Using Diagram Analysis to Develop Analytical Skills

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This paper will show how Diagram Analysis can be used as a powerful tool in the language classroom. By applying the note-taking techniques used by interpreters and noting information in diagram form, such as a flow chart, students learn to listen or read for key points and discover logical relationships. The resulting diagram has many applications. When used as a prompt for speeches or presentations, it can keep the speaker from getting sidetracked or lost. Used as a handout, it can keep the audience focused on the topic as well. Thus the diagram can become a dynamic, interactive tool of communication, making the students better communicators. They learn to think while listening or reading, acquiring the all-important power of analytical thinking. This paper will present a step-by-step guideline for incorporating Diagram Analysis into language classes of different levels.

この論文は、ダイアグラム分析という手法が英語の学習において非常に有効であることを示すものである。通訳者のメモ取り技術を応用して、情報をフローチャートのようなダイアグラムの形で整理することによって、学習者は重要な点を聞き落とさない、あるいは読み落とさないようになり、情報の論理的な関係に注意を向けるようになる。完成したダイアグラムは様々に応用できる。スピーチやプレゼンテーションの時使えば、話が脇道にそれたり、どこまで話したかが分からなくなったりしないし、配布物として使えば、聞き手にも主題が何かがよく分かる。こういう使い方をすれば、ダイアグラムは非常にダイナミックな双方向のコミュニケーションの道具となり、学習者はよりよいコミュニケーターとなれる。考えながら聞いたり読んだりする癖がつき、分析力が向上する。この論文では、このダイアグラム分析を様々なレベルの英語の授業に取り入れる方法を具体的に説明したい。

Definition: What is a "Diagram"?

One can define a diagram in the Diagram Analysis method as a visual summary. In other words, glancing at a diagram one should be able to make out the whole set of meanings of the English text in question, either spoken or written. Diagrams can take many forms. A typical example is a flow chart; other examples include a political cartoon, a map, a chart or a graph.

Background: Why a "Diagram"?

Diagram Analysis has its roots in two things, interpreters' notes and flow charts. To begin with, it was flow charts that gave the authors the idea of Diagram Analysis. They knew from experience that it is much easier to grasp the meaning of the whole message in a flow chart form than in a verbal form. However, the development of Diagram Analysis was most strongly influenced by interpretation training methods. In consecutive interpretation, interpreters usually take notes to help them retain the information they heard. Since they are required to start interpreting as soon as the

speaker pauses, the interpreters' notes function as prompts. According to Shinoda, Mizuno and others (2000), who are all active simultaneous interpreters working in English and Japanese, "To learn note-taking techniques, one should try to reorganize the speech you understood into a structure." (p. 206) They go on to say that "If you use simple symbols, you may be able to write down notes through which you can easily remember the whole meaning at a glance." (p.209) Seleskovitch, a late French conference interpreter and a former professor at the University of Paris, Sorbonne Nouvelle, stresses that interpreters note the processed information rather than the raw material (1998):

> In consecutive interpretation you do not jot down all the details of the unprocessed information (shorthand is never used), but instead you note the results of your meaning analysis. In other words, the interpreter writes down what he intends to say and not what he has heard, just as a panel member jots down a word which will help him to remember the argument he will present in his reply. Note-taking acts as a mnemonic device, a memory aid which triggers the memory of what was understood when heard. (p.35)

Ilg and Lambert argue (1996) that "Interpreter's notes are basically a network of adjacent and intertwined meanings replete with cross-references (arrows pointing in all directions, linkages, connecting lines). Tiering—which Rozan typically calls 'verticalisme'—contributes to a 'visual' presentation of the ideas taken down." (p.82) They stress the importance of the visual element:

> The rationale of note-taking is to bring to light the structure underlying a speech and the general semantic orientation of paragraphs and sentences. This requires an explicit but economical (visual, graphic!) layout on the consecutive interpreter's notepad. A telling, two-dimensional presentation helps the interpreter pick up the thread of the message to be reformulated in the target language. (p.82)

