



**Building a Teacher's Toolbox
Volume 1, Issue 8**

**Prepared by:
Robin C. Letendre
Learning Disabilities Consultant
Mentor Teacher
Reading Specialist**

I had the privilege of attending the New Staff Workshop on Saturday, September 26th at Second Start. This workshop is designed for new staff to the world of Adult Basic Education, and not necessarily to education itself. It was amazing to see the positive energy within the workshop. During one part of the workshop, I was able to sit in discussion groups for Diploma, ESOL, and ABE classes. In the Diploma discussion group, the concept of “jigsaw” came up. This is the concept that will be discussed within this newsletter.

I hope you enjoy it and that it helps to clarify what jigsaw is and how you can use it within your class.

Table of Contents of Newsletter

Page 3-14 Wikipedia explanation of jigsaw and how to use it

Page 15-18 Jigsaw definition and explanation and examples

Page 19-24 Example of jigsaw using the ratification of the Constitution

Page 25-26 Online resources of jigsaw and the classroom. Live links included.

Page 27-29 Online resources of jigsaw and the classroom. Live links included.



Jigsaw (Teaching Technique)

From Wikipedia, the free encyclopedia

Jigsaw is a teaching technique used in small group instruction. Students of a normal-sized (26-33 students) class are broken into competency groups. Each group is given a list of subtopics to research, with individual members of the group breaking off to work with the "experts" of other groups, then returning to their starting body in the role of instructor for their subcategory.

The jigsaw strategy is a cooperative learning technique appropriate for students between 3rd and 12th grade. This strategy is an efficient way of teaching material that also encourages listening, engagement, interaction, teaching, and cooperation by giving each member of the group an essential part to play in the academic activity. The strategy involves breaking the classroom into small groups of four to six students. Each group is responsible for a specific piece of knowledge that they will discuss with other classmates.

Benefits

- Teacher is not the sole provider of knowledge
- Efficient way to learn
- Students take ownership in the work and achievement
- Students are held accountable among their peers
- Learning revolves around interaction with peers
- Students are active participants in the learning process
- Builds interpersonal and interactive skills

Steps in Implementation

According to Aronson (2008) there are ten steps considered important in the implementation of the jigsaw classroom.

1. Students are divided into a 5 or 6 person jigsaw group. The group should be diverse in terms of ethnicity, gender, ability, and race.
2. One student should be appointed as the group leader. This person should initially be the most mature student in the group.
3. The day's lesson is divided into 5-6 segments (one for each member)
4. Each student is assigned one segment to learn. Students should only have direct access to only their own segment.
5. Students should be given time to read over their segment at least twice to become familiar with it. Students do not need to memorize it.
6. Temporary experts groups should be formed in which one student from each jigsaw group joins other students assigned to the same segment. Students in this expert group should be given time to discuss the main points of their segment and rehearse the presentation they are going to make to their jigsaw group.
7. Students come back to their jigsaw group.
8. Students present his or her segment to the group. Other members are encouraged to ask question for clarification.
9. The teacher needs to float from group to group in order to observe the process. Intervene if any group is having trouble such as a member being dominating or disruptive. There will come a point that the group leader should handle this task. Teachers can whisper to the group leader as to how to intervene until the group leader can effectively do it themselves.
10. A quiz on the material should be given at the end so students realize that the sessions are not just for fun and games, but that they really count.

Process

The following list of Jigsaw steps explains the process in more detail:

1. Divide up the students into teams of about five members.
2. Appoint one person from each group as the leader.
3. Divide the lesson into segments to match the number of people in each group.
4. Assign one member of each group to learn each lesson segment.
5. Give students time to work on step 4.
6. Gather students into 'Expert groups,' which are the segmented mini groups. Give them time to discuss their findings of step 4.
7. Bring the students back into their main groups.
8. Have each student present his or her findings to the main group.
9. Move from group to group as a facilitator wherever needed.
10. Quiz or otherwise test the material covered to determine retention (Aronson, 2007).

1. Teacher identifies a range of materials related to the topics addressed in the lessons. Consider the students who will be involved in this exercise, and, if necessary, try to identify selections of varying text difficulty and sophistication.
2. Teacher divides students into four to six jigsaw groups, known as the home group, and appoints one student as a leader. The group size should be dependent upon the number of selections to be assigned. The teacher divides the lesson into four to six segments. Each group member receives the task of reading one of the targeted selections. Depending on the nature of the group, the teacher may allocate the specific readings to each person, or the group itself may decide who will tackle which selection.
3. Students read the selections independently. If the materials are photocopied, encourage students to underline important information they will need to share with their group. "Sticky notes" are an option for materials that cannot be written upon. Students may also jot down notes, or follow a graphic note-taking outline provided by the teacher as a means for extracting important concepts from their passage. Students should only have access and knowledge of the text related to their specific reading or assignment.
4. All of the students in the home group are now "experts" on the assigned reading. They meet with their home group and discuss the concepts, highlights, and other information they feel is most important. This group also might also create a summary of key points, a concept map, a graphic outline, or highlighted notes which will be shared with other groups.
5. Members of the home group leave and meet with new, secondary groups. Each member of the new group has key information that no one else in the new, secondary group has. The new groups teach each other what the home group felt to be the most important and relevant information. This is where the jigsaw starts to come together. Members from the separate groups have come together to teach each other their assigned reading. Students are encouraged to "test" one another and ask questions for further clarification.
6. The final piece to the Jigsaw activity involves a return meeting of the original group. During this time, individual group members share in turn the pertinent information they learned from participating the second groups. All the information comes together. The rest of the group is accountable for learning this new information, which will be assessed during the evaluation of this unit of study.

Jigsaw Examples in the Classroom

World War Two

First, divide the class into equal groups of five. Each group will be responsible for a different task. Group One will research Hitler's rise to power. Group Two will uncover the devastation of concentration camps. Group Three will cover Britain's role in the war. Group Four will uncover the contribution of the Soviet Union to World War Two, and, finally, Group Five will research Japan's entry into the war. Collectively, the group will gather and discuss information on their task.

For phase two of Jigsaw, each group member will be reassigned to a different group with fellow students that collected information on a different task. As a new formation, they will come together to share and piece together information on World War Two. Each student will take time to share their collective data, and, as a whole, the group will discuss how each event contributed to making the war.

The Raven

First, the class will be divided into five concept groups. The concepts include alliteration, consonance, rhyme, symbolism, and repetition.

Each concept group will read the poem together and collect information regarding their concept. Three specific examples from "The Raven" must support a definition of the concept at hand.

