July 2021

Teaching Students to Comprehend Cause and Effect Text Structure

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Recommended Citation

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One way to learn new information is to read expository text or text that provides information for the reader. Expository texts are organized quite differently from the narrative stories most students are familiar with and therefore may impact students' comprehension if they do not understand the organization or structure of the text (Yopp & Yopp, 2012).

Expository texts are organized by authors in a specific way to support the readers' comprehension. Furthermore, these texts include complex vocabulary words and facts, unfamiliar content, and features not often included in narrative texts (e.g., headings, captions, insets) that can also make it difficult for readers to comprehend (Hiebert & Mesmer, 2013; Shanahan, Fisher, & Frey, 2013). This organizational approach is known as text structure. Meyer (1985) identified five expository text structures commonly used by authors

including description, compare/contrast, sequence, cause/effect, and problem/solution.

Teaching students to identify text structure improves overall comprehension by allowing students to anticipate the location of information, sort out important information from unimportant information, make predictions about the content, and summarize and recall information based on the author's explanation (Duke, Pearson, Strachan, & Billman, 2011; Shanahan et al., 2010; Williams, Nubla-Kung, Pollini, Stafford, Garcia, & Snyder, 2007). One reason students may struggle with comprehension of expository texts is due to the complex comprehension skills necessary to make meaning from the text (e.g., finding important information and judging sequence) and students not being aware of specific text structures and how to use those text structures to support understanding.

One text structure that students commonly encounter is cause and effect. Though commonly used, cause and effect structures can be challenging for young readers (Williams et al., 2007). Often in this text structure, the causes and effects are mixed into the information, making it difficult to distinguish between the cause and the effect and therefore making it more challenging to interpret

meaning. Understanding the text structure can help support students' comprehension because they will know what information they can expect to learn and where they will find the information in the text. Once text structure is identified, it is important for teachers to support students as they learn to understand and apply the different structures to reading; otherwise, comprehension can become overwhelming and confusing. Providing students explicit instruction in text structures supports students' development and use of text structures for comprehension (Pyle, Vasquez, Lignugaris/Kraft, Gillam, Reutzel, Olszewski, Segura, Harpzheim, Laing & Pyle, 2017).

Teaching Cause and Effect

As noted, cause and effect text structure is one structure young students will encounter often in expository text (Pyle et al., 2017). The goal of cause and effect text structure is to help the reader understand why things happen the way that they do. Defining cause and effect for students appears quite simple; yet helping students identify it in text requires explicit instruction in elements of the text structure. To begin teaching about cause and effect, teachers must explain that cause and effect refers to the event that happens and the reasons why the event happens. More specifically, teachers must explain that the effect was "a thing or event that happens" (Williams, et al., 2014 p. 5) and the cause as "the thing that makes the event happen" (p. 5).

Typically, when teaching cause and effect text structure, teachers look for well-organized texts that demonstrate this structure. Selecting well-structured texts allows teachers and students to recognize and apply the strategies specifically for cause and effect. During the explicit lesson on cause and effect, teachers must provide modeling and scaffolded practice to help their students internalize and apply the "why things happen the way they do" to determine the cause as well as "what thing or event happened" to determine the effects. When this type of instruction is explicit and practiced, students will be able to apply their understanding as they independently read more expository texts (Williams et al., 2009).

Explaining the Text Structure
Identifying the text structure and providing a definition

for students is an important first step. At the start of the lesson, the teacher will provide a student-friendly explanation and definition for the text structure. For example, the teacher may say, "The author's intent is to help the reader understand what is happening and why. We often call this cause and effect. The effect is the event that happens. So you might ask yourself 'What happened?' The cause is the thing that makes the event happen. To find the cause, you might ask yourself 'Why did that happen?' In a text about the destruction left by an earthquake, the cause is the earthquake. The effects (or the what) could be houses destroyed, cracks in the roads, or people buried under rubble.