In short, notes taken by interpreters are the result of analysis. They should also be visual, showing logical relationships, so they can be used as prompts. In addition to these similarities between interpreter's notes and Diagram Analysis, there are also two important differences. Interpreters take pages and pages of notes as they interpret one speech while students produce only one diagram based on a speech or an article. Another difference between interpreters' notes and Diagram Analysis is the difference in the number of times the raw material can be listened to or read. Interpreters can listen to a speech only once while taking notes, but students can listen to or read the material several times in order to make a diagram. This difference is meaningful because in Diagram Analysis, students have a chance to review the first version of their diagrams and revise it; in other words, while revising a diagram, they can check their diagram against the original text, and further analyze the information in the original.

These two things, the interpreters' notes and flow charts, were the starting point of the development of the Diagram Analysis method.

How to Use Diagram Analysis in the Language Classroom

There are two ways to use Diagram Analysis in a classroom situation: reading-based and listening-based.

Reading-based Diagram Analysis

Method

The students are given a short article, or an excerpt of an article (Appendix 1), and asked to summarize the content in diagram form. They must first locate and highlight the key words including the names of people, places, and organizations by underlining or circling them. They should then write them out on a separate sheet of paper. By observing, grouping and clustering these words, they must try to find logical relationships between these key words, such as conflict, cause-effect, and chronological order. They are then ready to make the first version of their diagram.

When the students do not fully understand the article, as it often happens, they cannot make a complete diagram. They have to go back to the text to figure out the meaning. What is good about this second-time reading is that they have the first version of the diagram in mind, and they can relate the parts they failed to understand to the whole picture, however vague it may be.

Once they understand the article perfectly, they can revise their first diagram to make a complete version; if they still have difficulty with some parts, the second version of the diagram could still be revised but remain incomplete. Thus the students working on Diagram Analysis go back and forth between the text and the incomplete version of their diagram; the incomplete version of the diagram is used as a means by which the students think more about the message that the original text is trying to convey. During this process, their comprehension is expected to deepen.

Examples of Reading-based Diagrams

An excerpt from an article "Deadly Floods in Haiti Blamed on Deforestation, Poverty" by Amy Bracken of the Associated Press which appeared in the *Daily Yomiuri* on September 24, 2004, was used (Appendix 1). Students were asked to highlight the key words (Appendix 2), summarize the content in diagram form, and give their diagrams a title. They were given 20 minutes for the task.

Diagram 1

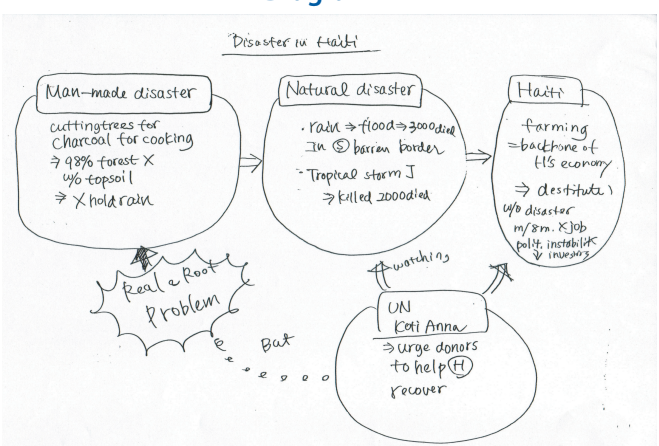

Diagram 1 is a good attempt at summarizing the main points of the article. The student has included most, but not all, of the key words: Haiti, man-made disaster, 98% of forests gone, no topsoil, charcoal for cooking, 2,000 dead from Tropical Storm Jeanne, 3,000 killed by floods, farming the backbone of Haiti's economy, 8 million without jobs, and political instability. One factor not included is the relationship between less tree cover and less regular rain and the dropping water table, which is disastrous for farming. But the student has grasped the most important point of all, that Haiti's is a man-made, rather than a natural, disaster.

