest.



MALAYSIAN ONLINE JOURNAL OF EDUCATIONAL MANAGEMENT (MOJEM)

Table 3

Descriptive Indicators Related to Self-motivation in Pretest and Posttest in the Groups

Pre-test in self-motivation beliefs scale				Post-test in self-motivation beliefs scale		
	Frequency	Mean	Standard deviation	Frequency	mean	Standard deviation
Experimental group 1	18	8/42	3/29	18	11/68	2/65
Experimental group 2	18	8/84	3/71	18	12/66	1/97
Control group	18	8/74	3/69	18	8/62	3/66

Based on Table 3 the mean of scores of self-motivation have increased in the posttest compared to pretest in experimental groups. However, in the control group the mean scores of self-motivation had decreased in the posttest compared to pretest. For testing the difference between the groups one way analysis of variance was used. One way analysis of variance was done on data gained from the self-motivation scale in pretest to determine whether there was a difference among the groups before conducting experimental methods or not. Also one way analysis of variance was done on data gained from posttest of self-motivation to determine whether the teaching methods employed have had significant difference in the groups or not.

Table 4

One Way Analysis of Variance for Comparing Self-motivation Beliefs of the Groups

Conditions	Sources of change	Sum of squares	Degree of freedom	Mean square	F	Level of significance
Self-motivation pretest	Between groups	1/79	2	0/895	0/70	0/933
	In the group	652/37	51	12/792		
	Total	654/16	53	-----	-----	-----
Self-motivation posttest	Between groups	15/73	2	79/86	9/816	0/000
	In the group	414/95	51	8/13		
	Total	575/68	53	-----	-----	-----



MALAYSIAN ONLINE JOURNAL OF EDUCATIONAL MANAGEMENT (MOJEM)

Based on the results provided in Table 4 it can be concluded that self-motivation before the experiment (cooperative learning, cooperative learning with self-assessment) has not been significantly different in the three groups ($p = 0.933$ and $F = 0.70$) but after performing the experiment significant difference is seen in self-motivation of students in the three groups. As the differences have been significant in the posttest Tukey test is used for one to one comparison of the groups and its results is provided in table (5).

Table 5

Comparison of Level of Self-motivation in the Groups

	Comparison of the groups	Difference of means	Standard error of the mean	Level of significance
Self-motivation posttest	group 1 with group 2	0/98	0/95	0/559
	group 1 with group 3	3/05	0/95	0/006
	group 2 with group 3	4/03	0/95	0/000

These results indicate that:

- There is a significant difference between cooperative method and control group after the treatment ($p < 0.01$).
- There is no significant difference between cooperative learning and cooperative learning together with self-assessment ($p = 0.599$).

Thus the first hypothesis of the study that cooperative learning and self-assessment impact the self-motivation of the students is verified.

H₂: cooperative learning and self-assessment have a positive impact on academic progress of the students in higher levels of cognition.

For testing the difference between the two groups two-way mixed factorial analysis was used. The following Table 6 shows the results obtained from this test.



Table 6

Summary of mixed factorial analysis for investigating the impact of “cooperative and self-assessment” learning on academic progress in students’ high levels of cognition

Sources of change		Sum of squares	Degree of freedom	Square mean	Variance ratio (f)	Level of significance (p)	ETA
Intra-test	Pretest-posttest	22/688	1	22/688	48/962	0/000	0/490
	Pretest-posttest in group situations	10/181	2	5/090	10/985	0/000	0/301
	error	23/632	51	0/463			
Inter-test	Experimental situations	13/685	2	6/843	2/306	0/110	0/083
	error	151/312	51	2/967			

The impact of the interaction has been positive ($p < 0.01$ and $F = 10.985$). Therefore the results support the hypothesis that “cooperative learning and self-assessment” have a positive impact on academic progress in high levels of cognition of students. The following chart (1) indicates the difference in mean of scores of pretest and posttest of high levels of learning in the groups.