Because the concept of cause and effect can be challenging for students to understand, the teacher may try to focus examples on events or experiences in students' everyday lives. For example, asking students what happens when they wake up late for school will elicit answers such as "I have to rush," "I might miss the bus," "I do not get to eat all of my breakfast, my mom yells at me," "I forget my lunch" and so on. Teaching students to identify cause and effect on a personal level, or even through role playing, helps them understand actions and consequences. Next, teachers need to help students apply that thinking to the texts they are reading so they can anticipate the text structure and critically analyze the information to gain deeper comprehension of the text. This article will address how to support readers as they begin to identify and analyze cause and effect text structure.

Using Cause and Effect Signal Words to Identify Cause and Effect Structure
Developing a vocabulary of cause and effect signal words for students may be an effective strategy. Signal words or cues signify to students that the author is providing the cause and the effect (see Figure 1 for examples of signal words). Teaching students to identify the signal words will support their identification of specific causes and effects within the text. It helps students understand what happened (effect) and why (cause). Teachers should be cautioned that helping students use the signal words is simply one strategy to use, but it is certainly not the only way to identify cause and effect.
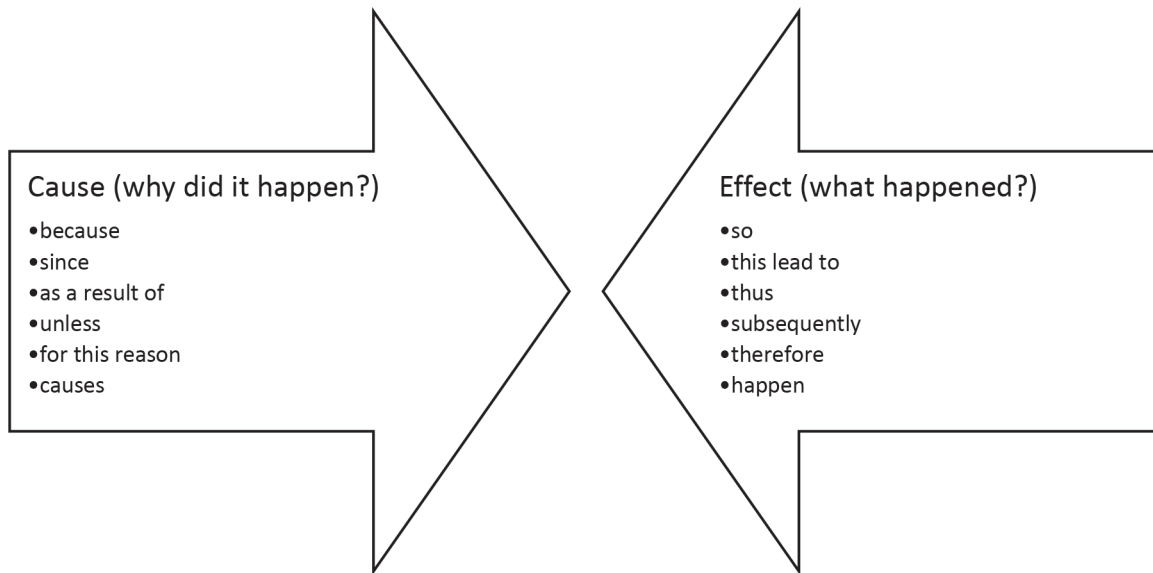
Cause (why did it happen?)
- because
- since
- as a result of
- unless
- for this reason
- causes

Effect (what happened?)
- so
- this lead to
- thus
- subsequently
- therefore
- happen

Figure 1. Cause and effect signal words.

Using Guiding Questions to Find Cause(s) and Effect(s)

Teaching students to ask guiding questions as they read is an important aspect of text structure. It is a strategy to keep students focused on the key cause and effect information. For cause and effect text, teachers should teach and model for students how to find out what happened and why. The teacher would first teach students the guiding questions of what, "What happened?" and then follow up with why, "Why did it happen?" Asking what happened will support students to identify the effect. Asking why it happened will help identify the cause. For example, when reading the text about earthquakes (see Example 1), the teacher would ask themself, "What happened?" and "Why did it happen?" Then they would answer their own questions by saying, "The text is talking about why earthquakes happen. Something happens to cause the earthquake so, in this text, the earthquake is the effect. I know this by asking what happened? Now I will read to see why it happens or what causes earthquakes to identify the causes. I read, 'Earthquakes happen when two large pieces of the Earth's crust slip and shake the Earth's surface.' That is the cause because it tells me why the earth quake happened."

