

## Cooperative Learning

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### SUMMARY

*In this article, the following issues related to cooperative learning strategy are explained and discussed; the definition, advantages and importance of cooperative learning, major cooperative learning methods and the researches related to the implemetation of cooperative learning in Turkey.*

### ÖZET

*Bu makalede işbirlikli öğrenme stratejisi ile ilgili şu konular açıklanmış ve tartışılmıştır, işbirlikli öğrenmenin tanımı, avantajları ve önemi, işbirlikli öğrenme için gerekli koşullar, belli başlı işbirlikli öğrenme yöntemleri ve işbirlikli öğrenmenin Türkiye 'de uygulanması ile ilgili araştırmalar.*

### INTRODUCTION

Education programs must be continuously open to development in order to handle with the technological, societal and scientific changes, otherwise present conditions can not be improved. For this purpose, educational planners have to consider and organize data related to four major areas; social forces, treatments of knowledge, human growth and development, and learning as a process (Wiles and Bondi, 1984).

Curriculum development as a process is based on the information gathered from the above areas. This process inculdes anlysis, design, implementation, and evaluation phases. All of these phases are important but actualization of an educational program's goals are mainly due to the implementation phase.

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Instruction is the implementation of curriculum plan and planning the implementation of a curriculum requires a knowledge of different learning and teaching models and strategies (Wiles and Bondi, 1984; Saylor et. al., 1981). It is obvious that the decision about them is extremely difficult because there are various kinds of learning and teaching models and strategies. Teachers must consider their appropriateness for goals and objectives, learners, materials, classroom conditions etc., and then organize classroom environment according to the decision.

Johnson and Johnson (1987) outline three types of structures for classroom environment; individualistic, competitive, and cooperative. In an individualistically structured classroom, students work alone and avoid interaction with other students. Teacher praises and rewards each student individually. They work quietly so that other students will not be disturbed. In a competitively structured classroom, students work against each other. Students may try to prevent each other's achievement because for being successful, the others must lose. Teacher praises and rewards only one or a few students. In a cooperatively structured classroom, students work together as a group. They listen to each other, share ideas and materials, ask each other questions, help each other, and praise each other. Teacher praises and rewards a group as a whole.

Traditionally, teachers have, for the most part, structured classrooms where student-student interaction is very limited. Besides this fact, recent years have seen a surge in popularity of methods of teaching that promote student-student interaction. It is observed that the behavioristic approach which "perceives students as passive recipients of information presented by teacher and develop learning by changing environmental factors" is altered with the effect of cognitive approach (Açıköz, 1996). According to Lonning (1993), the shift in views of learning toward a cognitive perspective, influenced by constructivism, has led to the development of new models of teaching. Constructivists consider learning as an interpretative process in which individuals engage in unique constructions of knowledge as they make sense of their experience and cooperative classroom interactions exemplify constructivist epistemology (Watson, 1995).

Piaget's and Vygotsky's theories constitute a base for the social constructivist view of learning (McCharthey and McMahan, 1992). To both theorists social milieu is pivotal to cognitive growth and knowledge construction. Piaget described the interaction between the factors that are internal and external to the child. The internal factors are the child's maturational level and intrinsic need for equilibration. The external factors are the transmission of knowledge and environmental experiences to influence development (McCharthey and McMahan, 1992). According to Vygotsky, cognition develops not in an isolated internal process but in a process that internalizes social interactions (Williams, 1989). Vygotsky described how the transmission of social interpsychic knowledge becomes intrapsychic knowledge.

Social constructivist views are based on the idea that knowledge is constructed by interactions of individuals within the society and that all thought is social in nature (Williams, 1989). Learning is a result of social internalization of social interaction; there is a movement from the interpsychological plane to the intrapsychological plane (McCharthey and McMahan, 1992).

The features of social constructivist perspectives have increased attention to the role of dialogue in learning and focusing on the role of peers in instructional practices. The rationale for engaging peers in the instruction of others is based on the notion that because learning is social in nature, students ought to be provided with opportunities to interact with one another (McCarthy and McMahon, 1992). Small-group teaching strategies provide these opportunities to students and cooperative learning is one of the more popular, validated small-group teaching strategies (Orlich et. al., 1990).

