What's the big deal about graphic organizers?

Are GOs just another education fad? Does using them really matter?
Does using them raise test scores?
Isn't this just putting information into little boxes?
Aren't outlines just as good?

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University of Kansas
Center for Research on Learning

An extensive body of research shows that use of graphic organizers dramatically improves learning.

READING comprehension scores

WRITING organization & fluency

MATH concepts & processes

SCIENCES concepts & processes

HISTORY depth, breadth, accuracy

significant increases

significant increases

significant increases

significant increases

An extensive body of research shows that use of graphic organizers dramatically improves learning.

Before reading

During reading

After reading

 Students learning English as 2nd language
Students with learning disabilities
Students who are intellectually gifted

significant increases

significant increases

significant increases

CLOSING the history learning-gap study (Alabama high school)

WEEK 1

Teacher A

Teaches 1st mini-unit using traditional guided note-taking / discussion instruction

Teacher B

Teaches same 1st mini-unit using traditional guided note-taking / discussion instruction

32 High Achieving
32 Typical Achieving
32 Low Achieving
10 Students w/ LD

WEEK 2

Teaches 2nd mini-unit using

Teaches same 2nd mini-unit using traditional guided note-taking / discussion instruction

This allowed us to establish the "high water" line.

First, we measured how much new knowledge of history High Achieving students typically gain when teachers use traditional content instruction methods.

Traditional content instruction methods =
Text-based, guided note-taking / class discussion
Then, we measured how much new knowledge of history High Achieving students typically gain. This allowed us to establish the "typical amount" line. Then, we measured how much new knowledge of history Typical Achieving students usually gain when teachers use traditional content instruction methods.

High Achieving students tend to gain 21% more knowledge than do Typical Achieving students from the same lesson. This allowed us to establish the "typical amount" line.

Typical-achievers typically gain 29% more knowledge from a traditional lesson than do Low Achievers.

At first glance, it seems like MSS is a powerful tool for "reducing the achievement gap." The reality is that ALL students greatly enhanced their knowledge when teachers used MSS.

Closing the history learning-gap study (Alabama high school)

Aligning 5th grade history objectives with outcomes

Impact of writing fluency: 8th grade students with LD
% of students meeting or exceeding standards

<table>
<thead>
<tr>
<th>9 Schools Extremely low performance</th>
<th>MSS 62.41% before MSS</th>
<th>MSS 74.81% after MSS</th>
<th>MSS 87.68% before MSS</th>
</tr>
</thead>
<tbody>
<tr>
<td>20.6% before MSS</td>
<td>38.83% before MSS</td>
<td>58.39% before MSS</td>
<td>73.82% before MSS</td>
</tr>
</tbody>
</table>

AFTER MSS implementation

9 Schools  
23.03 pt. gain

7 Schools Moderate performance  
16.42 pt. gain

2 Schools Good performance  
9.66 pt. gain

Impact on AYP Writing Assessment

% of students meeting or exceeding standards

<table>
<thead>
<tr>
<th>Year 1</th>
<th>Year 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-MSS High School</td>
<td>51%</td>
</tr>
<tr>
<td>MSS High School</td>
<td>51%</td>
</tr>
</tbody>
</table>

Both groups performed at the same levels

Impact on semi-rural high school Alabama Writing Assessment

% students meeting or exceeding standards

<table>
<thead>
<tr>
<th>Year 1</th>
<th>Year 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-MSS High School</td>
<td>51%</td>
</tr>
<tr>
<td>MSS High School</td>
<td>51%</td>
</tr>
</tbody>
</table>

Impact on semi-rural 5th grade Alabama Writing Assessment

% students meeting or exceeding standards

<table>
<thead>
<tr>
<th>Year 1</th>
<th>Year 2</th>
<th>Year 3</th>
<th>Year 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>MSS implementation</td>
<td>30.90%</td>
<td>40.8%</td>
<td>57.39%</td>
</tr>
<tr>
<td>Non-MSS implementation</td>
<td>28.58%</td>
<td>35.4%</td>
<td>52.24%</td>
</tr>
</tbody>
</table>

Impact on 7th grade ESL students California Writing Assessment

% students meeting or exceeding standards

<table>
<thead>
<tr>
<th>Year 1</th>
<th>Year 2</th>
<th>Gains</th>
</tr>
</thead>
<tbody>
<tr>
<td>Before implementing MSS</td>
<td>51%</td>
<td>75%</td>
</tr>
</tbody>
</table>

In other words, use of GOs improves learning across all grade levels across all core subjects pretty much with all student-types

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TM

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TM
What's the big deal about graphic organizers?

Why do GOs work so well?