For phase two of Jigsaw, the students will move into different groups with members who worked on different concepts of the poem. Each group member is responsible for teaching the others their definition and concept examples. Then, as a whole, the students will discuss each concept and how they relate to "The Raven," and its overall meaning.

Definition of a Fairy Tale

First, students are to be divided into equal groups of five. Each group will be assigned a specific fairy tale to read such as "The Ugly Duckling," "Snow White," "Hansel and Gretel," "Jack and the Bean Stalk," and "The Three Little Pigs."

The groups were then responsible for answering the following questions: who are the characters in the story, where does the story take place, what are the major events of the story, are there supernatural or magical events that take place, and if so, what are they? The students will then read, discuss, and record their findings.

For phase two of Jigsaw, new groups will be assigned with students who analyzed different fairy tales. Each student will have about three minutes to discuss and share the information on their fairy tale. Finally, the groups will create a poster board to share with the class that reflects on what the five fairy tales have in common, and what their personal definitions of a fairy tale are.

Use outside the classroom

The jigsaw method lends itself to other methods of small- and part-group instruction. Notable football coach, historian, and blogger Hugh Wyatt uses a form of Jigsaw teaching method, without the terminology, in his football coaching. Wyatt, after teaching and practicing the responsibilities of a play in one direction, has each member of his team carefully instruct their opposite in the responsibilities for the reversed play. [\[1\]](#)

For example, after learning the play to the right, the team is given several minutes where the right guard and left guard discuss their reversed roles, the right tackle and left tackle converse and teach each other their new mirrored responsibilities, and so on, leaving the coaching staff to only cover specific details and teach those players who do not have a mirroring teammate, such as the Quarterback.

Tips on Implementation

There are several advantages of the jigsaw classroom including: teachers finding it easy to learn, teachers enjoying working with it, can be used in conjunction to other teaching strategies, can be effective even if it just used an hour per a day, and it is free for the taking. It is important to know that there can be some obstacles when using the jigsaw classroom. One common problem is a dominant student. In order to reduce this problem, each jigsaw group has an appointed leader. The leader is responsible for being fair and spreading participation evenly. Students realize that the group is more effective if each student is allowed to present his or her own material before questions and comments are made. Dominance is eventually reduced because students realize it is not in the best interest of the group. Another problem is a slow student in the group. It is important that each group member present the best possible report to the group and it is important that individuals with poor study skills do not present inferior reports to their jigsaw group. In order to reduce this problem, the jigsaw technique relies on “expert” groups. Students work with other individuals from other groups working on the same segment of the report. In this “expert” group, they are given a chance to discuss their reports and gather suggestions from other students to modify their reports as needed. Another issue is that of bright students becoming bored. Research suggests that there is less boredom of bright students in the jigsaw classroom than in the traditional classroom. Bright students should be encouraged to develop the mind set of a teacher because this position can be an exciting change of pace for students. By being a teacher, a boring task can be changed into an exciting challenge. Another problem is dealing with students that have been trained to compete. A goal of the jigsaw classroom is to decrease competition and increase cooperation so competitive students can create difficulties. Research on the jigsaw classroom suggests that it has its strongest effect when introduced in elementary school. If there is exposure to the jigsaw classroom at an early age, then in later years only an hour per a day is needed to maintain the impact of cooperative learning. When the jigsaw is first introduced in the later years of school, it can often be an uphill battle. Old habits can be hard to break, but over time students participating in the jigsaw classroom in high school can benefit from the cooperative structure. An important component of the jigsaw classroom is that it encourages cooperation amongst students. The jigsaw technique goes beyond placing students into groups and telling them to cooperate. The jigsaw technique is a structured technique that provides crucial elements and safeguards that allow it to work better than typical techniques (Aronson, 2008).

History of Jigsaw

The jigsaw teaching technique was invented and named in 1971 in [Austin, Texas](#) by a graduate professor named [Elliot Aronson](#). Recent desegregation had forced a racial mix

on the students of Austin, and many teachers were unable to cope with the turmoil and hostility of the situation (Aronson, 2007).

After studying the problem at the request of the school [superintendent](#), Aronson decided that inter-school competition was leading students to study too much on their own, and was interfering with the idea of a cooperative classroom.

By arranging the students in culturally and racially diverse groups, Aronson and his team of graduate students were able to reduce the divisions between students. In fact, when one [Hispanic](#) boy named Carlos was tormented by his peers for his difficulty with the language, the bullying students were not admonished for their behavior. Instead, they were reminded that the exam was in fifteen minutes, and their sole source of information on the subject was Carlos, the boy they had been harassing. Behavior improved notably and immediately.

Elliot Aronson and his graduate students invented the technique in order to defuse an explosive situation created by the desegregation of the city schools. Due to desegregation, African-American, Caucasian, and Hispanic students were placed in the same classroom for the first time. In just a short time, there was an atmosphere of turmoil and hostility brought on by long-standing suspicion, distrust, and fear between groups (Aronson, 2008). The superintendent of schools called Aronson and asked for his help. Aronson agreed only if he was allowed to look at the entire problem and give long-range solutions and not just temporary solutions that acted as a band-aid. Time was of the essence so it was difficult to follow standard research protocol that relied on extensive literature reviews. Systematic observations were done (Aronson, 1990). Observations of the classrooms indicated that inter-group hostility was being fueled by the competitive environment of the classroom (Aronson, 2008). It was speculated that competition for teacher attention was important because for students in elementary school the teacher is one of the most important people in their life. Because of this, it was important for students to be called on so the teacher could see they knew the right answer. Students may harbor hope that their classmates would fail so they could have an opportunity to show that they were smarter than their classmate. If the classmate was successful, the student would feel disappointed. For students that were deemed “losers” they would grow feelings of envy and jealousy towards students that were successful and in term ridicule successful students. Successful students may then in term deem the “loser” students as unintelligent and uninteresting (Aronson, 1990). It was decided a shift needed to take place from classrooms that fostered competition to classrooms that fostered cooperation (Aronson, 2008). The first step was to change the structure of the classroom. A shift needed to be made from a competitive situation to a situation that fostered trust, empathy, and understanding (Aronson, 1990).