Cooperative learning is not new. Dewey's progressive education and Bloom's participative teaching-learning process are constituted a base for this type of learning. Progressive education emphasize cooperation rather than competition. According to this view, learning with cooperation is more valuable than competition because human being is a social existence. Dewey stated that students should learn how to communicate, cooperate and live in a democratic way, therefore school must provide opportunities for active participation of students (Fidan and Erden 1993). Also, Bloom (1976) stated that in a classroom environment students are not just passive listeners and receivers but instead, they are direct participants of teaching-learning process.

Parallel to the above expectations of students and societies the determined objectives of education have changed from transferring knowledge alone to a great variety of cognitive objectives including creativity, problem solving, critical thinking and higher level of thinking etc.. Also, the objectives of education increasingly stress interests, attitudes, values, human relations and social skills. Naturally, there must be a relation between educational objectives and teaching-learning process. As observed, these objectives are complex and the range is very wide. Therefore they can not be actualized with the implementation of traditional methods of instruction alone. The methods that provide students active participation into teaching learning process have to be implemented. The educational literature is filled with studies supporting the advantages of these type of methods and the term "active participation of students into teaching learning process" is used to describe a broad array of learning situations in which students enjoy hands-on and minds-on experiences (Benjamin, 1991). The advantages of these methods can be summarized as follows; develop higher cognitive abilities, increase achievement, provide affective development. According to Benjamin (1991) the methods that provide the active participation of students increase the adaptability of students to the rapidly changing conditions of the world. The methods such as problem solving, debates, discussions, simulations, peer teaching, cooperative learning and other interactive and experiential methods provide students active participation to teaching-learning process.

Above theoretical explanations showed that cooperative learning strategy considers both cognitive and social aspects of learning. On the other hand, the thought of cooperation is as old as the human history because it is a human characteristic. Both societies and individuals have to cooperate in order to provide the continuation of their existence. Besides this reality, world wide trends in urbanization, tremendous increase in scientific and technological knowledge and societal changes promote individualism and competition. These changes have

enormous implications for educational programs such as changes in goals and instructional methods.

Cooperative learning is defined by many educators as a method of instruction in which students work together in small groups to reach a common goal (Demirel, 1992; Açıkgöz, 1992; Nattiv et. Al., 1991). Cooperative learning is an important method that provides active participation of students into teaching learning process.

The term "cooperation" is frequently used, both in conversations and in educational sciences. The term has a number of meanings. In classroom settings, it is important to distinguish among three main referents of the term (Owens, 1988; Baloché, 1994).

1- "Cooperation" is used to refer to an overall goal structure established for learning. Components of this goal structure include the general nature of the goal, the amount of interaction expected from participants in the task, the actual responses of others to goal structure and types of interdependence to be created among participants.

2- "Cooperation" is used to refer to a personal trait of the learner. Students motivation and willingness to participate are associated with cooperation as a trait. Trait of cooperation enhances a student's receptivity to a cooperative goal structure.

3- "Cooperation" is used to refer to the observable behavior of the student in a classroom learning situation. Logically, it is assumed that given a cooperative goal structure, a student with cooperative trait would act in a group-enhancing fashion. In practice, a student may not act cooperatively (E.g., if faced with other group members acting in this way, whose success would be threatening). In planning and carrying out cooperation in the classroom, therefore, a teacher can not assume that cooperative behavior follows automatically from the association of cooperative organization with a socially oriented personality. The actions must be observed, recorded and analyzed for intent and impact on others. It may require considerable effort to train students in the social skills that are inherent in successful cooperative learning.

In order to implement cooperative learning, one has to divide the class into groups. Groups are established heterogeneously and group size and composition can vary from 2-3 to 6-8. Cooperative learning requires group work but every group work can not be accepted as "cooperative learning". Five basic elements that need to be included for a lesson to be cooperative are as follows (Johnson and Johnson, 1989).

1- Positive Interdependence: is the perception that one is linked with others in a way that one can not succeed unless the other member of the group succeed and therefore, that their work benefits one and one's work benefits them. Positive interdependence may be structured through common goals and rewards, assigning specific roles to each member or a division of labor.

2- Face to Face Interaction: exist when students orally explain to each other how to solve problems, discuss to each other the nature of concepts being learned, teach one's knowledge to classmates and explain to each other the

connections between present and past learning. Students help, assist, encourage and support each other's efforts to learn.

3- Individual Accountability: exist when the performance of each individual student is assessed and results given back to the group and individual. Common ways to structure individual accountability include: giving an individual test to each student and randomly selecting one student's product to represent the entire group.