* Make instruction more focused, precise and explicit
* Facilitate communication of complex ideas
* Reduce information-processing demands
* Teach information-processing skills
* Illustrate relationships between ideas

Why is instruction more focused & explicit when GOS are used?

Graphic organizers usually depict one of the four common ways to structure the information:

* Hierarchic
* Compare / contrast
* Cause/Effect
* Sequence

How do GOs reduce information processing demands?

Thus, revealing how the new information is organized BEFORE the new information is presented makes it much easier to process and understand...

...because the brain doesn’t have work as hard to make sense of it

Implications are HUGE!

You can teach at MORE sophisticated levels
(as opposed to having to dumb-down the curriculum)

If the organization is revealed at the lesson beginning, then students don’t have to work as hard to understand...

Because the info processing demands have been reduced
The key is whether the ORGANIZATION of the information is self-evident to the learner.

What about outlines? Aren’t they just as effective?

Type of information | Outline | Graphic Organizer
--- | --- | ---
Hierarchic | YES | YES
Cause / Effect | NO | YES
Compare / Contrast | NO | YES
Linear sequence | MAYBE | YES
Cycle | NO | YES

Why do GOs have such dramatic affects on students’ DEPTH, BREADTH & ACCURACY of content knowledge?

2 key reasons...

REASON #1
GOs put the focus on relational understanding...how ideas “hang together” rather than memorization of seemingly disconnected bits & pieces of information

REASON #2
GOs facilitate student elaboration of ideas...use of important information processing skills addressed by literacy standards
Some graphic organizers depict “whole-to-part” structures.

Students learn how to think about the information

Consider what happens to thinking when back-to-whole prompts are added to the GO:

WHOLE

PARTS

Some students learn how to think about the information

Notice the prompts in this Literature GO:

Title

What LED UP to your favorite part of the story?

Setting

Characters

What happened DURING your favorite part of the story?
### Students learn how to think about the information

<table>
<thead>
<tr>
<th>Sheila Rae the Brave</th>
<th>Sheila Rae’s neighborhood</th>
</tr>
</thead>
<tbody>
<tr>
<td>Character</td>
<td>Setting</td>
</tr>
<tr>
<td>Sheila Rae</td>
<td>Wendell</td>
</tr>
<tr>
<td>Louise</td>
<td></td>
</tr>
</tbody>
</table>

Sheila Rae slipped off, saying, "I’m brave, I’m fearless." She stepped on cracks, she walked backward, she got stuck at doors, and she climbed trees until she discovered she was lost.

She was 9 years old when she was lost.

Sheila Rae went to the woods out of fear. She thought terrible thoughts and was very scared but tried to be brave and not to convince herself that she was really brave and fearless. Finally her sister, Louise, patted up and held her to follow her because she knew the way home.

Sheila Rae was brave. She knew she was capable of doing anything.

Sheila Rae was not afraid of anything.

Sheila Rae got lost. Her sister found her.

Sheila Rae was not brave. She was afraid.

Sheila Rae was not brave. She was afraid.

Sheila Rae was brave. She was not afraid.

### Key things to remember about this topic

**Topic**

- Is a type or part of...

**Member of this group**

- Is like...

**Example**

- Non-example

**Don’t confuse with...**

**Draw a picture**

### Students learn how to think about the information

**Part of the process needed for plants to make food to live**

<table>
<thead>
<tr>
<th>Process</th>
<th>Transpiration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plants</td>
<td>Water in leaves</td>
</tr>
<tr>
<td>Nutrients</td>
<td>Water in leaves</td>
</tr>
<tr>
<td>Oxygen</td>
<td>Water in leaves</td>
</tr>
<tr>
<td>Glucose</td>
<td>Water in leaves</td>
</tr>
</tbody>
</table>

There’s a LOT more going on with graphic organizers that just putting information in to little circles and boxes!

In part, it’s the **VISUAL REPRESENTATION** of the information structure

It’s also the **PROMPTS** that are added to them

### Students learn how to think about the information

**Native Americans**

- **Southwest Indian Tribes**

  - **Anasazi Hopi, Pueblo, Navajo**
    - Lived in very dry climates
    - Made their homes out of adobe and clay
    - Had no written language
    - Used animals for transportation

  - **Pueblos**
    - Lived in cliff dwellings
    - Had a written language
    - Used animals for transportation

  - **Hopi**
    - Lived in clay houses
    - Had a written language
    - Used animals for transportation

**Compare**

- **Anasazi Hopi, Pueblo, Navajo**
  - Lived in very dry climates
  - Made their homes out of adobe and clay
  - Had no written language
  - Used animals for transportation

- **Hopi**
  - Lived in cliff dwellings
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### Students learn how to think about the information

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### Students learn how to think about the information

Want to know more about why GOs work so well?

See the handout titled “Graphic Organizer Q & A” that accompanies this presentation