Maximizing the Value of Jigsaw Activities

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(*This is a transcript of the conference, which accounts for the spoken style*)

I am frankly fascinated by Jigsaw because I think it presents to us a number of paradoxes. On the one hand, it is a very simple technique for arranging classroom activity, in the language classroom and in other classrooms. We can spend a lot of time just talking about Jigsaw as a technique and how to carry out this technique in the most efficient way possible. That is, in fact, what I want to do for the most part, to talk about maximizing the value of Jigsaw. But on the other hand, we can look at it as the window to a very broad discussion of educational philosophy because Jigsaw, as an activity, is representative of a fundamentally different view of teaching and learning than most of us are accustomed to. If we are accustomed to looking at teachers and learners as playing a variety of roles in the classroom, it is something that we probably learned in our professional development more than we experienced it as students ourselves. And so, to talk about introducing Jigsaw into a classroom is really more than introducing a technical change. It is introducing a very different philosophy of teaching and learning. So we can look at it at a very broad philosophical level or we can look at it from a practitioner's perspective, as a technique.

An old paradox about Jigsaw is that the technique is familiar to many language teachers who do not know anything else about the kind of learning arrangements of which Jigsaw is representative, mainly co-operative learning. Many foreign language teachers, who have never heard of co-operative learning, are nevertheless familiar with the Jigsaw technique. And yet, as familiar as it is, it is being reintroduced to a generation of language teachers and discussed with an intensity that is quite unusual. You cannot pick up a journal or read a teachers' magazine without reading about Jigsaw or similar activities. So, on the one hand it is old and it is known and, on the other hand, it is being reintroduced now very differently from the way language teachers have known about it in the past.

I have done workshops, seminars, talks about Jigsaw all over the world and I try to temper my own enthusiasm for Jigsaw, which I use in my own teaching, with the message that Jigsaw activity is very easy to do in a mediocre way but it is extremely difficult to do well. That is to say, anyone can introduce Jigsaw, but perhaps not too many people, without a real commitment to it, can do it well.

Classroom instructional technology decisions

1. Task structures

The mix of activities that make up the school day or a set of classroom lessons: lectures, discussion, seat work, teacher-led drill, pair work, etc., in other words, tasks and grouping procedures prescribed or allowed.

2. Reward (incentive) structures

The means for assessing and motivating student performance; these structures can be tangible or intangible and can vary in terms of frequency, magnitude and sensitivity.

3. Authority structures

The control allocated to teachers and students of classroom activities.

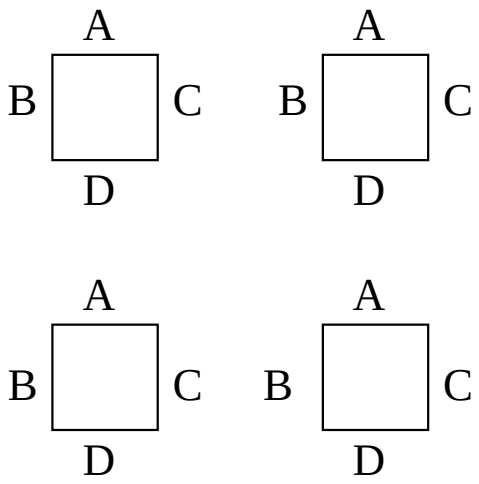
These represent areas of decision-making that any teacher has to be concerned with. For example, decisions about providing learners with autonomous, or self-directed learning opportunities, certainly fall under the rubric of instructional technology decisions. And we make these decisions, sometimes on the basis of practical factors: we have too many students in our classes to be able to provide effective whole-class instruction, we need to find different arrangements so that students can make better use of the limited classroom time that they have. Sometimes we make instructional decisions for philosophical reasons or because we have a particular view of the educational process that we would like to translate into classroom practice. But all of us, whether we are simply following tradition, imitating our peers, sticking to what is tried and true, or whether we are trying to introduce change into classrooms, make decisions about tasks, structures and reward or incentive structures and authority structures. And Jigsaw can perhaps best be understood in terms of each of these structures. Because Jigsaw activity represents a particular kind of task in which the assessment, the evaluation of student performance on the task is very different from traditional evaluation in the classroom and in which the assignment of responsibility - who's responsible for the student's learning? - is again quite different from what it typically is in a conventional or traditional classroom.

THE FOUR STAGES OF CO-OPERATIVE TEAM JIGSAW ACTIVITY

Let us look at Jigsaw in terms of the traditional structure of the activity and see if we can identify its defining characteristics.

Stage 1: ***Jigsaw-group formation and organization***

Learners gather in Jigsaw groups and receive expert-group assignments and instructions.

