Using Cooperative Concept Mapping Skill
to Teach ESL Reading

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Abstract

Reading is now recognized as an important source of input for second language acquisition (Dupuy, Tse & Cook 1996; Krashen, 1993). Traditionally, reading has been taught as information retrieval. Primarily, it is the decoding of individual words that requires ESL students to approach a text using a dictionary (Mangelsdorf 1998). Now, in the new century, how should we teach ESL reading? How should we improve ESL students' academic proficiency in English? Students of this generation, different from students of the past, are more drawn with visual images, TV, music videos etc, so we need techniques that encourage reading. Concept mapping, which enables students to view information in a text visually, appears to be the next logical step in developing reading skills. This paper will introduce a technique that combines the use of concept mapping skills with cooperative learning procedures to promote students' reading skills. Research on cooperative learning and the cognitive background of concept mapping are briefly reviewed. The procedures of this technique, feedback from student perspectives and the pedagogic implications in ESL reading instruction are also discussed.

Introduction

Reading is now recognized as an important source of input for second language acquisition (Dupuy, Tse & Cook 1996; Krashen, 1993). As a major component of both first and second language acquisition, reading positively influences speaking, listening, and writing skills. It can provide ESL students with a huge amount of input, help them enlarge their vocabulary and enrich their repertoire of rhetorical strategies. By reading, ESL students can reach a high level of literacy.

In the past, second language teaching focused on the learning of grammar and vocabulary. Reading was traditionally taught as information retrieval, as Mangelsdorf (1998) noted: "Worksheet and multiple-

choice tests reinforce the idea that reading is primarily the decoding of individual words leading ESL students to approach the text with a dictionary in hand" (p. 118). However, ESL students have had difficulty understanding the meaning of the content. As a student claimed: "I know the words. I spent time finding the meaning of all the words I don't know, but I still don't understand the story." Since reading and constantly refering to a dictionary is very time-consuming and discouraging, many ESL students try to avoid reading English.

These phenomena have made instructors realize that vocabulary and grammar are not the only problems which block ESL reader's comprehension. In the last few decades, ESL teaching had shifted to a communicative approach which was further refined by the distinctions made between social proficiency and academic proficiency (Cummins, 1992). Although the ability to communicate with native speakers of English for social purposes--social communicative proficiency--is critical for the adjustment of immigrant students to their school situation, it does not necessarily lead to academic success. For this reason, second language learners must improve reading and writing skills to gain academic communicative proficiency. However, academic proficiency is simply too complex to master solely by direct instruction because it is context-reduced and cognitively demanding.

Students of this generation are familiar with visual images, TV, music videos and pictorial magazines. An ideal means of motivating students, as well as teaching them literacy skills for the 21 century, is to include visual skills in our reading instruction. Therefore, concept mapping appears to be the next logical step in developing reading skills. This paper will introduce a technique that combines the use of concept mapping skills with cooperative learning procedures to promote students' reading skills. Research indicates that ESL students try to avoid reading because they find it difficult to see the relationship of ideas and information and have difficulty in recalling information. The cooperative concept mapping technique combines cooperative learning procedures with graphic organizing skills to display information and organize concepts on a map. This concept map enables readers to view the relationship of each piece of information visually, which not only promotes reading and thinking, but also encourages memory development.

This paper will briefly review research on cooperative learning and the cognitive background of concept mapping. It will focus on the procedures of this technique, the discussion of students' feedback on this technique and the pedagogic implications in ESL reading instruction. In this paper, the term "researcher" and "instructor" will be used to refer to the current researcher.

Cooperative Learning and Second Language Acquisition

In recent years, a substantial body of research at various grade levels and in numerous content areas has documented the effectiveness of cooperative learning methods. Most studies deal with cooperative learning in content areas such as social studies, science, and math. Research indicates that non-native English speakers in a cooperative learning class show gains in

language acquisition and academic achievement that are either equivalent to or superior to gains through traditional whole-class instruction (Bejarano, 1987; McGorarty, 1989). Recently, ESL researchers have turned their attention to possible benefits cooperative learning might have in second or foreign language learning (Coelho, 1992; Cohen, 1994; Kessler, 1992). Studies have been conducted to examine the effectiveness of cooperative learning, the impact of cooperative learning on second language acquisition, the integration of language and content learning and student perceptions on cooperative learning.