Example 1: "Earthquakes happen when two large pieces

of the Earth's crust suddenly slip. This causes shock waves to shake the surface of the Earth in the form of an earthquake." (Nelson, 2017, para 1). You can find the entire text at http://www.ducksters.com/science/earthquakes.php.

Graphic Organizers

Graphic organizers allow students to represent their understanding of the text visually. To support students' identification of cause and effect, teachers could introduce several different types of graphic organizers. One type of organizer that might be useful is the single event organizer. This organizer helps students see how one cause impacts one effect (see figure 2). For example, because it rained heavily (cause), it led to a mudslide (effect). This example is helpful when first introducing cause and effect to students. Once you begin to analyze more complex sentences and paragraphs, you can move to chain reaction organizers (see Figure 3) and multiple causes and/or effects organizers (see Figure 4). If we refer back to our earthquake example (Example 1), using a chain reaction organizer would be useful to help students organize the information to identify cause and effect because this type of organizer would help students to see that something causes an earthquake and then the earthquake causes seismic waves. An example of multiple causes and/

or effects would be heavy rain causes mudslides and flooding (one cause with two effects). Not drinking enough water and hot temperatures can cause heat-stroke (two causes with one effect).

One essential part of using a graphic organizer is to match the organizer with the text. If your organizer is irrelevant or mismatched for the text, it causes confusion for the students; as a result, summarizing the

cause and effect becomes difficult. This is an especially important factor to consider when choosing graphic organizers for young students. For example, if the text has multiple causes listed and one effect that follows, the graphic organizer should match by having one effect box linked to multiple causes. If instead you use a single event organizer this mismatch can cause confusion for the learners and thereby impact students' overall understanding of complex informational text.
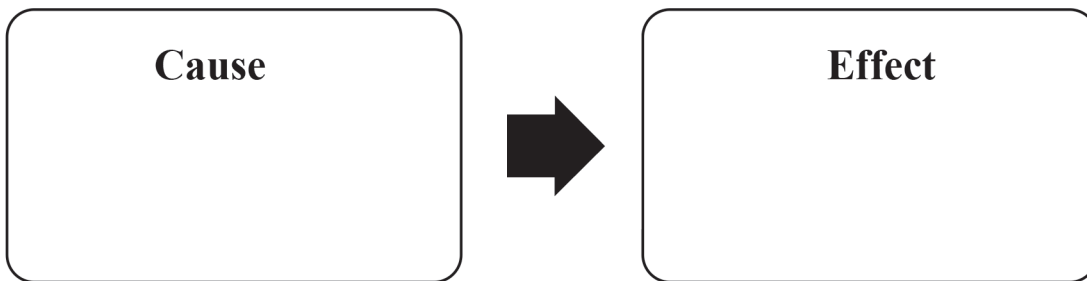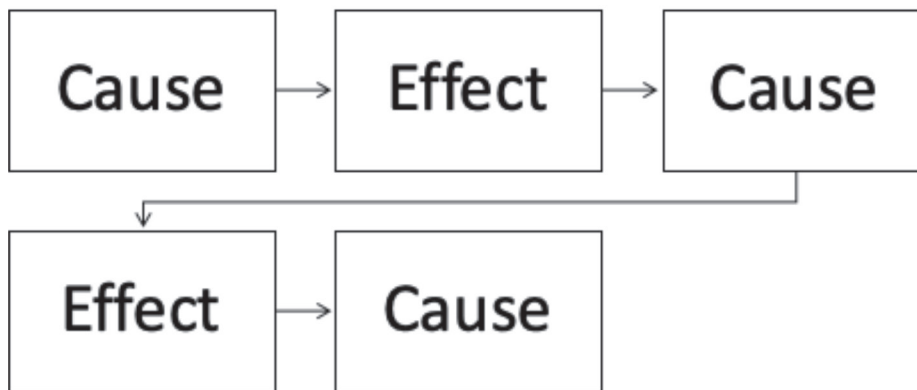