4- Collaborative Skills: include leadership, decision-making, trust building, communication and conflict management skills required for the students to work together productively. Group can not function effectively if students do not have and use the needed collaborative skills. These skills have to be taught just as purposefully and precisely as academic skills.

5- Group Processing: occurs when groups discuss how well they are achieving their goals and maintaining effective working relationships among members. Groups need to describe what member actions are helpful and unhelpful and make decisions about what behaviors to continue or change.

These elements are increasing the efficiency of cooperative learning and their importance is also stated by Açıkgöz (1992) and Slavin (1983).

Cooperative learning has gained increasing acceptance in classrooms as a strategy for producing learning gains, in the development of higher order thinking, prosocial behavior, inter racial acceptance and as a way to manage academic heterogeneity in classroom with the wide range of achievement in basic skills (Cohen, 1994).

Researches have shown that cooperative learning may solve a variety of educational problems. Cooperative learning is often cited as a means of increasing student achievement, promoting positive attitudes toward learning, improving student self-esteem, and improving race relations; as an alternative pedagogical model to traditional lectures and textbooks; and as a way for teachers to implement inexpensive, practical learning strategies in any classroom setting (Hendrix, 1996).

Cooperative learning as a method of instruction have been used in various disciplines. Johnson and Johnson (1987) stated that cooperative learning can be used in any subject area with any age student. As a consequence, depending on the nature of the discipline, educational institution and student characteristics, method of application may vary from one situation to another (Erdem, 1993; Açıkgöz, 1992; Nattiv et. Al., 1991; Slavin, 1980; Sharan, 1980). Therefore, in the application of cooperative learning several methods are used. Major ones can be listed as follows.

**Student Teams Achievement Division (STAD):** In this method, teacher presents the topic, students work on worksheets or material in teams which are established heterogeneously in terms of sex, race, and level of achievement. Following studying session, students take individual quizzes. Team score is computed on the basis of each member's improvement over his/her previous achievement. That is, the scores of highest students in past performance are compared and the top scorer gains the highest point for his/her group. The second highest scorer gains the second highest point for his/her group and so forth. This means that, every student has a "basic score" which is provided from his/her score

contributes to group score. After every scoring a new "basic score" is manipulated by averaging last three exam scores (student improvement score). These scores can not be used as exam scores. Groups can be rewarded when they reached previously determined goals. The activities in STAD are as follows, 1-teaching, 2-group work, 3-test, 4-group reward. After five or six weeks, the groups are reorganized.

**Jigsaw:** Material to be learned is broken into parts by instructor. Each student in a team is assigned a different part of the material on which to become expert. Students meet with members from other teams who are assigned the same topic to discuss their sections. Students return their original teams and each teaches to others their topic. Students are responsible for learning all parts. Students are evaluated individually after learning the issue. From individual scores team score is reached. The group which has the highest score is determined and may be rewarded. Assignment of students to the parts of the issue can be actualized randomly or systematically by considering their achievement level. Group size must not exceed six.

**Teams-Games-Tournament (TGT):** Heterogeneous groups are formed as it is in STAD method. First, instructor gives an initial presentation of issue, consequently, students are given worksheets covering the issue. Students work on the issue in groups and all members learn issue. Following this session, a tournament is designed in which each student from different groups compete. Each student in tournament is a representative of his/her group. Scores earned by each student in the tournament are added to their group scores.

**Numbered Heads Together:** The teacher asks a question. Students put their heads together to make sure they all know the answer. The teacher calls a number and the student in each team who has that number needs to be ready to give answer.

**Group Investigation:** Students work in teams to prepare a presentation for whole class. Each team member makes a unique contribution to the final product. It is based on dialogue among group members. In this method learning facilities are directed by the students. This method provides cooperation, interdependence and multiple interaction among students. On the other hand, teacher must be a resource unit and provide help whenever required. This method includes six steps.

- 1- Instructor determines a general issue and then divides this issue into sub-issues. The students who are interested with the same sub-issues constitute a group. Group size can change from two to six. Teacher tries to constitute heterogeneous groups as much as possible but he/she must not be authoritarian teacher.
- 2- Group members try to decide on how to investigate their sub-issues and how to share, organize and present it.
- 3- Instructor must organize required resources both in school and outside school. Every group collects required information related to their sub-issue and organizes it cooperatively.
- 4- Every group prepares a report related to their sub-issue.
- 5- The investigation report is presented in the classroom by group members.