Jacob, Rottenberg, Patrick, and Wheeler (1996) conducted a study to explore ESL student acquisition of academic English in a grade six social studies class. This study suggested that cooperative learning activities provide ESL students with a wide range of opportunities to acquire academic terms in English. The results also indicated that the most frequent interactions involved students giving or receiving help with decoding academic terms.

Another study by Sharan, Bejarano, Kussell, and Peleg (1984) examined the effect of cooperative learning on second language proficiency. The subjects were Israeli high school students learning English as a foreign language. Their findings indicated that cooperative learning resulted in better performance on a listening comprehension subtest and better performance in an overall measure of English proficiency. The study suggested students had opportunities to speak more frequently and use different language structures in group work.

Deen (1987), in another foreign language environment, conducted a study with native English speakers learning Dutch as a foreign language. He compared students' classroom interaction in a cooperative learning situation with the interaction in a teacher-centered situation. He reported that cooperative learning activities created more opportunities for students to speak Dutch, and students asked more questions of different kinds than in a teacher-centered situation. Furthermore, the proportion of errors in a cooperative setting was far lower than that in a teacher-centered setting. Deen concluded that cooperative learning provided students with plenty of opportunities to produce input for each other.

McGroarty (1989, 1992) reviewed research on cooperative learning and argued that cooperative learning offers additional ways to incorporate content areas into language instruction in both ESL and bilingual settings. Kagan and McGroarty (1993) suggested cooperative learning serves both language and content curriculum goals and reported that comprehension and production of language are also improved through cooperative learning.

These studies used a task structure that required students to work cooperatively in four to six-member groups of heterogeneous ability to solve common problems. Conditions were created to encourage cooperation. Under these conditions, students discussed the essential task content among group members, which provided them with knowledge and skills they might not acquire independently as they had the chance to learn from each other. At the same time, the ESL students improved their target

language proficiency by receiving comprehensible input and providing output they would try to make more comprehensible.

The Concept Mapping Skill

Similar to a story map or a mind map, concept mapping is a technique for representing knowledge in graphs. Knowledge graphs are networks of concepts. The concept mapping technique was first developed by Novak (1991) based on the theory that prior knowledge enables people to learn new concepts. Novak noted that meaningful learning involves the assimilation of new concepts and propositions into existing cognitive structures. Similar to Novak's theory, the schema theory (Rumelhart, 1977) suggests that comprehension depends on what a reader knows about the text and, equally important, its content. Therefore, a reader's previous knowledge and experience play an important role in reading comprehension, which is the same as Novak's theory that a reader's previous knowledge or experience is organized in a network that works associatively. Association plays a dominant role in our mental function. Every idea or single word has numerous links attaching to other ideas and concepts.

Research and theory both support concept mapping as a vehicle for enhancing comprehension and learning (Lawson, 1994; Novak, 1991, 1993). Research in cognitive psychology has found that if information is to be retained in memory and related to information already in memory, the reader must engage in some sort of cognitive reconstruction, or elaboration of the material (Wittrock, 1978). Reading comprehension,

as a cognitively psychological process, involves this kind of cognitive reconstruction. Generating a concept map of what a reader reads also requires the reader to reorganize and associate relevant concepts to reconstruct meanings with his own prior knowledge. Therefore, concept mapping is a better reading skill than simply taking notes because it requires the reader to recognize the material and sort out what is important in it. A concept map provides illustrative material that helps students access, organize and evaluate their ideas in the context of what they already know and what new information they are encountering. For ESL students, concept maps also highlight vocabulary and provide a concrete representation of information in a way that illustrates connections between concepts and multiple cues that students can use to construct meaning. As concepts are organized, relationship of the parts to the whole text become evident and comprehension happens.