Diagram 2

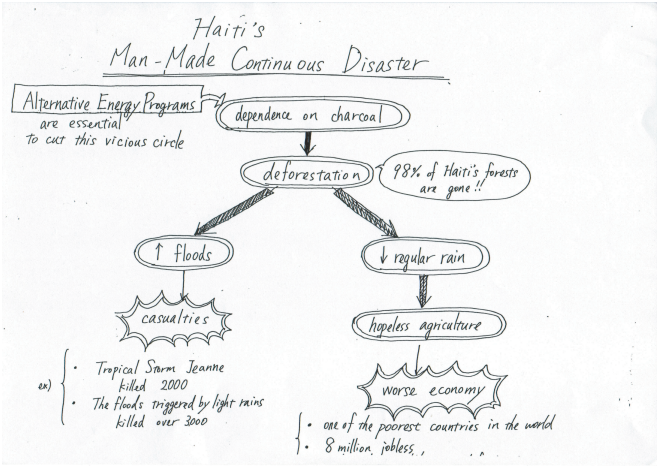

Diagram 2 is an even better diagram for three reasons. First, the title of the diagram shows clearly that the student has grasped the main point of the article. Diagram 1 is titled "Disaster in Haiti"; Diagram 2 is titled "Haiti's Man-Made Continuous Disaster." Secondly, the student makes the relationships between the various factors clearer in Diagram 2 by using different kinds of arrows, regular, bold, and outlined. In Diagram 1, only one type of arrow is used. Thirdly, Diagram 2 includes the proposed Alternative Energy programs, not included in Diagram 1.

Source Materials for Reading-based Diagrams

The reading-based Diagram Analysis can be used in all levels of language classes by choosing the appropriate material and varying the preparatory exercise. The reading text can be easier or more difficult from the point of view of vocabulary or language structure. The text can be shorter or longer. The teacher can prepare the students by going over the vocabulary before giving them the reading. The teacher can ask the students if they know anything about Haiti and elicit some answers. If they don't know anything, which may be the case, the teacher should have some basic information ready, such as a map, photographs, and some statistics. For advanced students, none of the above is necessary. Just give them the article and let them work everything out.

At our International Training Institute, students are usually given parts of news or current affairs related articles similar to the sample article. The articles should not be too long or too difficult as this is not meant to be a reading exercise. Students should be given something which they can read without using the dictionary too often. It would be a good idea to start by giving them something with a clear logic—cause and effect, chronological development, conflicting points of view, etc.—which is suited to diagram analysis.

News analysis, such as the sample article, is appropriate for this purpose.

Listening-based Diagram Analysis

Method

One can follow almost the same procedure in listening-based Diagram Analysis as in the reading-based Diagram Analysis. The teacher plays a tape once, twice, or three times, depending on the level of the students. This is the first round of listening. The students take notes of the key words and make diagrams, using the key words and discovering their relationships.

Generally speaking, the listening-based Diagram Analysis is a more difficult task for non-native speakers than the reading-based Diagram Analysis. When listening, students tend to miss many points mainly because they cannot control the speed of the input; when reading, they can slow down the speed of the input if necessary.

After making the first version of diagram, the students listen to the tape again. In this second-round listening, the students can concentrate on the parts that they missed earlier or that they were not sure about. The parts that they understood clearly do not demand their intense concentration. That means, in the second-round listening, the intensity of their concentration varies; it depends on how much information they must gain while listening.

This variation in the concentration intensity in the second, and perhaps third, round of listening is one of the most significant features of listening-based Diagram Analysis. In a real communication situation, one does not concentrate on every detail of his or her communication partner's talk, but rather focuses on important parts. When using tapes in listening classes, however, students tend to try and catch all the words; if they encounter difficult or unknown words, or if they cannot catch the words phonetically, they stop to think and as a result, miss the next part. In other words, the students are often entrapped by detail; they start thinking, "I should catch everything that I hear," and lose sight of the big picture.

This is the ever-present dilemma in the language classroom: to keep the balance between grasping the main points and paying attention to detail. Some students do not pay attention to the difference between "can" and "can't" when listening, thus misunderstanding the whole thing; some feel they must be able to distinguish every single word but end up missing the point of the story.

