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**COOPERATIVE LEARNING**

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**What is cooperative learning?**

 Cooperative learning is a teaching strategy that refers to small groups of students working together to achieve a common goal. Students work together to learn and are responsible for their teammates' learning as well as their own.

 A synthesis of research about cooperative learning finds that cooperative learning strategies improve the achievement of students and their interpersonal relationships. In 67 studies of the achievement effects of cooperative learning, 61% found significantly greater achievement in cooperative groups than in traditionally taught control groups. Positive effects were found in all major subjects at all grade levels, in urban, rural, and suburban schools, and for high, average, and low achievers.

**Cooperative Learning Strategies**

Cooperative Learning has been proven to be effective for all types of students, including academically gifted, mainstream students and English language learners because it promotes learning, respect and friendships among diverse groups of students. In fact, the more diversity in a team, the higher the benefits for each student. Peers learn to depend on each other in a positive way for a variety of learning tasks.

Students typically work in teams of four. This way, they can break into pairs for some activities, and then get back together in teams very quickly for others. It is important, however, to establish classroom norms and protocols that guide students to:

* Contribute
* Stay on task
* Help each other
* Encourage each other
* Share
* Solve problems
* Give and accept feedback from peers

## Cooperative Learning for English language learners

Cooperative Learning is particularly beneficial for any student learning a second language. Cooperative Learning activities promote peer interaction, which helps the development of language and the learning of concepts and content. It is important to assign English language learners to different teams so that they can benefit from English language role models. English language learners learn to express themselves with greater confidence when working in small teams. In addition to 'picking up' vocabulary, English language learners benefit from observing how their peers learn and solve problems. If you decide to assign each student in a team a role (such as reporter, recorder, time keeper, and materials manager), you might want to rotate roles each week or by activity. This prevents what typically happens if students select their own roles - the same students wind up performing the same tasks. By rotating, students develop the skills they most need to practice.

**The "PIES" concept**

Dr. Spencer Kagan is an internationally acclaimed researcher, presenter and author of over 100 books, chapters, and scientific journal articles. He is a former clinical psychologist and full professor of psychology and education at the University of California. He is the principal author of the single most comprehensive book for educators in each of four fields: cooperative learning, multiple intelligences, classroom discipline, and classroom energizers. His instructional strategies are used in teacher training institutes in many countries. Dr. Kagan provides workshops and keynotes in over twenty countries and his books are translated into many languages. Dr. Kagan developed the concept of structures; his popular brain-based, cooperative learning and multiple intelligences structures like Numbered Heads Together and Timed Pair Share are used in classrooms world-wide.

 More than just clever classroom routines, each Kagan structure is based on four factors that Dr. Kagan considers essential to his structural approach to cooperative learning:

(P) positive interdependence;

(I) individual accountability;

(E) equal participation;

(S) simultaneous interaction.

Positive interdependence means a "win-win" condition in which the success of one student is linked to the success of others in the class in a positive way. In other words, students need each other to succeed, and a gain for one student is a gain for others. In this kind of relationship, students care about each other and help each other so that all learn. In the positively interdependent relationship, a loss for one student is a loss for the whole group; in other words, the failure of one member is not merely an individual failure but a group failure, if the group did not adequately support the learner. Yet an individual success can be a group success if the group helped each team member succeed.

We can contrast this concept with negative interdependence, where one student's failure could be another student's gain, such as when teachers grade on a curve (norm-referenced grading). With norm-referenced grading, a student doing badly increases the chance that another learner's score will be rated more highly. Thus, a loss for one student becomes a gain for another. Negative interdependence is often characterized by competitive rather than cooperative relationships between learners.

Cooperative learning teachers reject norm-referenced grading in favor of criterion-referenced grading. With criterion-referenced grading, any learner can do well assuming s/he meets the specified criteria. Some cooperative learning teachers also use specific incentives and rewards in addition to positively interdependent task design to increase the level of positive interdependence among a team or in a class.