6- Students are evaluated with respect to their presentation and reports. Other students also participate the evaluation process by providing feedback for their friends.

Studies on cooperative learning showed that achievement in cooperative learning is due to teachers' roles because implementing cooperative learning involves a structured, but complex process. According to Johnson and Johnson (1989), in cooperative learning situations the teacher must be both an academic expert and a classroom manager. When structuring lessons cooperatively, teachers must complete the following five set of activities (Johnson and Johnson, 1985);

- 1- Specifying the objectives
- 2- Placing students in groups
- 3- Explaining the task, positive interdependence and learning activity to students
- 4- Monitoring the effectiveness of cooperative learning groups and intervening to provide task assistance
- 5- Evaluating the students achievement and helping students to discuss how well they collaborated with each other.

Merely being told about an instructional strategy is not sufficient to implement it with above conditions is not easy. It can take years to become experts (Johnson and Johnson, 1989). Teacher education programs must introduce cooperative learning strategies to teacher candidates so that they have some experiences with cooperative learning strategies in pre-service education. If teacher educators want future teachers to learn strategies of cooperative learning, they must demonstrate it's use in teacher education classes (Nattiv et. al., 1991).

As stated in the beginning, cooperative learning can be used in any subject area with any age student. But Lazarowitz et. al. (1994) stated that cooperative learning movement began in junior high schools, however, elementary teachers quickly recognized the potential of cooperative methods before becoming widespread on junior and senior high level and it has been studied only past few years with older students. Cooperative learning must be used widely at all levels of educational institutions when the benefits of cooperative learning are considered. As stated previously, cooperative learning provides increased interaction between students. This, in turn, increases opportunities for language practice, especially listening and speaking (Osen and Kagan, 1992). It is obvious that language teachers can use cooperative learning strategies beneficially in their lessons. At language teaching, cooperative learning offers more opportunity for language development and for integrating language with content through increased active communication, increased complexity of communication, and use of language for academic and social functions (Olsen and Kagan, 1992).

As observed from the previous paragraphs it is possible to find many articles and researches related to the benefits and importance of cooperative learning. These studies showed that cooperative learning creates effective results both on cognitive and affective outcomes. However, it is possible to see some contradictory results about the effects of cooperative learning and it is wrong to see this method as "a magical method used under all conditions" (Sharan and Shacher, 1988). Like

other methods, cooperative learning also has some limitations and disadvantages. All of these results showed that new researches will be helpful for more reliable judgments about cooperative learning strategies.

Açıkğöz (1992), stated that the interest on cooperative learning has been increasing in recent years in Turkey. According to her, the implementation of cooperative learning requires very much attention. In Turkey, it was observed that some activities called "studying in clusters" are assessed as cooperative learning. She claimed that the usage of cooperative learning principles in these activities are questionable. These type of activities are generally observed at elementary level. She concluded that every group work can not be accepted as cooperative learning because it is a systematic instructional process.

According to Gömleksiz (1994), the teacher educators generally prefer to use traditional method of instruction as observed in all the levels of education in Turkey. It was observed that the contemporary instructional methods are used in little frequencies or never used. Further, he concluded that the research results in Turkey showed that the atmosphere in teacher student relations is very authoritarian and teacher centered. This situation causes many complaints about teaching-learning environment in the classrooms. He emphasized that frequent implementation of student-centered instructional methods like cooperative learning may help to solve these problems.

Both of the authors (Açıkğöz, 1992 and Gömleksiz, 1994) stated that the most of the researches about cooperative learning in Turkey was actualized at elementary and secondary levels. The number of researches at university level is very limited. Especially, the number of the researches at university level has been increasing in recent years.

In Turkey, the importance of cooperative learning is stated by various authors (Erdem, 1993; Erden, 1988; Açıkğöz, 1992; Açıkğöz, 1995; Yeşilyaprak, 1996; Gömleksiz, 1994; Şimşek, 1994; Yeşilyaprak, 1995; Sünbül, 1996). When the studies related to cooperative learning in Turkey is compared with the international literature, it is observed that the studies related to cooperative learning in Turkey do not have a very old history and they are very limited in number. On the other hand, cooperative learning as a no-cost method seems to be appropriate to the conditions of the schools in Turkey. It does not require unusual arrangements or special materials. Therefore it will be very helpful to use cooperative learning in the classrooms and to conduct studies on cooperative learning in Turkey.

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