Above all, concept mapping provides readers with an opportunity to organize concepts into a graph, which enables readers to see the content of text visually. Vann (1998) suggests that only recently have we begun to recognize the power and potential of having students transform their ideas about text into combinations of pictures, diagrams, symbols and space. As students share their ideas and negotiate meaning, they expand their own view of the text. However, few research articles discuss using concept mapping in ESL reading class to encourage student reading and improve their reading skills. The current study is the first step to explore whether the concept mapping technique will encourage reading and in

what way it helps ESL students to improve their reading skills and academic proficiency.

Procedures

The current researcher worked as an ESL instructor with 12 ESL students from India, South Korea, Hongkong, Croatia and Taiwan. They were attending a beginning ESL class at a secondary school in Canada. They had been in Canada for three to fourteen months ranged in age from 16 to 18. They had not heard of or used the concept mapping or mind mapping techniques before. The idea of mind mapping and concept mapping was first introduced to these students by showing these two kinds of mapping skills and convincing students of their value. The instructor explained the differences between them. Then the students were introduced to a web site to see some concept maps and mind maps on the internet. During the following 8 weeks of the reading class, concept mapping was used when the students read new material.

In the first week, the instructor talked about the usefulness of concept maps in information processing and demonstrated how to organize information on a concept map. First, students read an article about home security from a newspaper. After reading, the instructor led a discussion of how to improve our home security by organizing all the information presented in the article into a concept map. The instructor wrote the title "Home Security" in the center of an overhead presentation, drew a big circle around the title and then asked the students to brainstorm. Meanwhile, the instructor wrote down all the information the

students gave around the title and drew lines to connect each piece of information related to each other and related to the topic. By sharing information and watching the instructor jot down the key words and draw lines, the students realized that a concept map is a network of information; and concept mapping is not a difficult skill to learn. Then the students were asked to explain how to improve home security by referring to the map, but not referring to the article. By doing this, the students noticed that concept mapping could help them read and organize information and help improve their oral presentation skills.

At the next stage, a story "Little Women" from Timed Readings in Literature (1989) by Spargo was used. Timed Reading in Literature is designed to help readers develop some knowledge of English literature. Reading literature enables ESL students to come to a better understanding of the reading process (Mangelsdorf, 1998). The reading material in this book are well chosen, and the level was neither too easy nor too difficult for these beginners.

First, the students were asked to read the story silently. Then, the instructor worked with the students to generate a concept map on the blackboard. The blackboard was used this time in order to let students try out their concept mapping skills. The instructor asked students: "What do you think we should write down?" Some students said the title, and some said the names, Laurie and Jo. The students discussed this for a little while and decided to put down the two names on the blackboard first. Next, a student suggested that a line should be drawn to link and indicate the relation between these two

characters. The instructor commented: "That is a very good point." The instructor then asked "What happened first?" The students talked and put key words on the board. Since all were ESL students, they had no clues about the two main characters' gender. It took a while for them to go back to the story and reread what each of the characters said and did in order to figure out who was a male and who was a female character. Then the instructor asked one student to draw a young lady and a young man next to the names accordingly. Meanwhile, the instructor commented that the quality of drawing is not important by saying: "I'm not good at drawing. I would just write 'man' or 'woman' beside the name." The students helped the instructor to put who said and did what and the consequences of their actions on the map. During the process, the instructor encouraged student input and discussion, negotiation and textual confirmation in order to set up a model for group work afterwards.

In the following weeks, the students read 10 stories and articles of different structures. The 12 students were set in three groups each week. Each group had four students from different countries. Thus, every week, students worked with different partners speaking different mother tongues. First, they read a given article or story individually, and then, they worked with their group members on their concept maps. A tape recorder was set up for each group to record conversations and interactions among the group members during the mapping process. The instructor moved around to give some guidance when necessary and take notes of interaction between group members.