Figure 2. Single Event Cause and Effect.
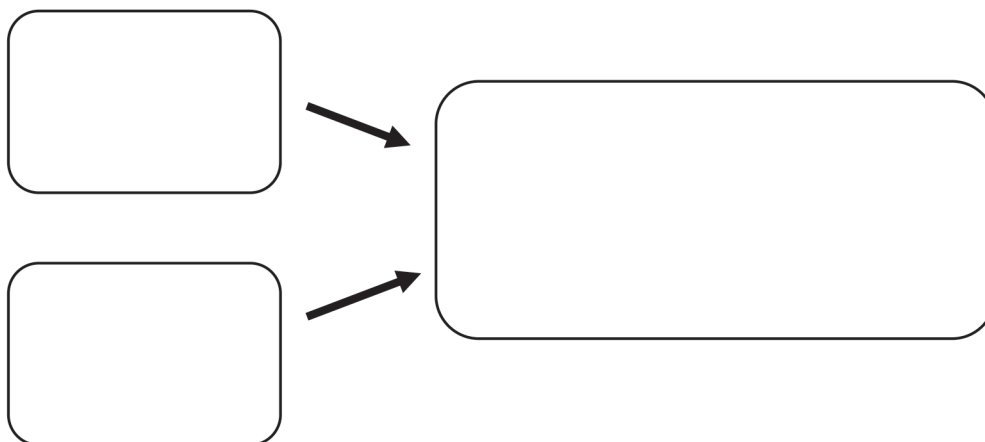

Figure 3. Chain Reaction Cause and Effect.

Figure 4. Multiple Causes and/or Effects.

Scaffolding the Thinking

The next step after introducing the structure, signal words, and graphic organizers is to allow students time to work with the teacher through scaffolding multiple types of cause and effect texts. This scaffolding allows teachers to support students' deeper thinking and summarization of cause and effect texts through reading and discussion. The objective is to get students asking, "What happened?" and "Why did it happen?" then providing evidence from the text to support their understanding.

Close Analysis of the Text

Clearly identifying when an author provides the cause or effect may be difficult for some students. Students may have trouble answering the what and why questions. It may also be difficult because there is no designated order for when the author may state the cause or effect. Many times, authors share the cause first as in the following example: *As a result of the heavy snow, the roof of the building collapsed.* The sentence could be rewritten providing the effect first: *The roof of the building collapsed as a result of the heavy snow.* Both sentences provide the same cause and effect and use the signal words *as a result* to identify the cause.

Once students have learned the signal words and practiced using them to identify cause and effect, the next step is to analyze the text. Teachers can model the following steps for students as they read and analyze:

1. Ask "what happened" (effect) and "why did it happen" (cause).
2. Circle the signal words in a single color based on identified cause or effect.
3. Underline the clause before and after the signal word matching the cause or effect color.
4. Summarize in a graphic organizer.

Example 2 provides the signal word caused (circled) with the clause following as the cause (underlined) and the effect clause first (double underlined). To model this for the students, the teacher talk may include: "I know that what happens or the effect is earthquakes, but I'm not sure what causes them. I will look for signal words to help me figure out why earthquakes happen. I see the word causes in the sentence. I know that is a signal word that can help me figure out why the earthquakes happened. I will circle the word causes in blue and underline what follows to see if it helps me answer why earthquakes happen." After modeling an analysis of the text, the teacher would then use a graphic organizer to model how to summarize the cause and effect.

Example 2: Earthquakes are (caused) when two large pieces of the Earth's crust suddenly slip.

Example 3 is one more illustration of how to analyze a short sentence for cause and effect. Teachers should provide scaffolded support for identifying signal words for cause and effect as students read more and more expository texts, at least until students are able to identify them on their own as they read independently.

Example 3: (As a result of) the heavy snow, the roof of the building collapsed.