The success of the jigsaw classroom technique was obvious to Aronson and his colleagues after a few weeks. Teachers were spontaneously stating they were greatly satisfied with the technique and that the atmosphere in their classroom was transforming. Other significant individuals in the school such as support staff also indicated a change in the atmosphere. The jigsaw classroom technique held up to experimental procedures. The

jigsaw technique was randomly introduced into some classrooms and not introduced into other classrooms. This allowed for comparisons between students in jigsaw classes and those not in jigsaw classes. Students in the jigsaw classes expressed significantly less prejudice and negative stereotyping, more self-confident, and liked school better when tested objectively. Behavioral data supported these self-report measures. Students in jigsaw classes were absent less frequently, they intermingled more in the cafeteria and in the school yard, and they performed better on objective exams of curricular material this was especially true for minority students (Aronson, 1990). Overview of research findings

When compared to students in the traditional classroom, students in jigsaw classrooms showed a decrease in prejudice and stereotyping, an increase in liking of their group mates both in-group and out-group members, higher levels of self-esteem, performed better on standardized exams, greater liking of school, lower levels of absenteeism, and showed true integration in areas other than the classroom (Aronson, 1990).

Classic research of the jigsaw classroom

- One by-product of using the jigsaw classroom technique is sharpening of children's empathy. Diane Bridgeman (1981) demonstrated that children in the jigsaw classroom were better able to put themselves in other's shoe as compared to children in a traditional classroom. To do this, she conducted an experiment with 10-year old children. Prior to the research, half of the children had spent two months in a jigsaw classroom while the other half were in a traditional classroom. The children were shown a series of cartoons with the aim of testing their ability to empathize. For example, in one cartoon a boy is shown at the airport looking sad as he waves good-bye to his dad. In the next frame of the cartoon, a postman is delivering a package to the boy. In the third frame, the boy opens the package containing a toy airplane and then he bursts into tears. The children were all asked why the boy was crying which they all nearly answered because he missed his dad and the toy plane reminded him of that. The differences were seen when asked what they postman was thinking when the boy opened the package and started to cry. Children in the traditional classroom thought that the postman knew the boy was sad because his dad was gone and it reminded him that his dad was gone. The children made the error of assuming that others knew what they did. Children in the jigsaw classroom took the perspective of the postman and realized that he was confused as to why the boy was crying after receiving a present.

- Geffner (1978) in his dissertation for his Ph.D. investigated the attitudes 5th graders had about themselves, school, and other students. He worked in the Santa Cruz County, California school district which had a ratio of 50% Caucasian students and 50% Hispanic students. He looked at classes that were taught in the traditional manner, those that used the jigsaw technique, and those that used a cooperative technique that did not rely on interdependence. He used a modified version of the questionnaire used by Blaney, et al., 1977, and a modified version of the Pictorial Concept Scale for Children. This modified self-concept scale uses cartoon-like pictures (stick figure) in various situations including five dimensions of self-esteem (athletic abilities, scholastic abilities, physical appearance, family interactions, and social interactions). These measures were used as pre-

intervention and post-intervention measures. Interventions lasted 8 weeks. Students in the cooperative and jigsaw classes improved or maintained their positive attitudes about themselves, school, peers, and academic abilities. Students in the traditional classroom demonstrated a decline in their attitudes about peers, themselves, and academic abilities. Those in the interdependent or jigsaw technique improved or maintained levels in levels of self-esteem. While in the traditional classroom, declines were seen in self-esteem. In the jigsaw classroom, students improved their self-image in social interactions, scholastic abilities which generalized to increased confidence in their family interactions and athletic abilities.

- The first experiment done with the jigsaw classroom was done by Blaney, Stephan, Rosenfield, Aronson, and Sikes (1977). This was done after the superintendent of schools in Austin, Texas called for help due to the problems desegregation caused. After some systematic observations, it was decided a large part of the problem was the competitive nature of the classroom. From that, they decided a more cooperative approach needed to be taken. The jigsaw technique was first introduced in ten fifth grade classes across seven different elementary schools. There were three fifth grade classes from the same schools acting as a control. The teachers in the control classes using the traditional methods were rated as good teachers by their peers. The experimental classes worked in jigsaw groups for 45 minutes a day, three days a week, for six weeks. The curriculum between the control and experimental groups were similar. The jigsaw groups were balanced so that the groups contained members from all groups. Questionnaires were designed to assess student's attitudes about themselves, their attitude toward school, and their attitude toward peer teaching and cooperation in the classroom. A sociometric instrument was used in order to assess students' liking of group members and their liking of other students in the class. These measures were used as a baseline measure and a post-intervention. For self-esteem, there was significant increase seen in levels of self-esteem and a decrease in the traditional classroom. Caucasians in the jigsaw classroom increased their liking of school while those in the control class saw a decrease in their liking of school. A slight decrease was seen in the African-Americans students' liking of school in the jigsaw classes, but there was a significant decrease in liking of school for African American students in the traditional classrooms. Mexican-American students in the jigsaw classroom indicated that there was a slight increase in their liking of school, but students in the traditional classroom a significant increase in liking of school. The authors contribute this to the fact that Mexican-American students in the jigsaw classroom may have felt forced to participate in peer teaching. Two other questions produced significant results between the jigsaw classroom and the traditional classroom. A decrease was seen in competitiveness for students in the jigsaw classroom while there was an increase for students in the traditional classroom. An increase was also seen in the feeling they could learn from other students for students in the jigsaw classroom while there was a decrease for this for students in the traditional classroom. There were also significant findings in the sociometric instrument. Students reported increase liking of their group members, but they also increased their liking of other students in the class.

Contemporary research on the jigsaw classroom

- Hanze and Berger (2007) compared using the jigsaw classroom technique with traditional direct instruction in a 12th grade physics class. They just eight 12th grade classes and randomly assigned them to either the jigsaw technique or direct instruction. Students were given a test of academic performance (pretest) and a questionnaire looking at personality variables (goal orientation, self-concept, and uncertainty orientation). The topics (motion of electrons and electromagnetic oscillations and waves) were introduced through direct instruction in both conditions. Students were then given the learning experience questionnaire as a pretest measures. In the second part of the lesson, the experimental group worked in the jigsaw classroom and those in the control group continued to work in traditional direct instruction. Individuals in the jigsaw class were given the learning experience questionnaire after working in the expert group and when the finished working in the jigsaw group. In the traditional classroom group, they were given the learning experience questionnaire at the end of the lesson. A posttest of academic performance was given a few days after the learning unit. The independent variable was the method of instruction (jigsaw vs. direct) and the study topic (scanning electron microscope vs. functioning of the microwave). The dependent variables were the personality questionnaire, learning experience questionnaire, and academic performance. When comparing traditional instruction and the jigsaw classroom, there were clear difference in the learning experience, but there were not difference in academic performances as measured by a test of physics knowledge. Students in the jigsaw classroom did show higher achievement scores in areas that they had been assigned the expert for, but students in the traditional classroom scored better on areas that individuals in the jigsaw class had been taught by others in their group. The jigsaw classroom students had a more favorable view of the learning experience than those in the traditional instruction condition. Students in the jigsaw classroom reported stronger intrinsic motivation, greater interest in the topic, and more cognitive activation and involvement. Students were more involved and more interested in the material when in the cooperative learning setting of the jigsaw classroom. Students in the jigsaw classroom were seen are more competent, more socially related to other students, and more autonomous. There was an indirect effect on performance because students viewed themselves as more competent, but no direct impact on actual achievement.

