Computer-Based Concept Mapping

An Effective Academic Tool for Social Studies Teachers to Help with Linguistic and Academic Development of English Language Learners

Berna Mutlu
University of Florida

Academic language in social studies lessons is challenging for English Language Learners because of the language barrier. Social studies teachers need to make use of effective techniques that can help English Language Learners overcome the language barrier. Graphic organizers are promising tools for making content more comprehensible for English Language Learners. In this article it is suggested that Inspiration®, a software program that allows production of electronic concept maps in an easy process with minimum learning curve, can help social studies teachers teach English Language Learners more effectively, as well as enhance their language development. Inspiration® is presented as an instructional tool that can help social studies teachers understand the linguistic needs of English Language Learners (ELLs) and incorporate appropriate academic language of different types of language functions prevalent within the discourse structures of social studies textbooks with the help of Inspiration®, such as the language of describing the process of making laws, comparing and contrasting two branches of the American government, and sequencing of events in making of the American constitution.

Introduction

Producing utterances and comprehending content area reading materials written in a language other than one’s own are two of the most challenging tasks for English Language Learners who are enrolled in our schools (Cummins, 2000; Snow, Met, & Genesee, 1989). English Speakers of Other Languages (ESOLs) strive to do their best to help with English Language Learners’ language development, so that these students can keep up with the content and language demands of the curriculum. Without similar support from content area teachers, however, English Language Learners may not be able to reach the level of linguistic development necessary to understand the academic language (Echevarria, Vogt, & Short, 2004).

How Inspiration® can help English language learners to develop social studies skills

A significantly high number of students in the K-12 education system struggle when reading grade level texts, and experience difficulty identifying the main ideas and supporting details from the textbook (Mastropieri, Scruggs, Spencer, & Fontana, 2003; Jitendra, Hoppes, & Xin, 2000). Social studies textbooks, in particular, are typically written in a way that expects students to have a strong background knowledge of historical events (Beck, McKeown, & Gromoll, 1989), and the information is presented in a way that fails to explain significant events and relationships (Beck & McKeown, 1988) with visuals such as photographs and illustrations that do not serve an instructional function of helping students synthesize information and build connections (Tyson-Bernstein & Woodward, 1986). Computer programs for building graphic organizers can help students understand social studies
content material at a deeper level because such programs display implicit connections among concepts more explicitly and clearly. Computerized study guides (Higgins, Boone, & Lovitt, 1996) and computerized map tutorials, for example, have been documented to increase student recall and comprehension in social studies. Graphic organizer supported instruction through the use of Inspiration® also helps improve students’ reading comprehension of social studies content material (Boon, Burke, Fore, & Spencer, 2006).

Concept mapping, one of the extremely effective instructional tools for English Language Learners, is now easier with the use of Inspiration®, a graphical computer software that allows users to build visual representations of concepts. This computer-based concept mapping program is becoming an increasingly popular instructional technique for facilitating the learning of English Language Learners (Chang, Sung, & Chen, 2002). Inspiration® is a simple yet effective computer software with a relatively low learning curve, and it can help social studies teachers find new ways of reaching out to English Language Learners in their classes. The software has been designed to help students in grade six and up make connections between concepts, although some early elementary school students use this software with ease, and there is another version for elementary level called Kidspiration®. Let us now take a closer look at how Inspiration® can serve the needs of English Language Learners in social studies classes in the following ways.

a. Building conceptual connections

With the help of Inspiration®, social studies teachers can provide English Language Learners with teaching materials that present the names of concepts and the academic language necessary to carry out written and spoken tasks on a certain topic together all at once, and students can be assigned activities where they are more involved in their learning by brainstorming, webbing, diagramming, planning, concept mapping, organizing, and outlining.

b. Increasing vocabulary knowledge:

Inspiration® is a wonderful tool for English Language Learners to learn new vocabulary items. English Language Learners also can view already familiar vocabulary items and new vocabulary in context, and build stronger connections among words that shape their lexical knowledge.

c. Raising awareness for discourse patterns:

The software can be used as a way to help students visually identify discourse patterns within reading materials (DiCecco & Gleason, 2002). This characteristic enables students to better understand and integrate prevalent discourse structures and linguistic forms of the English language into their already existing repertoire of different types of written discourse structures in their first language (Fitzgerald, 1993).

d. Increasing language use

Teachers can assign English Language Learners and native speakers of English collaborative tasks using Inspiration®. In these tasks, students can analyze the discourse structure of a passage or English Language Learners can identify new vocabulary and as a whole group, both English Language Learners and native speakers of English can build a concept map depicting how new vocabulary and new concepts relate to one another. Furthermore, teachers can use the software as a tool to get students to brainstorm as a whole group before beginning a unit. Such collaborative brainstorming exercises would also provide English Language Learners with better opportunities to practice English with their peers. When negotiating how they need to design their concept maps, English Language Learners have ample opportunity to practice the English language.
both in speaking and in writing.

e. Increasing multicultural understanding

Another possible use for Inspiration® for support in second language development could be in making cultural connections between English language Learners’ cultural background and American culture in relation to the particular topic being covered in class. Students can grow multicultural understandings of social studies topics, and English Language Learners can feel more comfortable seeing their own cultural heritage being important for the teacher and students in class.