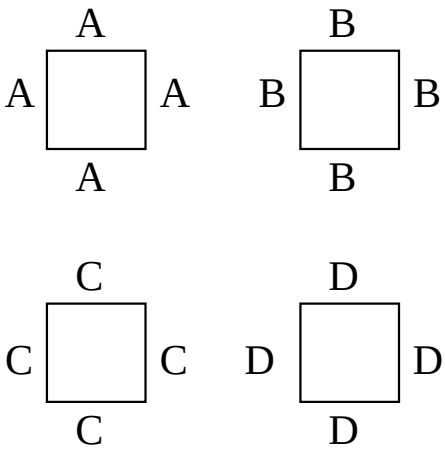


Students are going to work in groups and have a specific responsibility to the group in which they work. Students are assigned to Jigsaw groups and are given specific instructions for the next stage of the activity.

Stage 2. ***Expert-group study and rehearsal***

Learners regroup into expert groups in which they study material that they will later teach to their Jigsaw group. Once they understand the material, they rehearse how they will teach it to their Jigsaw group.

Students from the different Jigsaw groups who have been given the same assignment meet in what are called expert groups and they work with material, information, tasks that they alone are responsible for among the members of their Jigsaw group. In other words, each member of an expert group will be the sole resource, the sole source of the information with which that expert group is working when that student returns to his or her Jigsaw group. Each student then, in a Jigsaw activity, is the unique owner of information which is vital to the success of the group and of each of the individual members of the group.



Stage 3: ***Jigsaw-group teaching and learning***

Learners re-assemble in their Jigsaw groups and teach their materials to each other to reach a complete understanding of the general problem (*i.e.* the materials from all four expert groups).

The term used here is to "teach" material. It may not involve teaching. In some cases it may simply involve pooling information, in some cases it may involve comparing information, but in some cases it may indeed involve teaching or transmitting information, so that the entire group can solve a problem or complete a task, whatever the specific nature of the Jigsaw work may be.

Stage 4: ***Evaluation***

Learners are evaluated on what they have learned. This can be done with an individual test (which includes information from all four expert groups), an analysis of the participation of group members, group presentations or a homework assignment.

Usually this evaluation includes some sort of individual testing. But in the assignment of rewards, both to individuals and to groups, there may be some consideration for the performance of the other members of the group.Now let us compare Jigsaw work with other types of small-group work. It is often helpful to remember that all Jigsaw work involves small-group work. But not all small-group work is Jigsaw work. It is a special kind of small-group work.

Let us take, for example, an activity called "Who gets the heart?"[1] This is a decision-making activity, from a text that is now more than a decade old, but which at the time of its publication was quite well received both critically and in classrooms. This is one of these classic decision-making activities in which, in its original form, small groups of learners have to decide which of six candidates for a heart transplant is the most worthy recipient. They have to reach consensus and identify which person is to receive the heart and why. Certain key elements of Jigsaw work are missing from this activity in its original form.

[1] ROOKS, G. (1981). ***The Non-Stop Discussion Workbook***. Rowley, Mass.: Newbury House. Unit 8. 31-33.

KEY ELEMENTS OF JIGSAW WORK

The four critical elements of Jigsaw are also elements of other types of "co-operative learning".

1. Positive interdependence

In Jigsaw work, when it is properly designed and used, every student depends for his or her success on the successful performance of peers. The only way that you can be successful in a Jigsaw activity is by ensuring that your team- mates are also successful. In other words, the structure of a Jigsaw activity, as with other co-operative learning arrangements, is designed to bring co-operation and mutual support among learners rather than the typically competitive spirit which is one of the hallmarks of traditional instruction and conventional educational systems. In the "Who gets the heart?" activity, in the form in which it is constructed, there is no positive interdependence. Every member of a small group looking at this problem has access to all of the information. And not only can one or two members of the group monopolize the discussion of this problem but they can impose their solution on the rest of the group and label it as consensus. The group, in effect, can reach the end of a task successfully, without ever having functioned as a group and without regard to the success of all of the members of the group in understanding what the problem is and how it is best solved.

2. Face-to-face interaction

This second element of Jigsaw is, in principle, what drives a small-group problem-solving activity like this. But whereas in this activity there is nothing that compels learners to interact with one another in discussing the problem, or to function as a group, in Jigsaw the structure of the task requires face-to-face exchange of information. Whatever information one learner has gotten from his or her expert group has to be communicated, face to face to the other members of that learner's Jigsaw group. So that, whereas face-to-face interaction can result, and often does result, in an activity like this, it is not guaranteed; in Jigsaw it is.