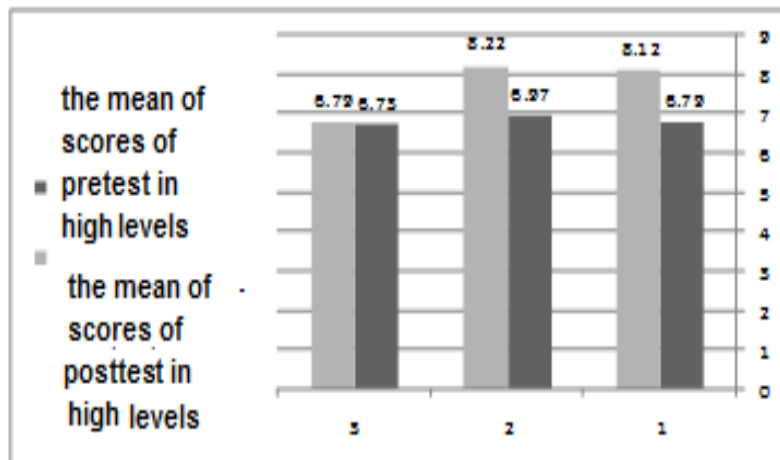


Figure1. Comparison of score means of pretest-posttest for high levels of learning in the groups

As can be seen from Figure 1, the mean of learning in high levels of learning in experimental groups is increased significantly in posttest compared to pretest. However, in the control group the mean of scores has not significantly changed in posttest compared to pretest.



DISCUSSION AND CONCLUSION

Overall, from the findings it can be concluded that cooperative learning and self-assessment affect the increase of “self-motivation” in students in the geometry course. Though this relationship is not directly studied in the previous studies, this finding can be regarded as consistent with the theoretical background.

Self-motivation consists of three sets of “motivational beliefs”: 1. “self-efficacy beliefs” or beliefs about students’ judgments regarding their abilities for gaining success in a specific task. 2. Students’ beliefs regarding goals or “the reasons for doing task” (for example learning for gaining a good grade). 3. “value and interest beliefs” which indicate students’ perception of personal interests such as liking tasks and the importance and usefulness of that task for them. Awareness of these different motivational states aids students in controlling and supervising their learning and it is very useful in their success (Behrangi & Aghayari, 2004). In cooperative learning the class is turned into a community of learners who actively collaborate to improve knowledge, credentials and joy of individuals (Johnson & Johnson, 1996).

Cooperative learning results in correcting and strengthening of the skills of cooperation and respecting others’ thoughts, development of critical thinking and tolerating opposing thoughts. When students with different characteristics work in a group for a common goal they develop interest and respect for each other (Tileston, 2000). In this type of learning the learners are the source of their own transformation and are free choosing of criteria and values for reaching scientific-social truths based on a democratic activity. Thus the three principles of freedom, responsibility and option play essential roles in cooperative learning (Shabani, 2010). The students’ learning process is self-operative, self-regulative and self-leading. The cooperation created in the groups based on common effort and interaction creates more motivation than environments based on competition and individualism. In cooperative learning method learning follows mental change of the child and mental change explains learning (Kareshki, 2002).

In this method what the students do results in learning. The learner progresses by impacting on the environment and active reaction against the environment’s action. The teacher organizes interactive learning activities such that students must depend on each other and none of the group members can succeed unless all the members of the group succeed. The motto of a cooperative and interactive class is: either we are all saved or we all drown (Ellis & Whalen, 2000). Thus, in this method the negative aspect of competition is eliminated and students get interested in the course resulting in increased value and interest beliefs in students. In competitive learning only a small number of students can experience success and the willingness for security replaces growth and flourishing and movement (Keramati, 2003). But in Hamyar Dabir cooperative learning all students get opportunities to constantly experience success. In other words, in this method all the students are somehow leaders and responsible.