No interdependence means that what one learner does has no effect on another learner. Positive interdependence is built into Kagan structures in that the activity cannot be successful unless the students cooperate - the students need each other for success. They cannot do the activity alone, and if they do not cooperate well the result will be failure; yet if they cooperate well the result will be success.

While there are various models of cooperative learning, of which Kagan's structural approach is only one, all cooperative learning theorists and practitioners agree that cooperative learning must incorporate the concept of positive interdependence, and this characteristic distinguishes it from mere "group work".

Cooperative learning research has found positive interdependence to create better results in terms of learner achievement, human relationships, and psychological health, versus negative interdependence or no interdependence.

Individual accountability means a procedure to check that each participant individually contributes a fair share to a group effort. It also means there is a way to evaluate the quality of the effort/result of each member.



Equal participation means that all students receive the same chances and incentives to be involved in class. Kagan's approach uses careful task design (e.g. the task has equal sized and equal status roles for all participants in the activity, or if roles are not equal status, such as leader and checker, roles are randomly assigned and would be rotated over the course of the term), rewards, and accountability procedures to encourage equal participation. For example in Timed Pair Share, each member is given exactly the same amount of time to speak, regardless of individual differences of age, background, personality, or language skill. 

Simultaneous interaction means that all students are actively engaged at the same time during the class. An example would be 20 pairs of students in a 40-person class all talking/listening simultaneously, as opposed to one student out of 40 answering a teacher's question, while all the others are or are not listening or participating.

In Kagan's view, these four characteristics (PIES) must be built into the activity itself (i.e. be part of the task design). His over 200 structures were designed with the four elements in mind.

**The structural approach used to create a peaceful classroom**

 As described above, Kagan structures can be used to create equal opportunities for all students in the classroom; cooperation among students; positive interpersonal relationships; listening, turn-taking, self-expression, and other appropriate communication and social skills; critical thinking: respect for diverse persons and abilities; appreciation of various viewpoints; and consensus-building.

Learning appropriate (nonviolent) communication skills and appreciating diversity in all its forms can be a foundation upon which to create a peaceful classroom. Dr. Kagan believes using the structures can help build personal character, because while students are performing the activities, they can, at the same time, practice skills, or fulfill roles, such as leadership, helpfulness, caring, impulse control, understanding, praising, kindness, cooperation, courtesy, citizenship, and others associated with virtuous character.

Students carrying the knowledge of socially appropriate behavior, critical thinking, and appreciation of differences with them outside of the classroom will be better equipped to evaluate information and interact peacefully with others. 

Dr. Kagan, along with other cooperative learning theorists/practitioners, believes that traditional competitive classrooms do not foster pro-social human behaviors. In a classroom where no student-to-student interaction occurs, students do not learn to interact with each other, share information with each other, or help each other succeed. In a classroom where student-to-student interaction occurs, but is not properly managed, structured, or planned by the teacher, the result can be unequal participation, competitiveness, and non-peaceful interaction. Kagan writes:

We need to include cooperative learning experiences in our classrooms, because . . . students no longer come to school with an established caring and cooperative orientation . . . Additionally, we need cooperative learning if we are to preserve democracy. Exclusive use of autocratic, teacher-dominated classroom structures leaves students unprepared for participation in a democratic society. Democracy is not nurtured by a system which models autocratic decision-making, and expects passive obedience among pupils.

Cooperative learning can be easily combined with a student-centered curriculum. With the structural approach, the content can be chosen by the students themselves, and the students' own ideas and input can become the main lesson material.

