



# MODULE 13

## Reading Visuals

### An Effective Reading Process: Faculty Strategies

More and more, authors and publishing companies are incorporating visual materials into textbooks. However, many students do not possess strategies for reading and interpreting these visuals. Reading visuals can be a fairly complex process. Therefore, class discussion of the information provided by visuals—including how they complement the text and the text complements them—can be invaluable to further overall student comprehension of a reading. Providing guidelines for analyzing visuals, such as those in these strategies, can also help further students' overall comprehension

### STRATEGY #1: Understanding The Role Of Visuals In A Textbook

Many students skip over or quickly glance at visuals in textbooks. They often do this to save time, but sometimes they don't know how to approach the visuals. Let students know how important these visuals can be to their understanding of the reading. Take a few minutes to walk students through a chapter that includes visuals. Have them discuss the visuals' relevance and importance by answering the following questions:

1. What type of visual appears on page x? (pie chart, photograph, line graph, etc.)
2. Does it complement the material and/or explain the material in a different way? If so, how?
3. Does it add new material or understanding to the concepts in the reading? If so, how?
4. Does it help to make the material more interesting? If so, how?

#### **Pull-out boxes**

If your textbook has them, students might be tempted to skip or quickly glance at the pull-out boxes. Remind students that it is worth their time to read these boxes because they highlight important passages, elaborate on concepts, provide explanations or examples, or ask important questions. Emphasize to students that they are purposefully placed there to enhance the reading experience.

Students should be reminded that they cannot get the “whole picture” by only examining visuals and pull-out boxes, although some may be tempted to try this approach.



# MODULE 13

## Reading Visuals

### STRATEGY #2: Reading Tables

A table, made up of rows and columns, can be a fairly simple way to present data involving at least two sets of variables. Although tables are useful for conveying specific information, they do not create comparisons as pie charts or bar graphs do. By using left to right (row) and up to down (column) eye movements, tables are generally easy for students to read.

As an example, take a moment to look at this table illustrating information about international students by academic level.

Academic Level	2006/07	2006/07	2007/08	2007/08
	Int'l Students	% of Total	Int'l Students	Int'l Total
Associate's	67,855	12.5	65,378	11.5
Bachelor's	170,195	31.4	177,982	31.4
Graduate	264,288	48.8	276,842	48.8
Non-Degree	38,986	7.3	46,837	8.3

Teaching students to read this graphic is relatively simple. For example, if they need to know the number of international graduate students for 2007-2008, they would simply look down the column for "graduate" and then move their finger across the row for 2007-08 and find the total of 276,842 students.

When a table is included in their reading, encourage students to follow these four steps for better reading comprehension:

#### STEP 1 Previewing and Comprehension

- What is the title/caption?
- What data is recorded in the columns and rows?

#### STEP 2 Structural Analysis

- How is the information organized?
- How should the information be tracked and read?

#### STEP 3 Content Analysis

- Summarize the information the table conveys.
- How does the table relate to the reading?

#### STEP 4 Critical Analysis

- Who created the table, for what purpose, and for what audience? Could the table be biased?
- Does the information appear complete and current?
- How can you use the information in the table? How does it relate to what you have read?



# MODULE 13

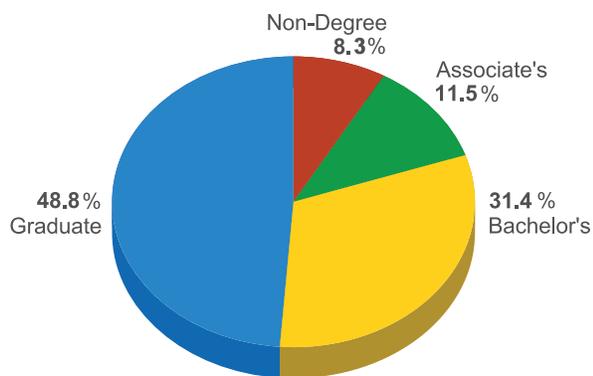
## Reading Visuals

### STRATEGY #3: Reading Charts

Students will encounter many different types of charts in textbooks. Two common ones are pie charts and process charts. Each has its own purposes and specific ways of reading for comprehension. It is important for students to understand what kind of chart they are looking at before they can interpret it.