Data from the Audio-Tapes

Tapes of five texts from different groups were randomly chosen and transcribed. Three hundred and seventy-four responses were categorized and analyzed by the researcher to see what kind of interactions the students had while working on their concept maps. The transcriptions were classified into five categories to identify the content and purpose of student communication. The following table presents the categories of student responses and frequency of each kind of response.

Category of Responses	Frequency	Percentage
1. Rereading and confirming	52	14%
2. Figuring out meaning of vocabulary	20	5.3%
3. Sharing information	107	28.6%
4. Relating to prior knowledge	47	12.6%
5. Negotiating and discussing	148	39.6%
Total:	**374**	**100%**

The data indicated students talked much more in the group cooperative learning situation than the traditional teacher-led discussion. The average each student responded and provided input to each text was 7.6 times, which is much higher than in a teacher-led class. In the traditional teacher-led discussion, some students sat silently for a whole week unless the instructor called on them, but when they were called, the discussion turned out to be a question-answer process. Take one teacher-led discussion for example; this discussion lasted about 30 minutes. All 12 students attended the class and responded a total of 23 times. Among these 23 responses, one student responded four times and two students did not respond at all. The average number of responses was 1.75 per student.

If we look at one student in the traditional teacher-led discussion; we see she sat for three weeks without saying a word unless the instructor called on her. The instructor usually picked her once every day, or five times in one week, to give her an opportunity to speak. Among these five times, twice her responses were "I don't know." An other time she stared at the teacher and seemed totally lost. During the other two opportunities, she was too nervous to get her meaning across while it seemed she knew the answer. The afore-mentioned examples indicate that a teacher-led discussion usually turned into a question-answer process due to students' passive involvement and other reasons that are not the topic of this paper. When students were called on to give their opinion, they were very nervous. Under this circumstance, they were learning passively and defensively.

However, when working on a concept map of a story in a group, the above student initiated input three times. This was a big change for her and was the case for other students as well. In the group cooperative learning situation, each member of the group took the opportunity to share information, discuss and negotiate meanings with partners. They did not just wait for their turns; most of them jumped into the negotiation whenever necessary. The cooperative concept mapping changed the students' learning style and communication patterns. They became more involved and more active.

The following are examples transcribed from the recorded conversation which happened when students were working with their group members on concept maps of two short stories-- "Six Years After" and "The Posthumous Papers of Pickwick Club" from Timed Readings in Literature (1998). Four students were in this group; they decided that Student#4 (S#4) should draw the concept map since "his work is always neat." To maintain accuracy, the researcher did not edit student responses.

S#4:   OK, let's start. Characters—a man (drawing), a woman (drawing)

S#2:   They are husband and wife. That is their relation.

S#1:   I think they don't love each other.

S#2:   How could you say so?

S#1   ...because, did you see this "he rushed away from her as soon as they got on board", and, and, oh, where it is, oh, here, "they had been married 28 years." Am I right?

S#2:   Well, I don't think so...

S#3:   You, I think you miss something, here, yes, he ran away from her, but

he came back 5 minutes later to say he se-, well, how do you guys say this word 's-e-c-u-r-e-d'?

S#4 & #2:   secured, guess it means, "get ready, something like that ...

S#3:   "...secured two deck chairs", he was doing this for his wife, that means he loves her, and, and here, "she smiled with bright eyes and blinked quickly." See, they love each other. I guess she love him so she smiled with bright eyes...

S#1:   Well, maybe you are right.

As the group discussion went on, S#4 drew lines on the map to connect the concepts according to his partners' suggestions. He jumped in here and there, as well, to give his opinions on some points.

Another group of students worked on the story "The Posthumous Papers of the Pickwick Club." By working on the concept map, students understood not only information presented in the story but also analyzed the deep meaning of the story and what message the author intended to send to readers. On this map, the students first wrote down three main characters of the story and the relation between each of them. Then, they used different colors to add the concepts about each character's actions and feelings for each other. Even though the story did not directly describe the female character's feeling toward her husband and her son, from the indirect descriptions and prior experience, the students discussed and negotiated to reach an agreement that the young woman loved her son very much. The following transcriptions are from the students' discussion:

S#1:   Why she did this, I mean, why she took the boy to the gate so early everyday? I don't get it.