Besides that, cooperative learning is very effective in developing self-confidence. The students experience the successes and support in the group and when they are asked questions by other students and their participation is needed they feel worthy. In cooperative learning cooperation leads to reinforcing self-esteem through increasing learning and the feeling of the individual who is respected and paid attention to by other individuals (Joyce et al, 2005). Thus cooperative learning becomes effective in increasing self-efficacy beliefs by increasing the student’s self-confidence and self-esteem. Self-efficacious individuals, based on their selected goals, make themselves determine performance criteria and then they observe and evaluate the results of their performance and in the case of observing inconsistency between the real levels and favorable levels of performance, they feel unsatisfied and this becomes a drive for determining and correcting their actions. People impact the process of their life through choices they make. They avoid successes, activities and generally choices that they believe exceed their ability and they choose activities that they think they can do.



MALAYSIAN ONLINE JOURNAL OF EDUCATIONAL MANAGEMENT (MOJEM)

People with high level of self-efficacy choose opportunities and goals that are possible but are not out of their ability (Bandura, 2000). Thus it can be said that cooperative learning, through increasing self-efficacy beliefs in students will improve students' beliefs regarding goals. It should be mentioned that cooperative learning alone has not resulted in the significant improvement of goal beliefs. And it can be said that self-assessment in the second group has somehow resulted in more organized action of students for determining their goals. The results of this study are consistent with the findings of Whicker, Bol and Nunnery (1997) that indicate cooperative learning develops metacognition. However, the findings of this study are inconsistent with the results of Pakizeh (2000). Pakizeh did not indicate a significant difference between the subjects of cooperative group and traditional group in terms of student self-image.

Hamyar Dabir cooperative learning together with self-assessment affect academic progress in higher levels of learning. Mathematics knowledge is more than just remembered facts (such as Pythagorean principle or the formula for calculating a triangle's area). Knowledge includes an extensive structure of mental concepts that allows the individual to change or interpret the meaning of words, remember topics or conduct effective search in a new mathematical field. Thus reaching higher levels of learning in the cognitive domain should be placed at the top of the list of the goals of education and teaching mathematics. Therefore the duty of mathematics teachers should be preparing an environment for students to create the meanings themselves.

Joyce et al. (2005) believe that sometimes what is learned in a group is more than what is happening alone in any individual's mind. Cooperative learning can give such an opportunity to teachers for creating the environment and to the student for creating meanings. Hamyar Dabir cooperative model is a combination of jigsaw method in the class and cooperators with teacher outside the class. As in jigsaw cooperative learning each group member is responsible for learning a part of the course and teaching it to other group members; the highest amount of possible classroom time in this study has been given to learning course subjects. Thus, learning in students has occurred well in both low and high levels of cognitive domain. It can be said that cooperators with teacher, were effective in deepening learning among their group members outside the class. Also self-assessment of students has a positive and complementary effect for deepening the learning of group members during the cooperative learning process. The results of this study are consistent with that of Webb (1985). Webb concludes that cooperative learning results in achieving higher level of thinking in students. The results of the current study also support that of Gokal (1995) indicating that cooperative learning facilitates information retention.

The results of the study are also consistent with those of several other studies (Johnson & Johnson, 2000; Onwuegbuzie, 2001) indicating cooperative learning effectiveness in academic progress and academic performance. The results of this study are consistent with Seirafi (1995) who showed that academic progress is higher in those educated by cooperative learning method than in those educated by the traditional lecturing method. Also, the results of this study align with the results of studies in other academic levels: in high school level (Ayoubi, 1998; Kanani, 1999), in middle school (Ali-Ismaili, 2006; Mobini, 1998; Tajrobekar, 2001) and in elementary school (Behrangi & Aghayari, 2004).

Based on these results it is recommended that teachers create appropriate conditions for growth and improvement of motivational beliefs and give students more opportunity for learning by using cooperative learning models.

LIMITATIONS

As this study has been conducted on high school students, it is not generalizable to other academic levels. Also this study has been conducted on male students so it is not generalizable to female students. In addition, because of time limitation the model was performed on a geometry course and it is not generalizable to other courses.