3. Individual accountability

Nothing prevents a member of a small group doing this activity from opting out of the activity, simply pushing back his or her seat and letting the other people do the work. In Jigsaw that is not an option. Any person who fails to carry out his or her assigned role or responsibility undermines the ability of everyone in the group to reach the end of the task successfully. In other words, everyone is accountable for at least some part of the solution to a problem.

4. Pro-social and small-group skills development

Finally, Jigsaw, again like other similar arrangements that we group together under the umbrella of "co-operative learning", is explicitly designed and should include, when it is used in a systematic way, explicit efforts to help learners function more effectively as members of groups. So that, typically you will find, associated with Jigsaw, when it is a systematic part of instructional routine, different attempts to develop small-group skills, to make the management of the group's work more efficient, to acknowledge and reward what we call pro-social behavior, behavior which aims at fostering better relations between students.

This last point, as well as the emphasis on positive interdependence reflects the origin of Jigsaw in education in general. Jigsaw work is normally recognized as having begun as a general pedagogical technique in the late 1970's, when a group of researchers in the state of Texas designed Jigsaw activities for use in schools which were beset by all of the social problems which have challenged American education for the last 50 years. In these schools there was a mixture of students from different races and ethnic backgrounds who did not get along. Many of the students came from family backgrounds which placed very little value on education or in which there was very little support for the work of the schools. Jigsaw was intended, in part, to develop not only academic skills in students but social skills as well, to develop better liking for other students, better understanding of students from different backgrounds. To put it another way, Jigsaw was an attempt at social engineering within classrooms, to create instructional arrangements that would bring students into contract who would ordinarily avoid one another.

That original benefit, or perceived benefit of Jigsaw is just as needed today in many countries, perhaps particularly in the United States. Just about two weeks ago, an article was published in the *New York Times* which reported - and there are articles like this all the time - widespread dissatisfaction among employers, businesses, industry, corporations, with people who were leaving university and coming into the work force. The report stated that, according to captains of industry and commerce who were surveyed, the three most important attributes that employers were looking for and not finding in university graduates were:

- previous work experience,
- positive attitudes,
- social skills (the ability to function as a member of a work team).

The report probably reveals the proverbial tip of the iceberg. Many people who saw the potential benefit of Jigsaw work back in the 70's see it as an even more urgent necessity today, when so many of the other institutions for socializing young people seem to be under threat: families, communities no longer performing their traditional role as socializing agents, as developers of a community spirit and of the skills of interacting as a member of a community.

And so the burden has again fallen even more heavily on the schools.

Now, what about situations in which the need to train students to get along with people from diverse backgrounds is not as pressing?

There is still probably much to be said for accompanying Jigsaw work with some sort of activity that helps learners become at least conscious of how well they are functioning in a group. If it is not going to include specific training in small-groups skills, at least there can be some sort of assessment by the group of the quality of its performance as a unit.

So, these are the four features that we want to see in any kind of Jigsaw activity. But by themselves they do not tell us enough about how to use Jigsaw with maximum effect. In other words, many discussions of Jigsaw - and I hope this will not fall into that category - try to describe what Jigsaw is, try to identify its essential elements and then leave it to the imagination of teachers as to how to create Jigsaw work that is effectively matched to particular instructional aims and to particular learners.

KEY DECISION-MAKING AREAS

Let us try to identify the key decision-making areas that take us from a generic understanding of Jigsaw to a well-honed ability to apply it effectively in different situations for different purposes.

1. Long-range planning

The issue of maximizing the value of Jigsaw consists of three levels of decision-making. Each of these levels needs to be thought about consciously and the decisions have to be made or reconsidered periodically by anyone who wants to use Jigsaw either on a very modest basis or as a more integral part of a language class or language program. Certainly one level of decision-making that ought to precede all others is that of long-range planning which involves four related decisions.

- ***Commitment to Jigsaw work as an instructional arrangement***

There is a large difference between an occasional use of Jigsaw as a way of breaking the routine, as an occasional change of pace for a language class in which the staple activity is something else, whether teacher-led instruction or some combination of activities and the use of Jigsaw as an on-going, systematic, predictable part of the classroom routine. Some ardent proponents of Jigsaw have argued that as much as 50% of class time can be devoted usefully to Jigsaw work. Most proponents of Jigsaw are much more modest in suggesting that perhaps 20 to 25% of the total class time can be allocated to Jigsaw without compromising the value of other activities. But even if we choose the relatively modest figure of 20 %, that still represents one hour out of every five.

Is a teacher, a team of teachers or a group responsible for an entire program willing to make that commitment of time in planning a course? If so, then time will have to be allocated for introducing students, gently but systematically, to the nature of Jigsaw, to teach them what it is so that their work in Jigsaw activities will be increasingly effective, but effective from the very beginning. So this is the first thing that has to be decided. Is this going to be an occasional change of pace, or is this going to be an integral part of language instruction?