S#2:   She wanted to see her husband, he was in jail...

S#1:   ...but it was cold, was it? I think it's cold, and boring, too early, right? What does this mean "a full hour too soon"? It means "early," am I right?

S#3:   Yeah, I think so. The woman was here to see her husband and also wanted her husband to see her and, and, I think something else... I don't know...

S#4:   I think I got it. She wanted to show her husband that they cared about him. I don't know why he was in jail, but she still loved him, so I guess she wanted to show...

S#2 & #1:   OK. Use the blue color to write down her feelings to her husband. But what about the boy, did you realize he was sick?

S#1:   ... I mean, did she care about her son. He needed her love, too. Did she care about him? You know a mother should...

S#2, #3, &#4:   She did, she did care about him. Did you see here?

S#3 (read):   "raising him in her arms to show him the glistering water, tinted with the light

of the morning's sun, and stirring with all the bustling preparations for business and pleasure, endeavor to interest his thoughts in the objects before him." She was trying to make him happy, and enjoy the view. That means she cared, am I right?

S#1:   *Well, I guess you can say that, but a mother should care about her child's health. I remember somewhere said he was sick or weak, something like that... Oh, here, "no expression of interest or amusement lighted up his thin and sickly face", see, I don't think she was a good mother.*

S#2:   *Somehow, I agree with you. I guess, I guess probably you are right. Maybe she loved her son, maybe, she... well it is complicated...*

S#4:   *Maybe I should put both concepts on the map use different colors to show her feelings to her son, to her husband, and the other color to show her, her ...*

S#1:   *"dislike, no, didn't care, no, ignore, YES! ignored her son's health, that is it. What about the father? Not much?"*

S#3:   *Yeah, we don't know much about him. I guess he is not a good father. He should take care of his family.*

S#1:   *The poor boy, he did not have good parents. He died at the end of story, how sad, I still don't understand why the parents didn't care about their child, my parents won't do that to me...*

From the transcriptions, we can see the students' interactions and communication focused on the content of the story. They shared information and experience, discussed and negotiated their understanding. They also helped each other on vocabulary, but decoding vocabulary was obviously not the primary purpose of the group work. The students' communication focused on negotiating meaning and clarifying some uncertainty. This finding is different from Jacob, Rottenberg, Patrick, and Wheeler's (1996) study. In their study, they noted that the most frequent interactions involved students giving or receiving help with decoding academic terms.

On the other hand, in this study the communication between and among group members was conducted in the target language, English, since the students were purposely grouped with students having different language backgrounds. Therefore, they tried in one way or another to get their meaning across in English. For instance, they clarified meaning, tried to spell out the word and drew graphs on the concept map. In so doing, they helped each other understand the texts and complete the concept map. As one student commented in her journal, "This can make me feel I'm in a regular English class." It was evident that cooperative concept mapping involved every student so that learning was dependent on the socially structured exchange of information among group members. In this setting, each student held accountability for his or her own learning and was motivated to increase the learning of others. All the interactions indicated the accountability of each group member. They worked as a team to comprehend the story.

More importantly, the data indicate that these students as a group used reading

comprehension strategies often used by fluent readers (Tang, 1997). They also used cognitive monitoring strategies to edit or rephrase their output to make it comprehensible or accurate. For instance, when they tried to convince their partners, they said, "I think, (there is) something else, but I don't know what exactly... It gets complicated..." etc. They knew when they were wrong or some information was missing. They adjusted their approaches to get their opinions across. They also used their prior knowledge and experience here and there to help them comprehend the story. When they related a story to their prior experience, they did not let it carry them away from their current task. It was evident that the application of all these strategies required readers' cognitive monitoring.

Data from Student Journals: ESL Student Perceptions

Data from student journal entries enabled the researcher to learn student perceptions on the cooperative concept mapping technique. The students commented that concept mapping was "a useful and a helpful tool." The following selection was taken from students' original writing; the original grammar and spelling were not corrected in order to maintain authenticity.