The speaker in the recording speaks on, without any feedback from the listener. The listener, in turn, needs to catch up with the content without any effective feedback from the speaker; it is a one-way communication, without any interaction. Experienced teachers are well aware of this problem, so they set up pre-listening activities such as asking comprehension questions and giving some background information on the topic.

Diagram Analysis, however, allows students to shift their listening style from detail-catching to focused listening. Focused listening after making the first version of the diagram is not listening for language, but listening for information. In the second, or perhaps third, round listening, they continue to improve their diagrams by including additional information or clarifying relationships. One could say that listening in order to make a diagram is more natural than just listening to a tape

even if the same tape is used in both listening activities. The diagram-making process helps students to listen for detail without losing sight of the big picture.

Examples of Listening-based Diagrams

A recording of the BBC News, Hurricane Season, explaining the mechanism of hurricanes, broadcast on September 11, 2004 was used (Appendix 3). The students were allowed to listen to the tape three time altogether. After the first listening, the students were given five minutes to start working on their diagrams. Then the tape was played again, and the students were told to revise, modify, and refine their diagrams. After another three minutes, the tape was played for the third and last time so the students could confirm that their diagrams matched the content of the tape.

Diagram 3

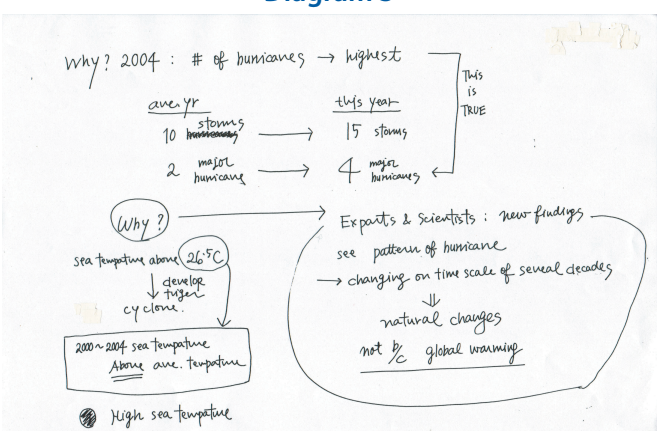

Diagram 3 is a good simple summary of the news. It covers all the main points, including most of the key words: storms, hurricanes, cyclones, sea temperature, patterns, global warming, and natural changes. However, the diagram does not show the relationship between these factors clearly enough.

Diagram 4

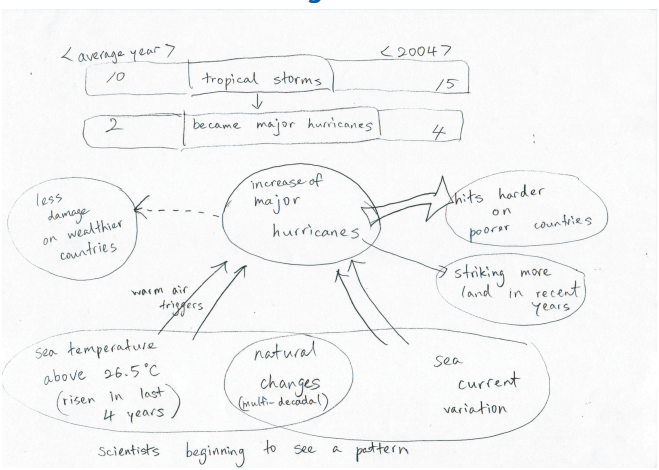

Diagram 4 is a better diagram because the relationships are clearer. The student has used different types of arrows—dotted, single, double, and outlined—to show the different relationships. The various factors contributing to the increasing number of major hurricanes are shown with just the right amount of information, not too much, not too little.