- Perkins and Saris (2001) demonstrated the use of the jigsaw classroom technique in an undergraduate statistics course. They noted that a part of class instruction was doing worksheets as part of an instruction. Worksheets are effective because they give immediate feedback on applying statistical ideas to sample, allow for repeated practice, make students active over passive learners, and they can ask for help from the instructor as needed. The problem with worksheets though. One is uneven ability or readiness to complete the worksheet. One student may not have any problems while another becomes frustrated by the process. Another issue is that in statistics the worksheets require a lot of time to complete because of the many separate steps. In order to overcome these problems and still benefit students, the authors adapted Aronson's jigsaw classroom to fit undergraduate students. Students worked in groups on two separate occasions. In the first, there were four sheets given out. Pairs of students were given the same worksheet

and worked together to compute sample size, sum of the raw scores, sum of the squared raw scores, and sum of squares for one of the four groups. Each of the handouts included a blank ANOVA table and instructions with formulas as how to complete it collaboratively with three other students. The other set of worksheets was on a two-way, chi-square test of independence for three different studies. For the first study, there was an example of the computation and interpretation of chi-square. After a discussion of the first example, students received one of two worksheets that directed them through the steps for completing the chi-square procedures for one of the remaining designs with partial solution for each step. The handout also contained the next-to-last step for the other remaining design. It was designed that one group of students received step-by-step instruction and partial solutions for the second and a nearly complete solution for the third design and the other group received step-by-step information for the third design and the almost complete solution for the second design. Students were instructed to seek out a classmate with a complementary handout. Students were then asked to rate the benefits of the exercise using a 5-point Likert rating the exercise as 1 being not at all useful and 5 being very useful. They were asked to rate the exercise on usefulness of getting help, giving help, working with classmates, providing an alternative to a lecture, saving time, and understanding the statistical procedures. Students perceived the jigsaw procedure as being very positive especially as an alternative learning experience. Students saw using the jigsaw technique as more useful for practical purposes than for interpersonal purposes such as working with others, giving help, or getting help. Students appreciated the technique as a time-saver and viewed it as a change of pace from lectures.

- Walker and Crogan (1998) looked at the effects of a cooperative learning environment and a Jigsaw classroom on academic performance, self-esteem, liking of school, liking of peers, and racial prejudice. They look at 103 students in grades 4-6 at two separate schools. Cooperative learning was used as a baseline measure for the effects of cooperation. It was compared to the effects of the Jigsaw method that involved cooperation and interdependence. The first school examined private school. The school was fairly distant so consultation occurred over the phone. It was determined that the program would be implemented in the sixth-grade class and the fifth-grade class would serve as a control. There were some issues at the private school including changes in the procedure done by the sixth grade classroom and the fifth grade teacher leaving subsequent restructuring of the school which led to termination of the project after 4 weeks at the private school. The second school was a public school. In the public school, a fourth grade class served as the experimental class and an authentic, complete, intensive, three-week Jigsaw program was implemented. The control class was a split fourth/fifth-grade class. At the end of the study, there was data from four classes across two schools. At the private school, there was a cooperative learning program in one class with another class serving as a control group. The public school there was a genuine Jigsaw program in one class and another class serving as a control. Henceforth, there were two programs one at each school and each had a same-school control. For the private school, there were 31 students in the experimental group and 29 students in the control group. At the public school, there were 20 students in the experimental group and 23 in the control group. Teachers were given a description of the Jigsaw program and the key facts were discussed with them. In the experimental classes, students were

divided into Jigsaw groups by their teacher in a way that ethnicity, academic ability and sex were distributed evenly within and across group. Groups did not include best friends or worse enemies. Prior to implementation, students in the experimental classes familiarized themselves with their group peers, practiced their roles as peer tutors, and practiced relevant skills like discussing main ideas, reading for meaning, listening, and quizzing peers on important information. At the private school, students in the experimental class received the cooperative learning program for 90 minutes each day, twice a week, for four weeks. At the public school, students in the experimental class received the Jigsaw program for an hour a day, five days a week, for three weeks. The jigsaw technique was implemented following standard protocol. Measures were taken pre and post intervention. Academic performance data was available only from the public school and not the private school although it had been promised from both. Students were given the Piers-Harris Children's Self-concept Scale (CSCS) in order to measure self-esteem. Sociometric class survey data was taken by asking students to rate their classmates according to how much they would like to work with them and play with them. Racial prejudice measures were also taken in order to assess students' attitudes to Asians, Aborigines, and European-Australians. There was a measure of social distance and one of stereotypes. There was an improvement seen in academic performance for those in the Jigsaw group. This is interesting because some research has implied that the Jigsaw technique may not be appropriate for learning needs as English as a second language students. There was an increase in self-esteem in the experimental groups at both schools as compared to the control groups, but the gains were not significant. This may have to do with a ceiling effect. Significant results were not seen for liking of school. Students in the Jigsaw group increased their ratings in working with peers when compared to their relative control group. When looking at individuals in the cooperative learning group, they were not motivated at the prospect of working cooperatively. There were not significant differences seen in playing with peers ratings in either experimental group. For the Jigsaw students there was an increase in work with ratings of the ethnic groups indicating that Jigsaw technique enhanced liking of in-group and out-group peers in work-orientated relationships. This was not seen for the cooperative learning students. Social distance ratings for Asian and European-Australian children decreased across the program, but European-Australian children ratings increase. In the Jigsaw group there was a decrease in negative traits attributed to Asians and European-Australians. For the private school, there was an increase in stereotyping for the cooperative learning experimental group. The study demonstrated that the Jigsaw method is effective in Australian social conditions in producing positive change in academic performance, attitudes to peers, and prejudice. Cooperative learning on the other hand produced generally negative results. Interdependence seemed to be more important than cooperation.

References

- Aronson, E. (1990). Applying social psychology to desegregation and energy conservation. *Personality and Social Psychology Bulletin*, 16, 118-132.