- ***Composition of groups***

In Jigsaw work, as it was originally designed for the kinds of challenging settings which I described earlier, the idea was to put students into Jigsaw groups, who were academically, racially and ethnically heterogeneous in order to engineer interactions among people who would ordinarily not have anything to do with one another. In many cases, it is difficult to find a basis on which to make heterogeneous groupings. Typically, students have all had the same previous foreign language experience if they come from the same educational system, there may not be perceptible differences in their ability if they have all been placed at a particular level. They may be relatively homogeneous in terms of ethnicity, race and other sociological variables. So it may well be that, instead of teacher-assigned groupings aiming for heterogeneity, the teacher will decide to use self-selected groups, or to assign students to groups on a completely random basis, or to alternate the composition of groups on a regular basis. That is to say, every four weeks groups will be reconstituted. But some thought has to go into how students are going to be grouped rather than simply deciding, on a whim, or "Today you four people, you four people", etc. The composition of groups ought to be a matter of long-range planning: what, if anything, do you want to accomplish by grouping arrangements?

- ***Incentive structure of Jigsaw: reward system (individual vs. group)***

This is a controversial part of Jigsaw and other co-operative learning arrangements. But a decision has to be made about whether the performance of any individual will be evaluated on the basis of that individual's performance alone, or on the basis of the performance of all of the members of the group to which that individual belongs.

This has nothing to do with the nature of the task itself but only with the way in which performance is assessed or evaluated. Here, local circumstances and traditions as well as teachers' own intuitions about what sort of reward structure will motivate students most effectively should come into play. But there are certainly opportunities to base evaluation of performance on individual performance alone, group performance alone or some combination that takes into account both the individual's own performance and the performance of other members of the group.

- ***Commitment of lesson time***

We have to acknowledge that Jigsaw work does take time and give careful thought to the decision about whether or not to restrict Jigsaw activity to single classroom lessons or to make the greater commitment of carrying Jigsaw work over from one lesson to another. Clearly, there are risks in situations in which absenteeism is a frequent problem, when you do not know from week to week and even from day to day who is likely to be in class or who is likely not to be in class. So some teachers decide to use Jigsaw activity but only of the type that can be managed within a single classroom lesson, so that any problems resulting from absenteeism or anything else will not spill over and affect a subsequent lesson. These are the sorts of things that define the boundaries of the kind of Jigsaw work that a teacher is going to do.

2. Activity design

- ***Different types of Jigsaw activity***

Jigsaw activity is not all of the same cloth. There are different kinds of Jigsaw activity. This is a point that is frequently overlooked but which can often lead to very disappointing results because of a failure to recognize that Jigsaw comes in different types. I have tried to identify different types of Jigsaw work that in fact create very different activities, even though all of them are based on the Jigsaw principle, that is to say the idea that in any group each learner will have to be the unique owner of certain information.

I have been working on this typology for some time and I'm still not entirely satisfied with it, but this is a distinctive improvement over some previous versions.

♣ *Convergent Jigsaw*

A very common type of Jigsaw activity that is used with less advanced learners, beginning at lower intermediate learners, is what we can call convergent Jigsaw activity. In a convergent Jigsaw activity, each expert group has access to one piece of a set of information and when the Jigsaw groups reconvene the task of that group is to pool that information, to simply put it together much in the manner learners in pair work complete an information grid by exchanging information. The information is collected in expert groups and then brought back and transmitted to the other members of the Jigsaw groups so that everyone arrives at the end of the activity with a complete set of information.

♣ *Corners Jigsaw*

One interesting variation on the Jigsaw principle is what is called corners Jigsaw, where different pieces of information will be posted in the four corners of a room. Members of an expert group must go to their appropriate corner, collect the information, bring it back to the group and communicate it to the group without actually showing them that information. For example, we might have, in the four corners of the room, four different advertisements for jobs that are available, with a description of the type of work and the minimum qualifications and the application procedures for each job. And everybody will come back with his or her information, so that each member of the Jigsaw group has completed a little slip of paper for each of the four jobs. But this is a simple pooling of the information without any processing of the information itself.

♣ *Alternative Jigsaw*

An alternative Jigsaw task is one in which each of the four expert groups has access to one alternative solution to a problem. The Jigsaw groups must compare the alternatives and select the best one. Here we have a processing task, because it is not simply a matter of collecting the information but comparing and contrasting it. A good example of this would be the "Who gets the heart?" activity if it were converted into a Jigsaw activity, that is if, instead of presenting everyone with the full set of information, different expert groups were given descriptions of one or two of the potential recipients. They have to bring that back and propose why that recipient is the most worthy candidate and then the group will have to decide, once the information has been shared, which person they are going to give the heart transplant to. The point here is that it is not simply a matter of pooling information but of selecting what one believes to be key information and using that to argue for or against a candidate.