Source Materials for Listening-based Diagrams

The listening-based Diagram Analysis can be used in all levels of language classes by choosing the appropriate material, varying the number of times the students can listen to the tape, and prepping the students with additional preparatory exercises. The recording can be easier or more difficult from the point of view of speaking speed, accent or intonation, background noise, vocabulary, and language structure. The recording can be shorter or longer. The teacher can prepare the students by going over the vocabulary before having the students listen to the tape. The teacher can ask students if they know anything about hurricanes and elicit some answers. If they don't know anything, which may be the case, the teacher should have some basic information ready, such as photographs and statistics. For advanced students, none of the above is necessary. Just have them listen to the tape and do their best.

At our International Training Institute, we use mostly news or current affairs programs, similar to the sample. For in-class exercise, only short 2 to 3-minutee news clips are used; for homework, longer 10 to 15-minute interviews and discussions are used. As the purpose of this exercise is to promote logical thinking, students should not be given something which poses too much difficulty from a listening point of view. Discussions where the participants express conflicting points of view on political, economic, or social issues are appropriate.

Some Applications

Diagram Analysis can be applied to various activities. Diagram-based presentation and diagram-based discussion are two appropriate applications.

Diagram-based Presentations

When students are asked to give a presentation, they often write the script beforehand and read it out in class. In a way it is understandable since the students feel nervous about speaking English in front of the class and they are afraid of forgetting what to say and getting stuck. But the question is—is that really speaking practice? Writing something and reading it out—is that really presentation? The essence of speaking lies in the process of turning one's ideas into language. One could probably argue that writing plus reading helps improve the speaking skill, but it is still not speaking practice per se.

If students prepare a diagram instead of a script and give a presentation based on their diagram, one can definitely call this process speaking practice. The diagram functions as a "map" which navigates the presenters, telling them where they are and where they are heading.

The diagram-based presentation can also lighten the students' burden by dividing their thinking process and their speaking process. As non-native speakers, most students cannot do two things at the same time in English—thinking and speaking. The solution is to prepare a diagram and speak from the diagram. That way, the students can concentrate on thinking when they are preparing the diagram; then, when they are speaking, they can focus on speaking with their

diagram as a prompt. The diagram keeps them focused and on track. The students' burden becomes much lighter. In addition, when the students have clear ideas about what to say and can concentrate on speaking, their speaking skills improve more quickly.

Diagram-based Discussions

Diagrams can be used as information sources for discussions. For instance, after the students make their diagrams, the diagrams can be photocopied and handed out to the whole class. The students can then compare and evaluate each other's diagrams. They must be prepared to defend their evaluations. Some students might maintain that a certain diagram is the best diagram for certain reasons while others might counter-argue by giving other evidence.

The criteria for evaluating diagrams are complex. When comparing diagrams, the students must consider at least two things—whether the diagrams accurately convey the important ideas and information in the original, either spoken or written; and whether the diagrams present these ideas effectively. The first point is particularly important. In the course of the discussion, the students have to go back to the original English text to defend their evaluations and analyze the text thoroughly, or listen to the tape again to confirm their understanding. Through such a reviewing process, the students will gain a better and more in-depth understanding of the original idea.

Students and Classroom Procedure

Students taking the courses at the International Training Institute are mostly those aspiring to be interpreters or translators, with some who are just hoping to improve their English skills. They are predominantly female, ranging in age from those in their twenties to those in their middle ages. Over the 15-week course, students do two in-class diagrams, one in Week 1 and another in Week 4, plus seven diagrams as homework. When we first introduced this exercise in the course, it took a while for some students to grasp what was required of them. We now take the students through the process step by step. Before doing the first diagram, students are given sample diagrams and asked to discuss the merits and demerits of each diagram. They then do their first diagram in class and the second as homework. After each exercise, whether in-class or homework, students' work are photocopied, distributed to the class, and discussed. This way, even those who did not have a clear idea to begin with, quickly learn what they have to do from looking at other students' work. They learn to get the main point of the story and their analytical skills improve considerably as evidenced in the diagram they do as part of their final exam in Week 14.