After learning and practicing the mind mapping and concept mapping techniques, a Korean student wrote:

I draw mind map on last Sunday.
I spent my all weekend. Because I
didn't know mind map and it was
first time. First I found mind map
at internet. I found some Korean

schools started to use mind map.
So I thought mind map is good
for study. ... If I see mind map, I
can understand relationship and
contents very easily. And later if I
forgot the story contents, I can
understand it without read many
papers. When I have many times,
I will use mind map. I like a mind
map. Because I like to draw
pictures. And this helps me. But
one defect is it needs many times.
I made concept map in our ESL
class. First I made a concept map
about security. And I wrote about
it. It helped me. I could arrange
my ideas. And it helps my
English. When I draw a mind
map, I can't change word to
picture. But in concept map I can
write anything. So I think concept
map is more convenient. I will
use mind map and concept map,
because I like to draw. And when
I can't draw I will use concept
map.

Another student commenting on concept mapping technique noted:

... the concept map helps me to
know the stories more deeply and
it was not easy to forget of them.
The other thing is I can use more
time to speak English because
each time was discussing with
different people so we need to
talk with them in English.
The other thing that I do not think
it help us was to improve our
writing because we just need to
write down the main points, so

that mean it can not help us a lot. But we still can know some of the new words in each story. I think I will use it after if some of the stories I am not sure of them. Concept map have good ways and also have the bad ways, but I still to use this skill for help me in the English stories.

A Korean girl, who had been in Canada for three months, commented in her journal:

I can grasp the meaning of an English story more and more during I make out the concept mapping. And it improves my writing ability of English because the concept mapping needs some sentences and they also need many grammars. One day, I read an English story but I couldn't understand the contents of the story. So, I read the story again and I thought the meaning of the story carefully. I started to make out the concept map and I thought about the characters. After I finished the map, I could understand it. I like the skill because I think the concept mapping helps me and I need it. I will use the concept mapping skill whenever I read something difficult.

Students mentioned in their journals that concept maps highlight vocabulary and provide a concrete representation of information in a way that illustrates connection between concepts. One student explained four reasons why she liked the concept mapping and when she would use it.

I feel concept map can help me to read story because sometime I don't understand some stories and then I can make a concept map when my class is discussing the story. It can help me to understand the story much better. It also can help my writing skills better because concept map is a map which need to write words and not to draw pictures. I have four reasons that can help my writing skills:
1. We need to write some concepts, then we need to have past tense or present tense. It means it helps us in Grammar.
2. We need to find out some vocabulary to write on a concept map, then it can help me in Vocabulary and I can know more vocabulary.
3. This can help me to discuss with some students and then we can share different ideas.
4. This can make me feel I'm in a regular English class.

The students' journals provided the researcher with a chance to view how they felt about using cooperative concept mapping in an ESL reading class. Students' comments, from the learners' perspective, indicate that generating a concept map cooperatively is an enjoyable process in which students have opportunities to help each other improve their reading skills and oral skills. The group work enabled them to

enjoy reading, and understand the reading material better. Above all, the students were learning actively through cooperative concept mapping.

Discussion

After considering all the data, the researcher came to the following conclusions. First, the cooperative concept mapping skill enabled the students to see the relationship between concepts and the relation between the text and their prior knowledge. They explained thoughts and comprehension to one another in their own words and negotiated text meaning as they compared, contrasted, discussed and argued the accuracy of the maps. They went back frequently to the text and their own prior knowledge or experience for clarification and rethinking; thereby, their reading became more encouraging and interesting.

The cooperative concept mapping technique offered the students plenty of opportunities to communicate in English. Their communication skills were improved as they learned how to negotiate meaning with their partners and within themselves. Furthermore, the cooperative concept mapping enabled the students to learn reading skills from each other.