♣ *Divergent Jigsaw*

A divergent Jigsaw task is one in which we not only anticipate that different Jigsaw groups will come up with different solutions to a problem but in which we expect and want them to. And a good example of this is the "Sad House Story"[2] which is not a Jigsaw activity in its original form but which I have used as a Jigsaw activity by giving each expert group one of the pictures and telling them that they have to come back and describe what is in their picture and that the group has to select one of the four orderings of the picture. They do not have to construct a narrative, although that is certainly a possibility, but they have to vote for one particular order. And groups always come up with a different story line so that this, then, becomes a divergent task.

[2] PEREZ, G. Y., VELA, I. G. & FRANKENBERGER, C. (1987). ***Let's Learn English: Second Language Activities for the Primary Grades***. Glenview, Ill.: Scott. Unit 9, Worksheet 2, 80.

♣ *Complementary Jigsaw activities*

Each expert group has access to a complete set of information, in other words each group is working with a set of information that is understandable and meaningful on its own terms. But then, the Jigsaw groups, after they have reconvened, must use some or all of the information to solve a problem. They are not only simply pooling the information but they are going to use the information in a problem-solving task.

Good examples of this can be found in one of the few published materials that rely exclusively on Jigsaw activity. This is called ***All Sides of the Issue***. The authors are Elisabeth Coelho, Liz Weiner and Judy Winbell Orson. In this set of materials you have, for example, a Jigsaw activity that is based on an industrial accident. Different expert groups read the accounts of this accident given by very different parties: the supervisor in the area of the plant where the accident occurred, a union official representing the injured party, the injured employee himself, etc. There is a worksheet that the Jigsaw groups use when they reconvene as Jigsaw groups, in which they have to get information from different sources, comparing, contrasting the accounts of various incidents by the different reports so that they are not simply pooling the information but using the different information selectively in order to decide what really was the nature of the accident. Was it an act of God or was it a case of company negligence or of worker negligence?

A lot of the success of any Jigsaw activity depends in part on an understanding, on the part of the teacher, of the type of activity involved, that if you choose, for example, a divergent activity, you have to plan more time than you would for a simple convergent activity, simply because of the nature of the task. In other words, the type of Jigsaw activity is going to dictate the nature of the work that is done by the experts in the Jigsaw groups and it will affect our decision as well about, for example, what kind of guidance and what kind of materials to supply to students.

- ***Amount of focus to expert groups***

How much guidance, how much direction, how explicit should the instructions be to the expert groups about how best to manage their work ?

To illustrate this point let us go back to "The Sad House Story". I have often observed that if you do not provide any guidance to expert groups, they will rehearse a long, painfully detailed description of everything they can see and in fact some things that they really cannot see in these pictures. Typically, for example in this picture of a family presumably waiting to get on a bus or having just got off a bus, they will describe the clothes that these persons are wearing. They will describe each piece of luggage in painstaking detail when in fact, what you really might want and what you will probably want is a very short, maybe one or two or three sentence description of what is in the picture.

You have to decide, as we always do for activities, how much guidance to provide to learners. It is not simply a matter of wasting time by giving people too much time so that they come up with very long and overly detailed descriptions, but in fact you may create a frustration level for students by leaving the task so open-ended. The students will be frustrated by their inability to describe things in a picture that they do not really need to describe.

Should expert groups be given worksheets, specific instructions, specific questions to answer, to make their work more efficient? Should the same be done for Jigsaw groups? This is a key design feature. How much guidance and focus should there be at each stage of the activity? How much should be given to learners in terms of focus?

- ***Materials for Jigsaw learning***

  There are three basic options described below.

♣ *Published materials* (*e.g.* ***Listening Links, Reading Links, Jigsaw Listening, All Sides of the Issue***)

One option is to use off-the-shelf materials. The problem is that there are only a few such materials. Although they may be ideal for Jigsaw group work, they may not be appropriate in terms of content, of organization, of length, of format, of complexity/difficulty for use with particular learners.

We have used some of these materials quite successfully with some English classes for international students at my university. But there are some Jigsaw activities that we cannot use very well because they are culturally loaded towards students from Canada. That is, without a familiarity with life in Canada, it is more difficult for students to work with the materials effectively.

♣ *Adaptation of materials*

A second option is to adapt materials and to create Jigsaw material out of it. This works fine for certain kinds of materials but not for others.

Obviously, it becomes something of a problem to take a narrative, to divide it up into four parts and to assume that students reading the last quarter of a narrative are going to be able to understand it without having read the first three quarters. Imagine reading only the last 25% of a detective novel. How can you make any sense of it unless you have read the first part ?