MALAYSIAN ONLINE JOURNAL OF EDUCATIONAL MANAGEMENT (MOJEM)

REFERENCES

- Abass, F (2008). Cooperative learning and motivation, *Aichi University Bulletin: Language and Culture*, 18(1), 15-35.
- Ali-Ismaili, A. (2006). *Compare the effectiveness of traditional teaching methods and collaborative teaching at composition courses tips*. (Unpublished M.S thesis, Islamic Azad University of Roodehen).
- Al Khatib. S. A. (2010). Meta-cognitive self-regulated learning and motivational beliefs as predictors of college students performance. *International Journal for Research in Education*, 14(1), 31-55.
- Artino. A. R. (2008). Motivational beliefs and perceptions of instructional quality prediction satisfaction with online training. *Journal of Computer Assisted Learning*. 24(1), 260-270.
- Ayoubi, Z. (1998). *Comparison of traditional and cooperative learning on the academic achievement and self-esteem of students in third grade school district 10 of Tehran*. (Unpublished MS thesis, Government Management Training Center of Khorasan).
- Bandura, A. (1986). *Social foundation of thought and action*. Englewood Cliffs, NJ: Prentice Hall.
- Bandura, A. (2000). Cultivate self-efficacy for personal and organizational effectiveness. In *Handbook of principles of organization behavior* (pp. 120-139). Oxford, UK: Blackwell,
- Behrangi, M., & Aghayari, T. (2004). Development of collaborative Teaching Jigsaw in Traditional Teaching of Fifth Grade Students. *Educational Innovations Journal*, 3(10), 43-54.
- Berry, C.A. (1992). Previous learning experiences strategy beliefs and task definition in self-regulated foreign language learning. *Contemporary Educational Psychology*, 18, 318-336.
- Brahmer, K., & Harmatys, J. (2009). *Increasing student effort in complex problem solving through cooperative learning and self-recording strategies*. (M.S Thesis. Saint Xavier University Chicago, IL).
- Cooper, J. (1995). Ten reason college administrators should support cooperative- learning and college teaching, *Newsletter*, 6(1), 1-8.
- Effandi, Z., Chin, L. C., & Daud, M. Y. (2010). The Effects of Cooperative Learning on Students' Mathematics Achievement and Attitude towards Mathematics. *Journal of Social Sciences*, 6(2), 272-275.
- Ellis, S., & Whalen S. F. (2000). *Cooperative learning*. Tehran, Iran: Nay Publishing.
- Ghorbani, M. R. (2012). Cooperative learning boosts EFL students' grammar achievement, *Theory and Practice in Language Studies*, 2(7), 1465-1471.
- Gokal, A. (1995). Cooperative learning. *Collaborative Learning Education*, 7(1), 48-57.
- Johnson, D. W., & Johnson, R. T. (1996). Conflict resolution and peer mediation programs in elementary and secondary schools: A review of the research. *Review of Educational Research*, 66(4), 459-506.



MALAYSIAN ONLINE JOURNAL OF EDUCATIONAL MANAGEMENT (MOJEM)