List of possible tasks using Inspiration® for instruction

Social studies teachers can use Inspiration® to foster both content and language development by incorporating the software in a multitude of classroom tasks that help with the understanding and use of social studies concepts in writing and speaking the English language. The following is a list of possible tasks that teachers can help English Language Learners accomplish with the help of the software (“Graphic Organizers: A Review of Scientifically Based Research,” 2009):

- brainstorm ideas before reading any social studies text
- develop, organize, and communicate ideas regarding social studies concepts
- see connections, patterns, and relationships among different events in history
- assess and share prior knowledge on social studies
- develop vocabulary related with social studies content
- highlight important ideas in social studies texts
- classify or categorize concepts, ideas, and information in social studies texts
- comprehend events in a historical sequence
- improve social interaction between students, and facilitate group work and collaboration among peers when forming concept maps of social studies concepts
- guide review and study social studies materials by making visual representations of topics
- improve reading comprehension skills and strategies to foster a better understanding of social studies textbooks and reading materials
- facilitate recall and retention of social studies concepts

When working on such tasks, both English Language Learners and students who speak English as their native language can improve social studies skills necessary to be successful in social studies classes. With the help of the graphic organizers, for instance, found in Inspiration®, students can learn how to create and use graphic organizers to learn and share content. In groups, they can learn how to read excerpts from the Constitution, for example. As students are working on their graphic organizers, they will form a better understanding of the social studies reading materials. Collaborative concept mapping also can help students learn how to work in a team, as part of an expert/jigsaw group, or a member of a whole class. In a collaborative concept mapping activity, students also can learn different ways of presenting information through interaction and negotiation. Such collaborative concept mapping tasks would then help English Language Learners and other students how to speak in an effective way, by talking in complete sentences, keeping to the topic, and using appropriate visuals. After practicing concept mapping with the software in groups, students can put their heads together and write an expository essay by communicating ideas coherently, forming generalizations based on appropriate dates, and supporting such generalizations through the use of relevant factual information. The software can help students practice social concepts.
both in speaking and in writing.

**Guidelines for Training Students to Use Inspiration**

A useful set of guidelines for training students to create graphic organizers, has been constructed by Jones, Pierce, and Hunter (1989). These guidelines can be applied when using Inspiration® in class. The revised list of these guidelines based on preparing graphic organizers and concept maps with the help of Inspiration® follows below.

1. Present students with good examples of completed graphic organizers and concept maps that have been prepared for social studies texts they have read in the textbook or in any other social studies related resource.

2. Model how to construct a graphic organizer or concept map by presenting the process in detail based on a social studies text.
   
a. Ask students to brainstorm about the topic in a social studies text.
   
b. Tell students to identify the subtopics for the main concept and the tertiary level topics.
   
c. Tell students to draw arrows or lines between these concepts showing connections. For instance, the legislative, executive, and judicial branches are subcategories of the American government, and each of their characteristics should be listed at the tertiary level.

3. Discuss with students when and how they should use Inspiration® when they are reading social studies texts on their own.

4. Provide one-on-one coaching for students as they are forming their graphic organizers and concept maps of social studies texts and social studies topics with the use of Inspiration®.

5. When students are working on concept mapping of a social studies text, give them many opportunities for practice and appropriate positive feedback. Allow room for multiple revisions of social studies concepts and of how these concepts are represented in the concept map.

6. Gradually shift responsibility for constructing graphic representations with Inspiration® to the students. Tell students to apply the concept mapping strategy every time they read a social studies text in order to have a better understanding of the discourse structure of the social studies text and of connections between subtopics within the text. A text, for instance, that presents a timeline of the civil war era and the reasons for the war will have a sequence and cause-and-effect discourse structure, whereas a text on the process of making laws will have both a sequence and process discourse structure.

7. Allow room for individual differences in students' thinking and their graphic representations, as the software gives an opportunity for such creativity.