**Cooperative learning structures**

There are many types of cooperative learning structures. Here are a few examples from Kagan's (1994) book on cooperative learning:

Timed pair share

 Students pair off, then number off, 1-2. The teacher chooses a number, 1 or 2, to speak first. That student speaks about a specified topic for a specified length of time. The other student listens quietly and can nod or smile, but cannot speak or interrupt the speaker. After the allotted time has elapsed, the other student speaks for the same period of time on the same, or another, stipulated topic, with her or his partner in the listener role. After both partners have had equal opportunity to speak, the teacher randomly chooses a number of students, and asks them to summarize what their partners have said. (In a small class, all students could perhaps report.)
 This structure encourages self-expression and idea exchange by having students "share the floor" equally. Listening is encouraged by students' need to summarize their partner's contribution after the exchange is complete (students cannot accomplish this step without listening). If the teacher does not wish to call on all students to report what has been said, randomly choosing a few students encourages all students to be ready to do so. Students do not know in advance whether or not they will be chosen to report, so they prepare in the event they will be chosen.

 Corners

 Corners can be used to have students express, and listen to, various opinions on a topic, honing listening, critical thinking, and self-expression skills. The teacher can make each corner of the classroom represent a stipulated view. For example, three possible corners could constitute For, Against, and Undecided relative to a topic. Students move to the corner that represents their viewpoint. Next, students discuss their opinions, or respond to a comment, within their corners. This could first be done in pairs, and later with pairs joining other pairs to make groups of 4, or with subsequent changes of partners to form new pairs.

 Students can begin by summarizing their earlier conversation to their new partner(s). Summarizing or repeating ascertains whether the listener listened and understood, and helps validate the ideas of former speakers. The views of all members in one corner can be aired for the benefit of the entire corner after ideas have initially been exchanged in smaller groups. For example, students stand in a circle in the corner, and each person summarizes what the person on their left said. Asking students to summarize what another person said encourages them to listen to others, since if they haven't listened, they will not be able to complete this task.
 After students have finished their in-corner discussions, they can rotate around to other corners in order to share their corner's viewpoints. One way to do this is for the teacher to randomly select two representatives from each corner to go to another corner and summarize their corner's viewpoint. They can rotate to all other corners, making their presentation to each new corner; these presentations can be performed within specified time limits to give all representatives an equal chance to speak. The final step could include randomly choosing students, other than rotating representatives, to report to the class on what was expressed, heard, or learned.

Team statements;

Blackboard share

 Students first think about a stipulated topic alone, such as ‘What can we do to reduce the pollution of nature?’

 After students have had time to think - and perhaps take notes if they wish - they share their ideas in pairs or small groups. 

Next, students again work alone and devise one statement that reflects their view. Students then alternate presenting their individual statements to each other, allowing other students in their group to ask for clarification, or further information. The team then creates a Team Statement that represents an opinion everyone in the group agrees with relative to the topic.
 After this, (some or all, depending on class size) groups in the class share their team statements orally, or in writing, with the rest of the class. One simultaneous method of reporting, called Blackboard Share, is a structure that can be used at this stage. Blackboard Share requires the teacher to section off portions of the blackboard equally for groups to use. After groups write their Team Statements on the board, these can be viewed/discussed by the entire class.
 If not all teams share (such as in very large classes), one technique is for the teacher to randomly choose only some teams to share. Since no team knows in advance which teams will share, all prepare in the event they are called on to share.

Team Statements is designed to give students practice in self-expression, consolidating views, and reaching a consensus despite differing opinions. Blackboard Share can be used to have students simultaneously summarize any individual or team view or result in writing for the whole class.

Paraphrase passport

 Paraphrase Passport requires students engaging in a group discussion to paraphrase what others have said. Before a student can go on to offer their own opinion or input, they must paraphrase what was last said. The person whose statement was paraphrased indicates whether the speaker has correctly captured their meaning. Once the speaker is satisfied that she or he has been accurately paraphrased, the discussion continues with the next speaker's comments. Thus, each person taking a conversational turn must paraphrase the prior speaker's comments before giving their own ideas.

This structure aims to give all speakers in the group a chance to be heard and feel understood. It is also a useful device for checking comprehension in a language class. It is used so that all students take turns speaking, so that everyone will receive an equal chance to participate.

Numbered Heads Together

Students within the team number off from 1-4. The teacher poses a question and the students put their heads together to discuss the answer. The teacher randomly calls a number and from each team the student with that number writes the answer on the team response board.