In fact, there are not many activities and texts that lend themselves to be divided into self-contained and comprehensible sections. In addition, it may be impractical to prevent students from seeing integral texts in their textbook that are not intended to be adapted into Jigsaw reading activities.

♣ *Jigsaw II (Annex 2*)

An alternative is to use what is called Jigsaw II and compare it to the original Jigsaw technique. What you have on the left hand column is original Jigsaw. What you have on the right hand column is what is called Jigsaw II, which is not a successor in the style of films these days, *Rocky 2, 5, 15* but rather an alternative. And the essence of Jigsaw II is that you give everyone an entire text but give them different tasks to work on within that text. Make the text long enough that no one would even be tempted to try to do all of the tasks by himself or herself. Or even easier, ensure that each expert group knows only which task they are to do.

That is one way to avoid the problem of having to reject a text because it does not lend itself to being cut up into a Jigsaw puzzle.

♣ *Creation of Jigsaw materials*

It presents a problem. Like all materials development, Jigsaw materials are time-consuming to prepare. Care must be taken to select appropriate texts and to design activities to follow Jigsaw work.

- ***First language vs. second language***

Finally, at the level of activity design, decisions have to be made about the role of the students' need of language in expert and/or Jigsaw group work. This is a problem that does not arise when you have a linguistically heterogeneous class, as is often the case in second language settings, but which certainly is an issue when you have a class consisting of native or fluent speakers of French.

More and more people are recognizing that the native language does have a useful role to play, if not so much in foreign language development, at least as a tool that can be used in making activities more efficient. For example, there is nothing to prevent a teacher from allowing students to look at or to discuss material in their expert group in their native language with the provision that the students will, at some point, develop a description or a summary in English that they will use to present the material to their Jigsaw group. The feeling that what might only require ten minutes in an expert group if it could be done in French, would require 35 or 40 minutes if it had to be done entirely in English may lead you to opt for allowing or even encouraging the use of the native language at one stage of the Jigsaw work.

Other teachers might look at the same activity and decide that the time that would be required by expert groups to do their work in the target language is a good investment of class-time. But certainly the decision has to be made whether and how to use the first language at any stage in Jigsaw work.

3. Tactical decision-making: teacher guidance of expert - and/or Jigsaw - groups

Finally, we come to the level of tactical decision making, by which I mean on-the-spot adjustments or interventions by the teacher as the Jigsaw activity is unfolding. So that while we can think of long-range planning and activity design as involving strategic thought about Jigsaw, trying to anticipate what is likely to be efficient and effective as a Jigsaw activity, there will undoubtedly be occasions where on-the-spot decisions have to be made. This would certainly include, among other things, a decision about how much guidance the teacher will provide. Will the teacher help expert groups or Jigsaw groups out of a corner into which they have painted themselves? Or will the teacher simply force the group to rely on its own resources? Will the teacher provide some sort of verbal encouragement to groups that are not functioning well as a unit? Or will the teacher simply let the group reap the penalties of not functioning as a group? These are decisions that cannot be made in advance, but we can certainly consider the options for how we might respond should a problem arise in the actual unfolding of a Jigsaw activity.

My argument would be that to maximize the value of Jigsaw activity in the foreign language classroom, there needs to be thoughtful consideration at all of these different levels of decision-making. If this is done, the likelihood of a good fit between an activity and a group of learners is increased, the likelihood that the activity will produce the results that the teacher anticipates, or hopes for, will be increased and the benefits of Jigsaw will be less a matter of serendipity and more a matter of instructional planning.

BENEFITS OF CO-OPERATIVE LEARNING IN MULTI-CULTURAL CLASSROOMS[3]

This is a very concise and useful discussion of co-operative learning in multi-cultural classrooms. It may be of somewhat less direct relevance to foreign language classrooms. But there is a good summary of the ways in which a Jigsaw activity fits with what we understand about the second or foreign language development process in the classroom.

What is it about Jigsaw activity that realizes principles of second language development?

1. Jigsaw activity provides frequent opportunity for natural second language practice and the negotiation of meaning through talk.

2. Jigsaw activity can help students draw on primary language resources as they develop second language skills.

3. Jigsaw activity offers additional ways to incorporate content areas into language instruction. Language development takes place most effectively when learners are engaged in meaningful interactions, when their attention is not so much on language itself but on the messages that they are trying to communicate through language. Language development, the mechanism that pushes language development ahead, step by step, is the effort that we have to make to understand something that we didn't initially understand. The nature of Jigsaw activity creates multiple opportunities for meaning to be negotiated. The struggle to understand what a Jigsaw group may be trying to say creates opportunities for negotiating. That typically cannot happen in a teacher-led classroom. So this article, which is summarized here in terms of six benefits, I think is relevant even to the foreign language classroom, because it points out ways in which the very structure of Jigsaw work can enhance the contribution of the language classroom to learners.