8. Set clear and manageable goals since the time necessary for the training process may vary.

**Example Concept Mapping Activities for Social Studies Teachers of English Language Learners**

The following activities provide more specific and hands-on examples of how concept
mapping can be used with English Language Learners. The three activities form a sequence of instructional strategies where English Language Learners and native speakers interact with one another as they analyze social studies content materials in terms of linguistic patterns and language functions. The main focus in the following activities is to integrate Inspiration® as a place in which students produce work together, creating an opportunity for English Language Learners to practice the English language with their peers. These types of opportunities for collaborative work provide language input that English Language Learners need for second language development. The topic for this particular activity is “The United States Government,” but this sequence can be plugged into any topic within social studies with slight adaptations. The goal is to help raise language awareness and prompt language use.

The pedagogical foundation for these activities is based upon Stephen Krashen's (1982) “comprehensible input” theory, Lev Vygotsky's (1986) “scaffolding theory,” and Jim Cummins' (1991) views on increasing ELLs' “cognitive academic language proficiency” for academic success at school. Social studies teachers tend to focus on content vocabulary and new concepts, but they do not spend any time on language structures because mainstream students speak English as their first language. Most teachers assume that students already recognize and integrate discourse patterns, whereas English Language Learners need to be explicitly taught these structures so that they can start recognizing them and using them. Social studies teachers can use Inspiration® to design concept maps and visual organizers that depict language structures more explicitly.

**Purpose:** Helping English Language Learners Recognize and Apply Language Functions and Discourse Patterns in Social Studies

**Topic:** United States Government

**Level:** 9-12

**Content Objectives**

- Students will describe the primary responsibilities of the Legislative, Executive, and Judicial branches of the government.

- Students will explain how each branch functions with the other branches of the federal government.

- Students will compare and contrast the branches of the American government in terms of their duties, goals, and functions.

**Procedures**

Reading social studies texts without having explicit knowledge of different types of language structures in English can be very overwhelming for English Language Learners, causing them to fail at completing the required tasks due to their on-going development in language production. Social studies content areas involve not only content vocabulary, but also certain types of discourse patterns and textual structures frequently used when talking about the topics within that field. Knowledge of content vocabulary may not be adequate for language development as all the new vocabulary is used not in isolation, but within sentences with certain prevalent structures.

Native speakers of English have already acquired different blueprints from their social surroundings on how to perform language functions, whereas English Language Learners need to be explicitly instructed on such discourse aspects of the English language, which can only be acquired with practices that raise awareness. Here is a sequence of lessons that can help English Language Learners grow such language awareness which will lead into increased production and comprehension skills,
and boost their second language development. These tasks need to be assigned to mixed groups with both English Language Learners and native speakers of English, so that ELLs can have better opportunities to hear, speak, read, and write in English as they work on each task with their peers.

**Figure 1. Sample Concept Map 1: Language Functions in Written Language**

**Lesson 1: Raising Discourse Awareness in Written Language**

1. Present students with different types of language functions, such as describing, comparing-contrasting, and sequencing, etc, and prevalent textual structures in social studies. Explain how they are used in different contexts with examples.
2. Put a paragraph on the board/overhead/LCD projector about the structure of the American government and point at the language structures in the paragraph by underlining them. (See Appendix for an example essay). Present a concept map showing how each concept is connected to each other and the order in which they were presented.

3. Assign students to groups and ask them to locate similar language and text structures within online texts about the American government. Have them prepare a comprehensive list.

4. Tell students to classify each structure under different categories and prepare a diagram in Inspiration® that depicts each category with examples.

5. Ask students to e-mail the end product to you to be shared with the rest of the class.

Figure 2. Sample Concept Map 2: Language Functions in Spoken Language
Lesson 2. Raising Discourse Awareness in Spoken Language

1. Ask students to interview the officials within their municipality and record their interviews for homework before class.

2. Assign mixed groups of students to write down different sentence patterns that city officials used when speaking about how the city is governed.

3. Ask students to write down language structures used by city officials when explaining the municipality system during the interview.

4. Tell students to categorize each structure under different categories and prepare a diagram in Inspiration® that depicts each category with examples.

5. Ask students to e-mail the end product to you to be shared with the rest of the class.

*Figure 3. Sample Concept Map 3: Written and Spoken Language in Social Studies*
Lesson 3. Comparing and Contrasting Written and Spoken Discourse

1. Ask students to prepare a blueprint of a diagram that categorizes different language structures used in both written and spoken language, when describing characteristics and components of the American government.

2. Ask students to make a concept map in Inspiration® based on their blueprint displaying both thematic organization of both written and spoken discourse regarding the American government.

3. Have students brainstorm how they can organize their findings about the American government and the language necessary to describe the American government, when talking about the related concepts.

4. After brainstorming, tell group members to choose one person who will put all the material into Inspiration® by making connections about the concepts related with the American government within an informational hierarchy about the branches and their characteristics.