- Johnson, D. W., Johnson, R. T., & Stanne, M. E. (2000). *Cooperative learning methods: A meta-analysis*. University of Minnesota, Minneapolis: Cooperative Learning Center, 2000; <http://www.cooperation.org/pages/cl-methods.html>
- Joyce, B., Weil, M., & Calhoun, E (2005): *Models of teaching* (7th ed.). (Translated by Behrangi. M. R). Tehran: Kamale Tarbiat Publishing.
- Kanani, Sh. (1999.) *The effect of participatory teaching methods and lectures on the academic achievement of first grade students in the high school geometry course*. (Unpublished M.S thesis, Allameh Tabataba'i University).
- Kareshki, H. (2002). Effect of instructing metacognitive strategies on students' comprehension. *Journal of Psychology*, 6(1), 63-84. [Persian]
- Keramati, M. R. (2003). *Cooperative learning* (1st ed). Mashhad, Iran: Fara Angizesh.
- Kocyigit, S., & Zembat, R. (2013). The effects of authentic tasks on preservice teachers' attitudes towards classes and problem solving skills. *Educational Sciences: Theory & Practice*, 13(2), 1045-1051.
- Mobini, R. (1998). *Comparison of cooperative learning with individualized instruction on the academic achievement of English classes*. (Unpublished M.S thesis, Allameh Tabataba'i University).
- Onwuegbuzie, A. J. (2001). Relationship between peer orientation and achievement in cooperative learning-based research methodology courses. *Journal of Educational Research*, 94(5), 164-171.
- Odwan, T. A. (2012). The effect of the directed reading thinking activity through cooperative learning on English secondary stage students' reading comprehension in Jordan. *International Journal of Humanities and Social Science*, 16(2), 138-151.
- Pakizeh, A. (2000). *The effects of cooperative learning on academic performance and self-perception*. Unpublished MS thesis, Allameh Tabataba'i University, Iran.
- Pan, Ch. Y, & Wu, H.Y. (2013). The cooperative learning effects on English reading comprehension and learning motivation of EFL freshmen. *Journal of English Language Teaching*, 6(5), 13-15.
- Pintrich, P. R., & DeGroot, E. V. (1990). Motivational and self-regulated learning components of classroom academic performance. *Journal of Educational Psychology*, 82(3), 33-40.
- Pintrich, P.R., Smith, D.A.F., Garcia, T. & McKeachie, W. J. (1993). Reliability and predictive validity of the Motivated Strategies for Learning Questionnaire (MSLQ). *Educational and Psychological Measurement*, 53(3), 801-813.
- Ross JA, Rolheiser C, Hoaboam-Gray A (1998) Impact of self-evaluation training on mathematics achievement in a cooperative learning environment. Paper presented at the Annual Meeting of the *American Educational*



MALAYSIAN ONLINE JOURNAL OF EDUCATIONAL MANAGEMENT (MOJEM)

Research Association San Diego, April 1998. Downloaded from:
http://eric.ed.gov/ERICDocs/data/ericdocs2sql/content_storage_01/0000019b/80/15/b5/eb.pdf

Saif, A.A. (2005). *Methods of educational measurement and evaluation* (11th ed.). Tehran: Doran Publishing.

Schunk, D. H. (1989). Self-efficacy and achievement behaviors. *Educational Psychology Review*, 1(3), 173–208.

Seirafi, N. (1995). *Effects of cooperative learning on student achievement*. (Unpublished MS thesis, Allameh Tabataba'i University).

Slavin, R. (1984). Effect of cooperative learning. *Educational Leadership Journal*, 50(2), 28-39.

Shabani, H. (2001). *The skills of education* (11th ed.). Tehran, Iran: Samt.

Shuhua, T., Zhang, L. J., & Yuanxing, D. (2009). Integrating cooperative learning into genre-based teaching of EFL writing. *CELEA Journal*, 32(1), 99-108.

Tajrobekar, M. (2001). *Study of individual and group strengthening on collaborative learning and academic achievement in English Language third grade students in Kerman city*. (Unpublished MS thesis, Allameh Tabataba'i University).

Tileston, D.W. (2000). *10 best Teaching practices*. Thousand Oaks, CA: Corwin Press.

Wang, M. (2012). Effects of cooperative learning on achievement motivation of female university students. *Asian Social Science*, 8(15), 108-112.

Whicker, K. M., & Bol, L., & Nunnery, J. A. (1997). Cooperative learning in the secondary mathematics classroom. *Journal of Educational Research*, 91(3), 42-48.

Zimmerman Mare, A. (1995). Psychological empowerment: Issues and illustrations. *American Journal of Community Psychology*, 23(5), 581-599.

Zhou, H. (2012). Enhancing non-English majors' EFL motivation through cooperative learning. *Procedia-Environmental Sciences*, 12(2), 1317-1323.