Conclusion

Diagram Analysis can be a powerful tool in the language classroom when it is used to develop the students' analytical skills. By selecting the appropriate listening or reading material and method, Diagram Analysis can be used with students of all levels. In addition to cultivating the students' analytical thinking power, Diagram Analysis has many applications, most notably to improve their presentations

and discussions. This dynamic, interactive tool can make students better communicators. The authors hope that this paper will persuade many teachers to incorporate this powerful tool into their language teaching.

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Appendix 1

Reading Material: Excerpt from "Deadly Flood in Haiti Blamed on Deforestation, Poverty" by Amy Bracken, Associated Press, printed in the Daily Yomiuri, September 24, 2004

The torrents of water that raged down onto the city of Gonaives in Haiti, killing hundreds of people, are testimony to a man-made ecological disaster. Poverty has transformed Haiti's once-verdant hills into a moonscape of bedrock and ravines.

More than 98 percent of its forests are gone, leaving no topsoil to hold rains. Even the mango and avocado trees have started to vanish, destroying a vital food source in favor of another necessity for the impoverished—charcoal for cooking.

"The situation will continue, and other catastrophes are foreseeable," Jean-Andre Victor, one of Haiti's top ecologists, said in the capital, Port-au-Prince.

It is said the death toll from floods spawned by Tropical Storm Jeanne could rise to 2,000 across the nation. In May, light rains triggered floods that killed more than 3,000 people on Haiti's barren southern border with the Dominican Republic.

"When you remove vegetation, the topsoil washes away. The earth isn't capable of absorbing rainfall," said Rick Perera of the international humanitarian group CARE, which supports alternative energy programs in Haiti to lessen dependence on charcoal.

Less tree cover also means less regular rain, since trees "breathe" water vapor into the air. The result is a dropping water table, making farmers, the backbone of Haiti's economy, even more destitute. A 90-minute flight from Miami, Haiti is one of the poorest countries in the world. Most of its 8 million people don't have jobs, and political instability discourages foreign investors.

U.N. Secretary-General Kofi Annan has urged donors to help Haiti recover from the "devastating natural disaster." But it's very much a man-made one.

Appendix 2

Reading Material: Excerpt from "Deadly Flood in Haiti Blamed on Deforestation, Poverty" by Amy Bracken, Associated Press, printed in the Daily Yomiuri, September 24, 2004, with the key points underlined and new words or expressions circled.

The torrents of water that raged down onto the city of Gonaives in Haiti, killing hundreds of people, are testimony to a man-made ecological disaster. Poverty has transformed Haiti's once-verdant hills into a moonscape of bedrock and ravines.

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Appendix 3

Listening Material: Hurricane Season, BBC News, September 11, 2004

Transcript of the video

Hurricane Ivan is the latest in a series of hurricanes to hit the region this summer, and there are several weeks of the hurricane season to go. Weather experts say the number of storms is the highest for years, and this raises new questions about their causes. Here's our Science Correspondent, David Shuckman.

We're right at the peak of the hurricane season. So are the storms we're seeing any worse than usual? Definitely. Last month, there were eight in the region, beyond anything in living memory, and that's according to the MET Office. In an average year, there are ten storms, of which two develop into major hurricanes. This year, we're on course for fifteen storms, with four becoming major hurricanes. Hurricane Ivan is the latest to be tracked. We asked the head of the American Weather Prediction Center for his assessment.

More hurricanes are striking land than usual. Hurricane Andrew twelve years ago ended a forty year period of relative calm. So what's happening? Well, the storms are fueled by the sea. If the water temperature rises above this level, the warm air triggers a cyclone. And over the last four years, the sea temperature has risen. This line is the long-term average, but this is how the temperature's been shooting above it. Of course hurricanes are nothing new in this area. Only now scientists are starting to see patterns—not because of global warming but natural changes instead.

"In the Atlantic region, there's been an increase in the last ten years or so. That seems to be due to naturally occurring variations in seas currents and changes in sea temperature, which occur on a time scale of several decades."

When hurricanes strike, they hit developing countries hardest; relatively flimsy building in Honduras led to heavy casualties five years ago. Wealthy countries can afford better protection, in theory. Hurricane Ivan is yet to do its worst, and even now, others may be forming.