5. Ask students to e-mail the end product to you to be shared with the rest of the class.

Conclusion

Using Inspiration® as a tool for teaching both language and content in the social studies classroom provides English Language Learners with multiple opportunities to understand content area reading materials and improve their language production skills. I can help build an increased awareness of linguistic patterns that are prevalent in classroom social studies texts. English Language Learners can integrate these patterns into their own language production process and increase their academic writing and speaking skills. With the help of Inspiration®, teachers can make instruction more accessible for second language learners and make sure that no second language learner is left behind in academic development. The software can be used for both individual students’ conceptual and linguistic development and collaborative knowledge building. Students can apply their critical thinking skills when performing tasks using Inspiration®. Creating visual organizers about social studies reading materials and textbooks, building concept maps about social studies terms and concepts, and preparing timelines about a historical event or a sequence of events in the software requires students to use their higher order thinking skills. Through the use of Inspiration®, for example, students can perform tasks such as the following: convert a list of events with dates into a timeline, review lessons in a unit by making connections between different topics in concept mapping tasks, build cross-curricular connections between social studies and different lessons in order to understand the bigger picture. Preparing timelines can help students analyze how events are related over time. When putting together concept maps, students use critical thinking skills to interpret events, recognize bias, point of view, and context. Since Inspiration® helps students build connections between times, events, key concepts, and key people, it prompts them to compile and analyze data from multiple resources under different headings, and explicitly show how isolated bits of information are connected to one another. Students gain visual literacy skills during a task that requires them to form graphic organizers, since such a task requires students to summarize information in written, graphic, and oral formats. Such experience allows students to see persons and events in context. When preparing for the production of the graphic organizers in Inspiration®, students acquire experience in examining current issues, events, or themes, and relate them to
past events, formulate questions based on information needs, and use effective strategies for locating information. Hence, students actively engage in applying their critical thinking and problem solving skills as well as gain experience in information design and presentation. As students prepare graphic organizers in Inspiration®, they look at events, people, and key concepts with a top-down approach, and therefore, students learn to compare and contrast competing interpretations of current and historical events. Such activities strongly match the nationwide high standards that require students to not only know the social studies concepts, but to be able to demonstrate their knowledge in different types of instructional tasks.

References

Print-based

Fitzgerald, J. (1993). Literacy and students who are learning English as a second language. The Reading Teacher, 46(8), 638-647.

Web-based


Remember to complete the checklist and submit it with your manuscript.
About the Author

Berna Mutlu is a Ph.D. candidate at University of Florida in the literacy/ESOL program. She currently teaches courses on ESOL methods and strategies for pre-service teachers at the same institution. She can be reached at bmutlu@ufl.edu.

Citation for this Article


Appendix

Sample Social Studies Text for Teaching Academic Language

The Three Branches of Government

<table>
<thead>
<tr>
<th>Social Studies Concepts</th>
<th>Academic Discourse</th>
</tr>
</thead>
<tbody>
<tr>
<td>Checks and Balance</td>
<td>So that</td>
</tr>
<tr>
<td>Congress</td>
<td>First ........ then ..........</td>
</tr>
<tr>
<td>Senate</td>
<td>However</td>
</tr>
<tr>
<td>Supreme court</td>
<td>Similar to</td>
</tr>
<tr>
<td>House of Representatives</td>
<td>In addition to</td>
</tr>
<tr>
<td>Legislative</td>
<td>Also,</td>
</tr>
<tr>
<td>Judicial</td>
<td>To sum up,</td>
</tr>
<tr>
<td>Executive</td>
<td>........ is divided into</td>
</tr>
<tr>
<td>Constitution</td>
<td>........ involves</td>
</tr>
</tbody>
</table>

The United States government is designed so that no one person or group has complete control over the law. Three branches exist, with each one serving to “check” and “balance” the work done by the other two.

The Legislative Branch involves Congress. Congress is divided into two entities: The Senate and the House of Representatives. First, these officials design laws. Then, they must work to have these laws approved by their peers. The main role of the Legislative Branch is to “make the laws.”

Once the laws are made and added to the Constitution, someone must make sure that the laws are obeyed. The Judicial Branch of government includes the Supreme Court. The federal court system evaluates laws by reviewing court cases that call them into question. Unlike the Legislative Branch, the judicial system cannot “make” laws. However, in keeping with the “check and balance” system, the court can deem laws created by Congress as “unconstitutional.”

The President and Vice President make up the Executive Branch. Similar to the Judicial Branch, one of the main roles of the Executive Branch is to enforce the laws created by Congress. The President has the power to veto any bills created by Congress. In addition to these duties, the Executive Branch is also responsible for foreign relations, and the President acts as Commander-in-Chief of the military.

To sum up, all three branches of government are vital for the enforcement of U.S. law. Once laws are created by Congress, all three branches work to evaluate what laws are needed, and what laws infringe upon citizens’ rights.