- Aronson, E., Bridgeman, D. L., & Geffner, R. (1978). Interdependent interactions and prosocial behavior. *Journal of Research and Development in Education*, 12, 16-26.
- Aronson, E. (2008). Jigsaw Classroom. Retrieved October 21, 2008, from <http://www.jigsaw.net>.
- Blaney, N. T., Stephen, c., Rosenfield, D., Aronson, E., & Sikes, J. (1977). Interdependence in the classroom: A field study. *Journal of Educational Psychology*, 69, 139-146.
- Bridgeman, D. (1981). Enhanced role-taking through cooperative interdependence: A field study. *Child Development*, 52, 1231-1238.
- Geffner, R. A. (1978). The effects of interdependent learning on self-esteem, inter-ethnic relations, and intra-ethnic relations attitudes of elementary school children: A field experiment. Unpublished doctoral dissertation, University of California, Santa Cruz.
- Hanze, M., & Berger, R. (2007). Cooperative learning, motivational effects, and student characteristics: An experimental study comparing cooperative learning and direct instruction in 12th grade physics classes. *Learning & Instruction*, 17, 29-41.
- Perkins, D. V. , & Saris, R . N. (2001). A “Jigsaw Classroom” technique for undergraduate statistics courses. *Teaching of Psychology*, 28, 111-113.
- Walker, I., & Crogan, M. (1998). Academic performance, prejudice, and the jigsaw classroom: New pieces to the puzzle. *Journal of Community & Applied Social Psychology*, 8, 381-393.

[http://en.wikipedia.org/wiki/Jigsaw_\(teaching_technique\)](http://en.wikipedia.org/wiki/Jigsaw_(teaching_technique))

Defined broadly, Jigsaw is a grouping strategy in which the members of the class are organized into "jigsaw" groups. The students are then reorganized into "expert" groups containing one member from each jigsaw group. The members of the expert group work together to learn the material or solve the problem, then return to their "jigsaw" groups to share their learning. In this way, the work of the expert groups is quickly disseminated throughout the class, with each person taking responsibility for sharing a piece of the puzzle.

An example follows below.

Jigsaw Groups:

Group One	Group Two	Group Three	Group Four
Nucleus (Kathy)	Nucleus (Susan)	Nucleus (Jose)	Nucleus (Jim)
Mitochondria (Jorge)	Mitochondria (Randy)	Mitochondria (Gail)	Mitochondria (Tan)
Cell Wall (Sara)	Cell Wall (Andy)	Cell Wall (Chris)	Cell Wall (Julie)
Protoplasm (Heather)	Protoplasm (Jessenia)	Protoplasm (Phu)	Protoplasm (Karen)

Expert Groups:

Group One	Group Two	Group Three	Group Four
Nucleus (Kathy)	Mitochondria (Jorge)	Cell Wall (Sara)	Protoplasm (Heather)
Nucleus (Susan)	Mitochondria (Randy)	Cell Wall (Andy)	Protoplasm (Jessenia)
Nucleus (Jose)	Mitochondria (Gail)	Cell Wall (Chris)	Protoplasm (Phu)
Nucleus (Jim)	Mitochondria (Tan)	Cell Wall (Julie)	Protoplasm (Karen)

Jigsaw can be used for sharing different solutions to the same problem or for dividing up research responsibilities. For example, if the class is studying [living cells](#), one group of students learns about the nucleus, another learns about the mitochondria, another learns about the cell wall, and so on. The groups are then reconfigured into jigsaw groups; the experts take turns teaching their specialty to their jigsaw group so that each group learns about every topic.

Why Is It Important?

Introduced by Aronson (1978), Jigsaw is an efficient way for students to become engaged in their learning, learn a lot of material quickly, share information with other groups, minimize listening time, and be individually accountable for their learning. Since each group needs its members to do well in order for the whole group to do well, Jigsaw maximizes interaction and establishes an atmosphere of cooperation and respect for other

students. Teachers who listen in to the sharing of one of the jigsaw groups can quickly hear what each of the original groups has been doing.

Aronson compared classes that used the cooperative jigsaw approach with classes in which students worked in competitive groups. He found that children in the jigsaw classrooms outperformed children in competitive classrooms in terms of mastery of classroom material. Black and Hispanic children performed significantly better in jigsaw classrooms than in competitive classrooms.

Jigsaw II is an alternative strategy, developed by Robert Slavin (1990). The process is as described above, with the exception that students in jigsaw groups read the entire assignment or all of the materials to acquire the information. Group members then take an individual test on the material, the results of which contribute to a team score.

How Can You Make It Happen?

1. Divide the day's lesson into segments, and form student groups. The groups should be diverse in terms of ability.
2. Form temporary expert groups in which students are assigned to the same segment. Give students in these expert groups time to discuss the main points of their segment and to rehearse the presentations they will make to their jigsaw group.
3. Then bring the students into jigsaw groups that are composed of one student from each expert group. Have each student present her or his segment to the group. At the end of the session, you may give a quiz so that students are held accountable for learning all the material.

The teacher's role in the jigsaw is to facilitate learning. When students are in expert groups, the teacher can support students by encouraging them to find ways to put information they learned into their own words, to relate the material to their own lives, and to give examples that help them explain the material to their group. Students should be encouraged to help each other and to make sure everyone in their group understands the material and will be confident presenting it to his or her group.

If a student finds it difficult to explain his or her topic to the jigsaw group, a teacher first might pair that student with a partner who will help research and present the information to the jigsaw group and then have the pair travel together to the expert group and to the jigsaw group. This will help both students develop interpersonal skills, communication skills, and cooperating. To facilitate this partner coaching, have both students tell you if this is helping them learn the material. Encourage both students to make suggestions that would help them learn more efficiently.

How Can You Stretch Students' Thinking?

The Jigsaw strategy is fundamental to all kinds of work in small groups. Use it frequently to maximize accountability and interactivity. As students become accustomed to sharing

their understanding and ideas with others, you will find that they become more responsible learners. Faced with the need to articulate their learning to others, they will master the material at a deeper level than they would otherwise. As you give students more and more complex materials to discuss, master, and present to their peers, you will be providing them with opportunities to expand their thinking and understanding. You can increase accountability by giving individual students a quiz on the material after the jigsaw sharing is complete.

When Can You Use It?

You can use this strategy in many different ways.

Reading/English

Jigsaw can be used during an [author study](#). Have each expert group read the books of an author, and have each student present the author to his or her jigsaw group. For younger students, each small group can be given a different storybook to read. Students take turns reading parts of the story. Then they take turns reading the whole story aloud again in their jigsaw groups.

Writing

Essays or reports can be divided into sections, and expert groups can research together and then bring their knowledge to their jigsaw groups to write the [essay](#) or [report](#). Students can be asked to critique the same piece of writing in small groups and then share and compare their critiques in the jigsaw group.