Showdown

Each student writes his answer on his individual response board. When everyone in the group is ready, the leader says "Showdown" and team members compare and discuss their answers.

Teammates Consult

Students all have their own copy of the same worksheet or assignment questions. A large cup is placed in the center of each team, and students begin by placing their pencils in the cup. With pencils still in the cup, they discuss their answers to the first question. When all team members are ready, they remove their pencils from the cup and write their answers without talking. They repeat this process with the remaining questions.

4S Brainstorming

Students in the group have roles: Speed Captain (prompts more ideas), Super Supporter (encourages/recognizes all ideas), Synergy Guru (encourages members to build upon one another's ideas), and Secretary (writes ideas). Members carry out their respective roles while the team generates a variety of possible responses.

[Jigsaw](http://www.jigsaw.org)

Groups with five students are set up. Each group member is assigned some unique material to learn and then to teach to his group members. To help in the learning students across the class working on the same sub-section get together to decide what is important and how to teach it. After practice in these "expert" groups the original groups reform and students teach each other.

RoundRobin Brainstorming

Class is divided into small groups (4 to 6) with one person appointed as the recorder. A question is posed with many answers and students are given time to think about answers. After the "think time," members of the team share responses with one another round robin style. The recorder writes down the answers of the group members. The person next to the recorder starts and each person in the group in order gives an answer until time is called.

Three-minute review

Teachers stop any time during a lecture or discussion and give teams three minutes to review what has been said, ask clarifying questions or answer questions.

Team Pair Solo

Students do problems first as a team, then with a partner, and finally on their own. It is designed to motivate students to tackle and succeed at problems which initially are beyond their ability. It is based on a simple notion of mediated learning. Students can do more things with help (mediation) than they can do alone. By allowing them to work on problems they could not do alone, first as a team and then with a partner, they progress to a point they can do alone that which at first they could do only with help.

Circle the Sage

First the teacher polls the class to see which students have a special knowledge to share. For example the teacher may ask who in the class was able to solve a difficult math homework question, who had visited Mexico, who knows the chemical reactions involved in how salting the streets help dissipate snow. Those students (the sages) stand and spread out in the room. The teacher then has the rest of the classmates each surround a sage, with no two members of the same team going to the same sage. The sage explains what they know while the classmates listen, ask questions, and take notes. All students then return to their teams. Each in turn, explains what they learned. Because each one has gone to a different sage, they compare notes. If there is disagreement, they stand up as a team. Finally, the disagreements are aired and resolved.

Partners

The class is divided into teams of four. Partners move to one side of the room. Half of each team is given an assignment to master to be able to teach the other half. Partners work to learn and can consult with other partners working on the same material. Teams go back together with each set of partners teaching the other set. Partners quiz and tutor teammates. Team reviews how well they learned and taught and how they might improve the process.

Find-Someone-Who

   Students receive a worksheet.  The worksheet asks them to "Find someone who..."  The student has to have the person who knows the answer for their question to write it along with their name on the worksheet.  Students can find only one answer from each person.  When students finish they become helpers by sitting down and becoming a resource for others who can ask them any question.  Students who originally knew none of the answers, after filling in one or two of the answers become a resource for others because they have become "someone who knows." Remind students that they can get only one answer from a partner and then must circulate to find another partner.

Guess the Fib

   Each student writes down three statements.  Two are true and one is false.  One student at a time reads their statement to the class.  Teams huddle to discuss the statements, trying to "guess the fib." Teams should reach consensus before guessing. Make sure students correct the fib so students remember the correct information.

Inside/Outside Circle

   Students form two concentric circles.  Both circles have the same number of students so that each student is facing another student.  Teacher announces a topic or question, and students discuss with that partner.  Then both circles rotate so that students are paired with a new partner for the next question or topic.