As students become more and more confident finding signal words to identify cause and effect in short sentences, teachers can gradually provide larger chunks
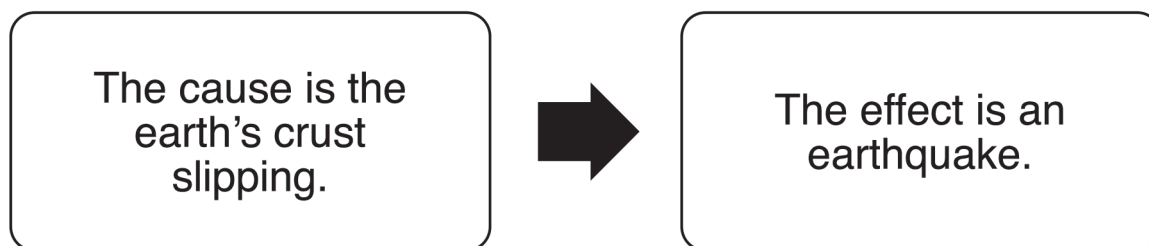

Figure 5. Example of single graphic organizer for Example 3.

of text (see Examples 4 and 5) for students to analyze. At this point, teachers may have to return to modeling how to identify multiple causes and effects in longer texts and provide the appropriate amount of scaffolding for students to become independent.

Example 4: It was hot and sunny (so) I spent the day swimming at the pool. I forgot to put on sunscreen, (therefore) I got a terrible sunburn.

Example 5 demonstrates how one cause can produce a chain reaction of multiple causes and effects. There are multiple causes and effects that happen when people pollute the rivers and one event leads to another. The clauses "this reduces the number of fish that can reproduce" and "fewer fish are born in freshwater" are both a cause and an effect of the original cause of people polluting the rivers as well as being their own causes for the decline in fish population.

Example 5: Fish habitats are destroyed (effect changing to a cause) (because) people pollute the rivers (cause). This reduces the number of fish that can reproduce (effect changing to a cause). (As a result,) fewer fish are born in freshwater (effect), and the fish population declines (effect).

Teaching students to successfully identify signal words, no matter the order they are presented is an important

strategy for comprehending cause and effect. Providing opportunities for students to use the signal words to closely analyze a well-structured text that embody the characteristics of a particular text structure will also improve overall comprehension (Williams et al., 2014).

Final Thoughts

Teaching students that authors organize the text in certain ways to help readers identify information is critical for comprehension of expository texts. This organization is known as text structure. For many readers, especially those that struggle, understanding how to use that structure will support comprehension and may help them be more confident readers. Explicitly teaching students the different strategies for identifying cause and effect in expository text is one approach teachers can use to help students look for and utilize the author's organization, thereby supporting students' comprehension of the text.

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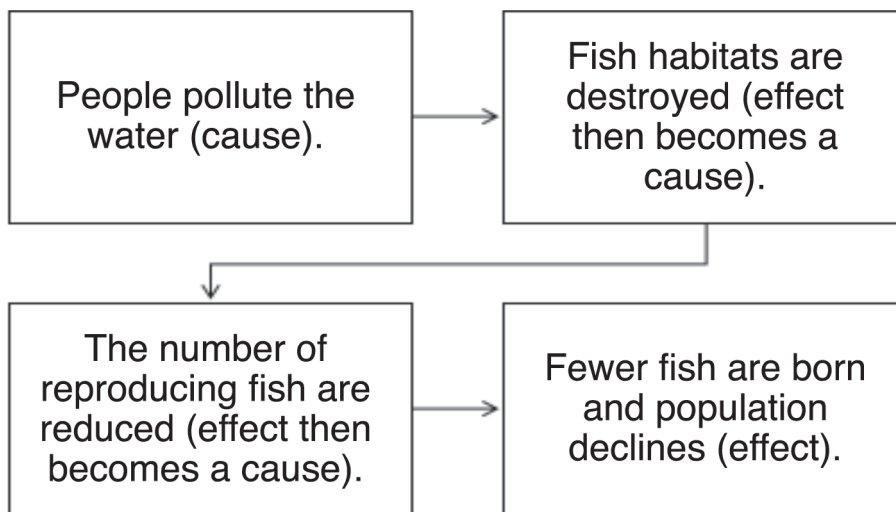Hiebert, E.H., & Mesmer, H.A.E. (2013). Upping the ante of text

Figure 6. Example of a chain reaction graphic organizer for Example 5.

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