4. *Jigsaw activity requires a variety of group activities and materials to support instruction; this whole array of changes in traditional classroom technology creates a favorable context for language development.*

5. *Jigsaw activity redefines the role of the teacher in ways that allow teachers to expand general pedagogical skills and emphasize meaning as well as form in communication.*

6. *Jigsaw encourages students to take an active role in the acquisition of knowledge and language skills and to encourage each other as they work on problems of mutual interest.*

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[3]McGROARTY, Mary (1992). Cooperative learning: The benefits for content-area teaching". in P.A. Richard-Amato & M. A. Snow (eds). ***The Multicultural Classroom: Readings for Content-Area Teachers***. White Plains, NY: Longman. 58-69.

Learners have to be actively involved in their own learning: this is something that we now repeat like a mantra. We cannot teach languages, we can only create the conditions in which learners activate their own internal resources. That is an article of faith that has been repeated now for some 30 years and I think Jigsaw work provides good examples of how learners can become actively involved in their own learning.

And then finally, just to put all this in perspective I have included a summary of a very nice article by Paul Nation (*Annex 1*), which was written without real mention of Jigsaw but which talks about optimal features of speaking activities and identifies, without trying to, many of the defining characteristics of Jigsaw work:

- each learner has a crucial role to play, there are no free rides in Jigsaw work;
- Jigsaw work typically involves working towards some specific outcome: solving a problem, completing a task;
- the breaking down of an activity into steps, what Nation calls procedure, is clearly evident in Jigsaw work with the four stages;
- the split information Jigsaw, of course, is one of the several different split information, or information gap tasks including strip stories and other types of information gap activities, tasks for communicative dyads, the whole range of split information tasks;
- the challenge, the gamelike quality of seeing if everyone can pool their information and come up with a complete solution;
- the competition between different Jigsaw groups to see which group can give the highest group score on a quiz or a test;
- the need in many Jigsaw activities to memorize information and to bring it back to the Jigsaw group.

The point is that the Jigsaw group is not anything that is new on an absolute basis. Many of the defining features can be talked about without any reference to Jigsaw. And this should be reassuring to any teacher who is committed to the kinds of classroom activities that we have all been hearing about and using for now a decade and a half or two decades.

Stephen J. Gaies

Discussion

Q : *Is there a fundamental difference between Jigsaw work and pair work?*
A : If you have a pair of students working on a split information task, clearly there is the same potential for negotiating meaning, for doing all the kinds of things that Jigsaw potentially can offer. The difference is twofold:

- If a pair reaches a dead-end or a roadblock, they have no one else to turn to but the teacher. If two heads are better than one, then in some cases four heads are better than two. If one student cannot help the other student, then maybe a third or a fourth student can come up with a way of helping.
- Even more important is the idea that students derive a number of benefits from working in groups that they cannot get from even working in pairs. By working in groups and in addition to whatever instructional benefits come out of the Jigsaw activity, you develop better skills and become more comfortable with working in a small group setting. Outside of foreign language education the pro-social benefits of Jigsaw, may be as important, if not more important, than the instructional benefits themselves.

So, there is no fundamental difference but there are important qualitative differences between pair work and Jigsaw work.

Q : *Is four the ideal number?*
A : It could be three. Six is about the upper limit and even that is a bit inefficient in terms of time, the time it takes for people to pool their information. Three and four is the most efficient in terms of time, including maximum individual talking time. It is also more difficult to find five or six ways people will differ from one another. But it depends on the kind of text you want to use. Some texts may divide themselves very well into five parts. Also, group cohesion is better ensured if each individual has to pay attention to no more than three other people and is therefore better able to give encouragement, make sure that everyone has understood, mediate disputes, be conscious of the needs of the other members of the group, monitor their behavior and reactions. There is also the general noise level which makes it difficult for larger groups to hear one another.

Q : *What can be done when the number of students cannot be divided by four or five?*
A: Apart from being paired up in tandems, the odd student(s) can be given the role of circulating and monitoring the functioning of the groups, not necessarily to assume all of the roles of the teacher, but simply to observe positive and less effective behaviors in the group and then perhaps to report, in other words become extra eyes and ears for the teacher so that the groups can be given feedback on their functioning as groups. If the situation occurs again, make sure that some other student is assigned that role. I have

often brought activities to class that were designed in two versions, one for groups of four and one for groups of five.

The inescapable fact is that Jigsaw activity is very labor-intensive. It takes a great deal of time, not only to carry out but to plan, to adapt the materials, or to create your own materials. But then everything is labor-intensive in teaching, most everything.