Writearound

For creative writing or summarization, give a sentence starter (for example: If you give an elephant a cookie, he's going to ask for...). Ask all students in each team to finish that sentence. Then, they pass their paper to the right, read the one they received, and add a sentence to that one. After a few rounds, four great stories or summaries emerge. Give children time to add a conclusion and/or edit their favorite one to share with the class.

After each Cooperative Learning activity, it is advisable to debrief with the children by asking questions such as: What did you learn from this activity? How did you feel working with your teammates? If we do this again, how will you improve working together?

**Multiple intelligences and Kagan's structural approach**

 Gardner (1993) identified numerous kinds of human intelligence including: interpersonal - knowing how to effectively interact with others; intrapersonal - the ability to know oneself; mathematical; musical; linguistic; bodily-kinesthetic; spatial; and others. In Gardner's view, people may differ in their natural talents but all talents are important, can be honed, and are worthy of appreciation.

 Kagan present cooperative learning activities that promote the various multiple intelligences, via peer collaborative tasks involving music or skills such as drawing, classifying, computing, moving the body, requiring students to collaborate in teams (interpersonal), or be introspective (intrapersonal), etc.

 Use of interpersonal intelligence cooperative learning structures enable the teacher to target interpersonal effectiveness as a skill for student development, which in turn helps foster peaceful classroom social environments. Intrapersonal intelligence is also linked to positive human relationships; research shows that persons who do not understand themselves are incapable of understanding others, and thus incapable of responding appropriately to others. 

 Using a variety of multiple intelligence activities in class highlights the multiple intelligences of students. As students witness the diverse abilities of peers, and notice their usefulness while performing the structures, they learn to appreciate and value each other's differing skills and gifts.

 Many of the structures and activities involve the activation of more than one intelligence. In a structure called Self Portrait, students first draw their own portrait. Then, they tell a partner, orally or in writing, why they drew themselves as they did. Self Portrait calls upon visual/spatial, intrapersonal, and interpersonal intelligences. Being a Friend asks students to write about what it means to be a friend, share these writings with teammates upon completion, and then discuss with teammates similarities and differences among the team writings. This activity requires students to use linguistic, logical, and interpersonal intelligences.

 If the teacher, or students, select a broad range of activities which require various multiple intelligences to complete them, students will have a chance to see each other shine over the course of the term, as some students are likely to excel at tasks requiring musical intelligence, others at tasks requiring visual/spatial intelligence, or others at tasks requiring linguistic intelligence (etc.). Use of non-linguistic intelligences can also help to compensate for the still developing linguistic skills of language learners. For example, an activity where a student could draw their response rather than say it in a foreign language, or both draw and say it, aids comprehensibility.

 A balance of activities can give opportunities for students to both excel, and to stretch themselves, depending on whether the activity plays to the student's natural strengths, or to relatively underdeveloped areas. Highlighting the spectrum of multiple intelligences, rather than a narrower focus on ability, could also help smash stereotypes, or negative images of students regarding their own or their classmates' abilities.

**Conclusion**

 A teacher needs to be trained in the approach in order to use it. While it may take time before the teacher truly excels at cooperative learning, it may be possible to make some immediate pedagogical improvements by quickly learning a few cooperative learning structures as outlined by Kagan and his associates. Mastering the use of structures, learning how to teach social skills and conflict resolution strategies, and understanding the theory of cooperative learning, are all useful. Over time, the teacher may perfect her implementation of cooperative learning and be able to innovate cooperative learning pedagogy on her own adaptable to her particular classroom.

Although admittedly cooperative learning takes time to learn and perfect, one of the advantages to Dr. Kagan's structural approach which offers 200 nearly ready-made classroom activities for the teacher is that the teacher can learn to use a few simple structures even before having perfected her or his knowledge of the theory (as opposed to first learning the theory and then trying to figure out ways to apply the theory).

Although all cooperative learning approaches have merits and are worthy of study, a particular benefit of Kagan's structural approach to cooperative learning is its practicality and teacher-friendliness, as well as its commitment to equal participation in the classroom found in ready-made, yet flexible and adaptable, classroom structures.

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