Math

Give students the same multi-step problem to work on in small groups (for example, estimate the number of supermarkets in the [United States](#)). Then reorganize students into jigsaw groups and have them share and discuss each original group's solution.

Social Studies

Chapters or articles can be divided and studied by student groups and then shared. Small groups can be asked to develop a solution to the same problem; solutions then can be shared and discussed in jigsaw groups.

Science

Small groups can conduct the same experiment and then share and compare results with a jigsaw group. Ask small groups to become experts in particular domains and then have them share their domain knowledge with the jigsaw group.

<http://www.teachervision.fen.com/group-work/cooperative-learning/48532.html?page=2&detoured=1>

With this website, you get to view three articles for free, and then pay a fee to become a member. I am not currently a member, but did take advantage of the free viewings.

A Jigsaw Strategy: Teaching Opposing Viewpoints on the Ratification of the United States Constitution

A. Vincent Ciardiello

Social studies educators generally agree that two major goals of the twenty-first century should be the development of critical thinking and cooperative learning skills (1). These objectives do not have to be separate endeavors. There is an opportunity to use critical thinking skills while engaged in cooperative learning (2). Indeed, cooperative learning research has indicated that the attainment of higher-level thinking skills is a concomitant development of student team learning (3). In social studies research there is evidence that cooperative learning procedures increase students' thinking skills (4).

A cooperative learning strategy that offers promise for the development of thinking skills is the jigsaw technique introduced by Aronson and his colleagues (5). This strategy employs a high degree of task specialization in which students become proficient on selected topics and then share with others in the group. As specialists, students have the opportunity to delve deeply into the topic and enhance their thinking skills.

According to critical thinking advocates, a skill that is essential for cognitive development is that of recognizing opposing viewpoints (6). This skill identifies an author's beliefs on issues and recognizes the stated and unstated assumptions that support these perspectives. John Stuart Mill offered the following persuasive case for learning this skill:

The only way in which a human being can make some approach to knowing the whole of a subject is by hearing what can be said about it by persons of every variety of opinion, and studying all modes in which it can be looked at by every character of mind. No wise man ever acquired his wisdom in any mode but this (7).

Recognizing point of view is a skill that is readily adaptable to the jigsaw strategy. Each part of an issue can be investigated separately. Since each point of view can stand independent of the others, the material can easily be divided into alternate positions. Each jigsaw group could represent a different point of view. All points of view are needed to be known to fully understand the issue.

For many teachers, the task of finding appropriate narrative materials which also can be separated into parts and still maintain some unity of structure is very difficult (8). However, there are materials that lend themselves naturally to the jigsaw technique which have not been duly recognized in the cooperative learning research. Known generally as opposing viewpoints literature, these materials express multiple points of view on historical and current issues (9).

The following example illustrates how a jigsaw technique can be utilized to teach a lesson that presents opposing views on an historical issue.

The following is a step-by-step procedure for using a jigsaw strategy to teach opposing viewpoints on the ratification of the United States Constitution.

Step 1

Divide class into four jigsaw groups. Distribute four different position papers (found on pages 10 and 11) to various students in the group. The position papers will be labeled Delegates A, B, C, and D. Each student will receive a position paper expressing a different view regarding the ratification of the United States Constitution. For different reasons, delegates A and C challenge the ratification of the Constitution whereas delegates B and D favor the ratification of the Constitution. Students will read their position papers silently.

Step 2

When students have finished reading their position papers, they will move into four expert groups. These groups consist of other class members who represent the same delegate position. While in the expert groups, the students consult with one another to make sure that they understand the important points of their position papers.

Step 3

Instruct students to return to their original jigsaw groups to discuss the different arguments pertaining to the ratification of the Constitution. Encourage each group to answer the discussion questions at the bottom of each position paper. Provide copies of the Constitution as a reference to answer questions.

Step 4

Assign an essay requiring the whole class to explain the views of each of the delegate positions.

As a follow-up to the jigsaw strategy, the students can be guided to prepare for an informed debate. They could use the knowledge that they acquired from the position papers as a springboard for further inquiry through library research assignments. A mock constitutional convention could also be set up in which students role-play as delegates.

Most jigsaw strategies in the literature have emphasized the acquisition of factual knowledge (10). This has been too limited a goal. The above strategy indicates that the jigsaw strategy can be utilized in teaching higher level thinking skills such as recognizing different points of view on historical issues.

Position Papers

DELEGATE A

“The Confederation, this same despised government, merits, in my opinion, the highest encomium. It carried us through a long and dangerous war, it rendered us victorious in

that bloody conflict with a powerful nation; it has secured us a territory greater than any European monarch possesses and shall a government which has been thus strong and vigorous, be accused of imbecility and want of energy? Consider what You are about to do before you part with the government. . . .

This constitution is said to have beautiful features, but when I come to examine these features, sir, they appear to be horribly frightful: among other deformities, it has an awful squinting; it squints toward monarchy. Your president may easily become king: your senate is so imperfectly constructed that your dearest rights may be sacrificed by what may be a small minority. . . .

If your American chief be a man of ambition and abilities, how easy it is for him to render himself absolute.

Away with your president, we shall have a king: the army will salute him monarch: your militia will leave you and assist in making him king, and fight against you"

Question

1. Is Delegate A in favor or against the Constitution?
2. Why does he feel this way?
3. Specifically, of what parts of the Constitution is Delegate A in favor or against? Refer to appropriate article and sections of the Constitution.

DELEGATE B

"If any dangerous and unnecessary powers be given to the general legislature, let them be plainly demonstrated.

Sir, by this government, powers are not given to any particular set of men, they are in the hands of the people; delegated to their representatives chosen for short terms; to representatives responsible to the people, and whose situations are perfectly similar to their own: as long as this is the case we have no danger to apprehend. . . .

(Those) who wish to become federal representatives, must depend on . . . that class of men who will be the most popular in their counties, who generally represent the people in the state governments . . . It is almost certain, therefore, that the deliberations of the members of the federal house of representatives will be directed to the interests of the people of America. As to the other branch, the senators will be appointed by the legislatures, and though elected for six years, I do not conceive (think) they will so soon forget the source from whence they derive their political existence

(Direct) taxation is . . . generally objected to (but it) can be of little advantage to those in power, to raise money in a manner oppressive to the people"

Questions

1. Is Delegate B in favor or against the new Constitution?
2. Why does he feel this way?
3. Specifically, of what parts of the Constitution is Delegate B in favor or against? Refer to appropriate article and section of the Constitution.