Q : *How do you make it compelling enough for students to participate fully as members of the group, not to have an easy ride? In my experience, there is often one group that does not get involved in the task.*

A : Jigsaw work is not a panacea and cannot be guaranteed to be successful every time. But some things have to be done to maximize the value of Jigsaw activity. Even when groups have been carefully constructed, group assignments have been carefully decided by the teacher, there are groups that do not function very well, for whatever reason. This brings up the question of the incentive structures. If Jigsaw work is typically going to involve some sort of evaluation of the performance of the group, that will be incorporated into the evaluation of each individual. If you are in a Jigsaw group and you perform very well on the quiz following the activity but none of the other members of your group performs well, in all likelihood you will be penalized for your poor performance. A learner who comes out of the traditional educational philosophy of which we are all products may well say that this runs counter to the idea of people being responsible for themselves, people being given the opportunity to dictate their own success or failure in the classroom. And that becomes a very sticky issue for teachers. Do you really want to go to the point of lowering a student's score on a quiz because that student's Jigsaw group mates either could not or chose not to put very much energy into the task? There is no ready answer to that problem. It is a problem that you try to address when you first introduce the Jigsaw concept to students, when you acknowledge that they are playing by very different rules in Jigsaw activity than they are used to playing by in a normal classroom. In terms of instructional technology, you are altering radically the authority structure of that activity. You are assigning responsibility to students that in a traditional classroom would be reserved exclusively to the teacher. You are assigning students the responsibility for demanding the compliance and work of their group mates. It is a very radical change in instructional technology. If Jigsaw is going to be used as a regular feature in a language class, it has to be introduced and students have to be trained how to do the activity and that may minimize, if not eliminate the kind of problems you have described.

Q : *You said there is no way out in Jigsaw work.*
A : That is the risk of all student-centered activities that scares many teachers because they are relinquishing some control. With the turning over of some control to students, the outcome of an activity can no longer be guaranteed. If your class is completely teacher-centered, you can at least largely guarantee what is going to happen and how long it is going to take. You cannot necessarily guarantee the level of learning that takes place or the validity of what you are doing but you can at least control what happens, largely. Group work in general, and Jigsaw in particular, present a very different allocation of control.

Annex 1 : **Nation's features of speaking activities**
NATION, Paul (1989). "Speaking activities: Five features". *ELT Journal* 43. 24-29.

- *Roles*

The use of roles allows the use of language that might not normally occur in the classroom; in addition, it affects participation in an activity, since it defines what each learner must do in an activity and what expectations other learners should have of the learner.

- *Outcomes*

Clearly defined outcomes, including those listed below, make speaking activities purposeful and specify what must be done for the activity to be completed:

- providing directions;
- completion;
- ranking, ordering or choosing;
- listing implications, causes or uses;
- matching, classifying, distinguishing;
- data gathering;
- problem solving;
- producing material.

- *Procedure*

The division of an activity into steps and/or the formalization of a learning or speaking strategy can increase the amount of speaking involved in the activity and can increase the likelihood that each learner in the group participates in the activity.

- *Split information*

Splitting information

- gives each person a reason to participate;
- makes it important for each person to understand what the others say;
- builds group cohesiveness.

- *Challenges*

Game-like features that increase interest and involvement in speaking activities, including:

- competition;
- limitation of time or quantity;
- memory;
- hidden solution.

Annex 2

Jigsaw (Aronson et al., 1978)	**Jigsaw II** (Slavin, 1978)
Developed to place students in situa-tions of extreme interdependence: each student is provided with only part of the materials of an academic unit but is evaluated on how well he or she masters the unit.	All students have access to all learning materials; thus, interdepen-dence is lessened. However, the use of existing materials makes Jigsaw II practical and economical.
Materials are designed or rewritten so that each member of a learning team has a unique source that is comprehen-sible without reference to the other sources.	Team members are assigned to expert teams, read the whole learning unit, with emphasis on their expert topic; report to their teams; individual quizzes contribute to a team score.
Team-building and communication training activities are an integral part of Jigsaw work. Preparing students to cooperate and communicate in groups takes the form of role playing, brain-storming and other small-group skill building.	Jigsaw II does not include team-building and communication training.
Students take individual tests or quizzes covering all of the material of the learning unit; there is no group reward.	Base scores, improvement scores, team scores and individual and team recognition techniques similar to those in STAD are used.
Other features: heterogeneous group-ing of students to 5- or 6-member teams based on teacher's knowledge and intuition; frequent use of group leaders during team-building activities.	Other features: heterogeneous ability- based grouping of students to 4-member teams; no designation of group leadership roles.