When making a concept map of a story, students used different kinds of comprehension strategies. They not only related to a text's meaning but also called on their prior knowledge. In doing so, the students directed their attention not only to the text, but also within themselves and searched their schemata to find association. Concept mapping thus became a process for students to represent the conceptual relationships between and among key ideas

in a domain of knowledge. Reading was no longer a consulting-dictionary process; it became more interesting and inviting.

The process of constructing a concept map is an intellectually rigorous one as it focuses on making explicit students' understanding of how concepts are related to one another. As concepts are organized, the relationships of the parts to the whole become evident. More importantly, the concept mapping provides students with not only a means of exploring the central issues in a text but also allows them to access and organize information and ideas and actively connect the "known" to the "new." In this way, cooperative concept mapping enables students to focus on what is of personal significance to them as readers.

Moreover, the cooperative concept mapping technique can greatly enrich student efforts to communicate. In order to work out the concept map, the students worked as a team and put their ideas together. To reach this goal, they had to find a way to communicate with each other to share their ideas verbally. When generating a concept map in a group, conditions were created to encourage cooperation. The increased cooperation resulted in greater discussion of essential task content among group members. These discussions were opportunities for group members to provide comprehensible input for each other. The speakers modified their own language to produce comprehensible input, and the listeners model their own language on that of their peers' to produce comprehensible output. On the other hand, as they produced output, their cognitive awareness monitored and examined their output in order to make it comprehensible. Most students did not

wait until other partners pointed out their misunderstanding. When one person missed some important information, or misinterpreted some clues, they would say: "What I mean is...," or "I think it gets complicated," or "I thought I knew, but I don't know now..." All these utterances indicate the students were using their cognitive monitoring strategies to monitor their comprehension and their output. By generating concept maps in a group, all students are improving their communication skills, learning and extending their language while using it. They become successful communicators because they have a real need to communicate (Coelho, 1992).

Furthermore, generating a concept map of a text cooperatively in a group makes reading not an individual experience any more. As Mangelsdorf, (1998) maintained, "Although the act of reading might not be social, the act of interpretation is" (p. 120). Cooperative concept mapping allows instructors to transform classrooms into interpretive communities in which students generate thinking, exchange ideas and comprehension about what they have read. Thereby, an ESL reading class leads students to "the interconnectedness of reading and the social nature of negotiating meaning" (Mangelsdorf, 1998, p. 120). Working with partners, students create meanings through social interactions (Vann, 1998, p. 116). Reading skills acquired from these cooperative interactions should and will then be demonstrated independently as students noted in their journals. Cooperative concept mapping helps students become emotionally as well as academically involved in reading. Consequently, it makes reading more inviting to students and promotes interest in reading and understanding of literature as partners defend interpretation and synthesize ideas to arrive at common themes.

Summary and Pedagogic Implications

This paper is concerned with using cooperative concept mapping techniques to teach reading in an ESL classroom at a secondary school. The observation of ESL students' cooperative learning activities in an eight-week period indicates that teaching reading by using concept mapping can improve reading comprehension skills and arouse student interest in reading. The recorded student conversations during the concept mapping processes provided evidence that these ESL students interacted, discussed and negotiated with their partners to construct the meaning of the text. The tapes also revealed that most conversations were task-related. Thus, a traditional structure-centered reading class shifted to a communicative meaning-centered practice through authentic communication. Krashen (1981) suggests that comprehensible input is likely to be far more extensive in the group-centered classroom setting. Compared with the teacher-led class, the students spoke more frequently with different language structures in the small group settings, which provided group members with comprehensible input in English. The findings suggest that cooperative concept mapping can be used as an instructional strategy to motivate student reading; whereby, students can improve their reading skills.

The experience of using concept mapping to teach ESL students from five different cultural backgrounds also indicates

that students from a variety of cultures can learn to use this strategy and benefit from it. Students' journal responses indicated that they enjoyed the concept mapping activities, and "it made the reading easier and more interesting." Students also commented that concept mapping enabled them to "see the text" visually, which helped them to understand the story better. The present study also provides evidence to support the idea that cooperative learning is potentially beneficial for ESL learners (Liang, Mohan & Early, 1998).

The Author

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