DELEGATE C

“Sir, the question is, whether congress shall have power . . . This (section) “provide for the common defense, promote the general welfare:” I look upon . . . (as) big with mischiefs. Congress will have power to keep standing armies. The great Mr. Pitt says, standing armies are dangerous—keep your militia in order . . . We are able to stand our own ground against a foreign power—they cannot starve us out, they cannot bring their ships on the land; we are a nation of healthy and strong men—our land is fertile, and we are increasing in members . . . Let us amend the old confederation. Why not give congress power only to regulate trade; some say that those we owe will fall upon us; but . . . the balance of power in the old countries will not permit it—the other nations will protect us . . . (Where) is the bill of rights which shall check the power of this congress, which shall say, thus far shall ye come, and no farther. The safety of the people depends on a bill of rights. . . . There are some parts of this constitution which I cannot digest; and, sir, shall we swallow a large bone for the sake of little meat? Some say swallow the whole now, and pick out the bone afterwards. But I say, let us pick off the meat, and throw the bone away.”

Questions

1. Is Delegate C in favor or against the Constitution?
2. Why does he feel this way?
3. Specifically, of what parts of the Constitution is he in favor or against? Refer to appropriate article and section of the Constitution.

DELEGATE D

“I am a plain man and get my living by the plough. I am not used to speaking in public, but I get your leave to say a few words to my brother plough-joggers in this house . . .

We are by this Constitution allowed to send ten men to Congress. Have we not more than that number fit to go? I dare say, if we pick out ten, we shall have another ten left, and I hope ten times ten—and will not these be a check upon those that go? Will they go to Congress and abuse their power, and do mischief, when they know that they must return and look the other ten in the face, and be called to account for their conduct: Some gentlemen think that our liberty and property are not safe in the hands of moneyed men, and men of learning. I am not of that mind.

Brother farmers, let us suppose a case now: Suppose you have a farm of fifty acres, and your title was disputed and there was a farm of five thousand acres joined to you, that

belonged to a man of learning, and his title was involved in the same difficulty; would not you be glad to have him for your friend rather than to stand alone in the dispute? Well, the case is the same; these lawyers, these moneyed men, these men of learning are all embarked in the same cause with us and we must all swim or sink together; and shall we throw the Constitution overboard because it does not please us alike?

Some gentlemen say—don't be in a hurry, take time to consider, and don't take a leap in the dark. I say—take things in time, gather fruit when it is ripe. There is a time to sow, and a time to reap. We sowed our seed when we sent men to the Federal Convention; now is the harvest, now is the time to reap the fruit of our labor and if we don't do it now, I am afraid we never shall have another opportunity.”

Questions

1. Is Delegate D in favor or against the new Constitution?
2. Why does he feel this way?
3. Specifically, of what parts of the Constitution is he in favor or against? Refer to appropriate article and section of the Constitution.

Endnotes

1. National Commission for Social Studies in the Schools, *Charting a Course: Social Studies for the 21st Century* (Washington, D.C.: The Commission, 1989).
2. Cecile Burnett James, “Cooperative Learning in the Classroom,” *The Social Studies* (May/June 1989): 98-101.
3. Spencer Kagan, *Cooperative Learning Resources for Teachers* (San Juan Capistrano, Calif.: Resources for Teachers, July 1989).
4. Robert E. Slavin, “Research on Cooperative Learning: Consensus and Controversy,” *Educational Leadership* (Dec/Jan. 1989-90): 52-54.
5. Elliot Aronson et al., *The Jigsaw Classroom* (Beverly Hills, Calif.: Sage Publications, 1978).
6. Barry Beyer, *Developing a Thinking Skills Program* (Boston: Allyn & Bacon, 1988).
7. John M. Robson, ed., *John Stuart Mill: A Selection of His Works* (New York: St. Martin's Press, 1966), 27.
8. Aronson, et al., *The Jigsaw Classroom*.
9. For examples of textbooks that use an opposing viewpoints format see Bernard Feder, *Viewpoints USA* (New York: American Book Company, 1967) and Allan O. Kownslar and Donald B. Frizzle, *Discovering American History* (New York: Holt, Rinehart &

Winston, 1967). Greenhaven Press (San Diego) prints an entire series of opposing viewpoints mini-texts and pamphlets edited by David L. Bender and Bruno Leone, 1992.

10. Kagan, *Cooperative Learning Resources*.

A. Vincent Ciardiello is chair of the Social Studies Department at Jane Addams Vocational High School in Bronx, New York and Adjunct Associate Professor of History at Iona College in New Rochelle, New York.

<http://www.oah.org/pubs/magazine/africanamerican/ciardiello.html>

Jigsaw is a cooperative learning strategy that enables each student of a "home" group to specialize in one aspect of a learning unit. Students meet with members from other groups who are assigned the same aspect, and after mastering the material, return to the "home" group and teach the material to their group members.

Just as in a jigsaw puzzle, each piece--each student's part--is essential for the completion and full understanding of the final product. If each student's part is essential, then each student is essential. That is what makes the Jigsaw instructional strategy so effective.

What is its purpose?

Jigsaw learning allows students to be introduced to material and yet maintain a high level of personal responsibility.

The purpose of Jigsaw is to develop teamwork and cooperative learning skills within all students. In addition it helps develop a depth of knowledge not possible if the students were to try and learn all of the material on their own. Finally, because students are required to present their findings to the home group, Jigsaw learning will often disclose a student's own understanding of a concept as well as reveal any misunderstandings.

How can I do it?

In its simplest form, the Jigsaw instructional strategy is when:

1. Each student receives a portion of the materials to be introduced;
2. Students leave their "home" groups and meet in "expert" groups;
3. Expert groups discuss the material and brainstorm ways in which to present their understandings to the other members of their "home" group;
4. The experts return to their "home" groups to teach their portion of the materials and to learn from the other members of their "home" group

In more detail, and written from a teacher's perspective, to conduct a Jigsaw in your classroom:

1. Assign students to "home" teams of 4 or 5 students (generally their regular cooperative learning teams). Have students number off within their teams.
2. Assign study topics to "home" team members by giving them an assignment sheet or by listing their numbers and corresponding roles on the board.
3. Have students move to "expert" groups where everyone in the group has the same topic as themselves.
4. Students work with members of their "expert" group to read about and/or research their topic. They prepare a short presentation and decide how they will teach their topic to their "home" team. You may want students to prepare mini-posters while in their "expert" Groups. These posters can contain important facts, information, and diagrams related to the study topic.
5. Students return to their "home" teams and take turns teaching their team members the material. I find it helpful to have team members take notes or record the information in their journals in some way. You may want them to complete a graphic organizer or chart with the new information.
6. Involve the class in a whole-group review of all the content you expect them to

master on the assessment. Administer an individual assessment to arrive at individual grades.

How can I adapt it?

There are limitless ways of adapting the jigsaw structure in terms of the size of the groups, the range of topics and the demonstration of mastery of those topics. Teachers have developed many variations. Here are several modifications that are helpful in different circumstances:

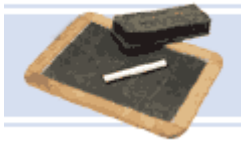
1. Give students subtopics and have them use reference materials in the library to research their subtopic. This frees the teacher from having to arrange materials in advance.
2. Have the "home" group write a report or give a class presentation on the overall topic, with the specification that it includes all the subtopics presented in the group.
3. Prepare outlines or study guides of what each subtopic should cover and have students read the same text, organizing and becoming experts on the material highlighted by their outline or study guide

Assessment & Evaluation Considerations-Assess students' degree of mastery of all the material. Reward the groups whose members all reach the preset criterion of excellence or give bonus points on their individual scores if this criteria is met. Students will need to evaluate themselves on how well their group did in the jigsaw (e.g., active listening, checking each other for understanding, and encouraging each other) and set goals for further interaction

Teacher Resources

- Bennett B., Rolheiser, C., Stevahn, L. (1991) *Cooperative Learning: Where Heart Meets Mind*, Educational Connections, Ontario.
- Aronson, E., N. Blaney, C. Stephin, J. Sikes & M. Snapp. *The Jigsaw Classroom*. (1978). Beverly Hills, CA: Sage Publishing Company.
- [The Jigsaw Classroom](#)
- [The 'Jigsaw' Approach Brings Lessons to Life](#)
- [Overview of the Technique](#)
- [The Jigsaw Technique](#)
- [History of the Jigsaw](#)
- [Jigsaw in 10 Easy Steps](#)
- [Tips on Implementation](#)
- [Introduction to Social Studies Lessons on Ancient Greece](#) - (Grade 5 - two lessons)
- [How Do Students Become Thoughtful](#) - A jigsaw activity about bullying
- [The Role of the Government in Inuit Education](#) - (Grade 11-12)
- [My Teacher, the New CEO - Theme - Ecology, Ecosystem](#) - (Grade 7)
- [Louis Riel and the Métis](#)

<http://olc.spsd.sk.ca/DE/PD/instr/strats/jigsaw/>



Tips on Implementation

Compared with traditional teaching methods, the jigsaw classroom has several advantages:

- Most teachers find jigsaw easy to learn
- Most teachers enjoy working with it
- It can be used with other teaching strategies
- It works even if only used for an hour per day
- It is free for the taking

Too good to be true? Well, yes and no. It would be misleading to suggest that the jigsaw sessions always go smoothly. Occasionally, a dominant student will talk too much or try to control the group. How can we prevent that? Some students are poor readers or slow thinkers and have trouble creating a good report for their group. How can we help them? At the other end of the talent continuum, some students are so gifted that they get bored working with slower students. Is the jigsaw technique effective with them? In some cases, students may never have experienced cooperative learning before. Will the jigsaw technique work with older students who have been trained to

Explore the Jigsaw Classroom:

- ▶ [Overview of the Technique](#)
- ▶ [History of the Jigsaw Classroom](#)
- ▶ [Jigsaw in 10 Easy Steps](#)
- ▶ [Tips on Implementation](#)
- ▶ [Books and Articles Related to the Jigsaw Technique](#)
- ▶ [Chapter 1 of Aronson's Book "Nobody Left to Hate: Teaching Compassion After Columbine"](#)
- ▶ [Links on Cooperative Learning and School Violence](#)
- ▶ [About Elliot Aronson and This Web Site](#)

compete with one another? All of these problems are real but not fatal.

The Problem of the Dominant Student

Many jigsaw teachers find it useful to appoint one of the students to be the discussion leader for each session, on a rotating basis. It is the leader's job to call on students in a fair manner and try to spread participation evenly. In addition, students quickly realize that the group runs more effectively if each student is allowed to present her or his material before question and comments are taken. Thus, the self interest of the group eventually reduces the problem of dominance.

The Problem of the Slow Student

Teachers must make sure that students with poor study skills do not present an inferior report to the jigsaw group. If this were to happen, the jigsaw experience might backfire (the situation would be akin to the untalented baseball player dropping a routine fly ball with the bases loaded, earning the wrath of teammates). To deal with this problem, the jigsaw technique relies on "expert" groups. Before presenting a report to their jigsaw groups, each student enters an expert group consisting of other students who have prepared a report on the same topic. In the expert group, students have a chance to discuss their report and modify it based on the suggestions of other members of their expert group. This system works very well. In the early stages, teachers may want to monitor the expert groups carefully, just to make sure that each student ends with an accurate report to bring to her or his jigsaw group. Most teachers find that once the expert groups get the hang of it, close monitoring becomes unnecessary.

The Problem of Bright Students Becoming Bored

Boredom can be a problem in any classroom, regardless of the learning technique being used. Research suggests, however, that there is less boredom in jigsaw classrooms than in traditional classrooms. Youngsters in jigsaw classes report liking school better, and this is true for the bright students as well as the slower students. After all, being in the position of a teacher can be an exciting change of pace for all students. If bright students are encouraged to develop the mind set of "teacher," the learning experience can be transformed from a boring task into an exciting challenge. Not only does such a challenge produce psychological benefits, but the learning is frequently more thorough.

The Problem of Students Who Have Been Trained to Compete

Research suggests that jigsaw has its strongest effect if introduced in elementary school. When children have been exposed to jigsaw in their early years, little more than a "booster shot" (one hour per day) of jigsaw in middle school and high school is required to maintain the benefits of cooperative learning. But what if jigsaw has not been used in elementary school? Admittedly, it is an uphill battle to introduce cooperative learning to 16-year olds who have never before experienced it. Old habits are not easy to break. But they can be broken, and it is never too late to begin. Experience has shown that although it generally takes a bit longer, most high school students participating in jigsaw for the first time display a remarkable ability to benefit from the cooperative structure.

In Conclusion

Some teachers may feel that they have already tried a cooperative learning approach because they have occasionally placed their students in small groups, instructing them to cooperate. Yet cooperative learning requires more than seating youngsters around a table and telling them to share, work together, and be nice to one another. Such loose, unstructured situations do not contain the crucial elements and safeguards that make the jigsaw and other structured cooperative strategies work so well.

<http://www.jigsaw.org/tips.htm>