#### International Students By Academic Level, 2007/08

Source: Member Website of the Institute of International Education



**Pie chart:** Students need to know that a pie chart is a visual representation of parts to the whole. In other words, each slice of the pie represents some percentage of the total. A bigger percentage becomes a bigger slice of the pie.

This pie chart illustrates the same information as the previous table on international students. However, unlike the table, this pie chart helps the reader draw comparisons by percentages. Notice how the distinct colors help readers see the differences immediately.

Teaching students to read this graphic is relatively simple. For example, have them identify the categories with the most and the least international students.

When a pie chart is included in their reading, encourage students to follow these steps for better comprehension:

#### STEP 1 Previewing and Comprehension

- What is the title/caption?
- What data is recorded in the pie segments?

#### STEP 2 Structural Analysis

- How is the information organized?
- How should the information be tracked and read?

#### STEP 3 Content Analysis

- Summarize the information the pie chart conveys.
- How does the pie chart relate to the reading?

#### STEP 4 Critical Analysis

- Who created the pie chart, for what purpose, and for what audience? Could the pie chart be biased?
- Does the information appear complete and current?
- How can you use the information presented in the pie chart? How does it relate to what you have read?

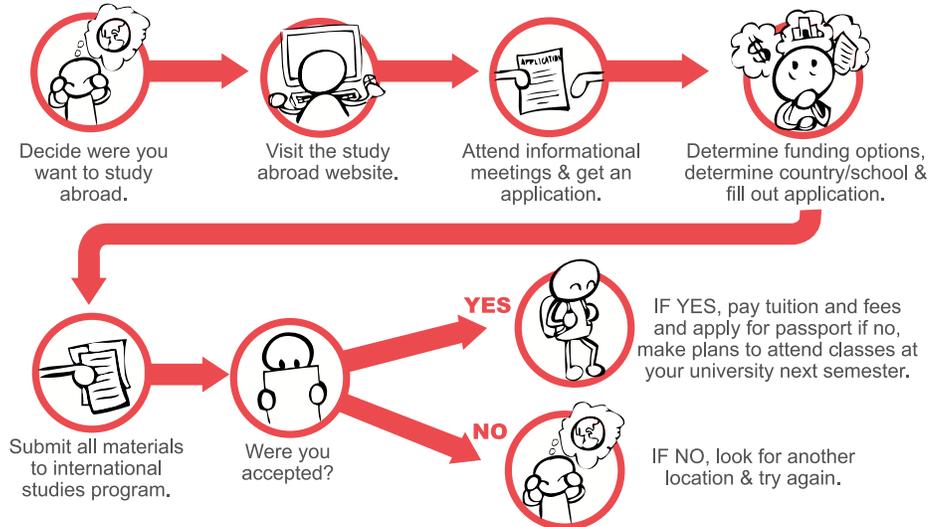


# MODULE 13

## Reading Visuals

**Process charts:** Because process charts are used to demonstrate a process from beginning to end, they are especially useful for illustrating processes that include decision making. Some process charts use different shapes for different processes and arrows to indicate direction.

### Steps to applying to an international program:



This process chart demonstrates the steps a student must take to apply to an international program. Teaching students to read this graphic is relatively simple. Have them discuss the number of steps and what would happen if something were left out of the sequence.

When a process chart is included in their reading, encourage students to follow these four steps for better reading comprehension:

**STEP 1**

### Previewing and Comprehension

- What is the title/caption?
- What data is included in the process?

**STEP 2**

### Structural Analysis

- How is the information organized?
- How should the information be tracked and read?

**STEP 3**

### Content Analysis

- Summarize the information conveyed.

- How does the process chart relate to the reading?

**STEP 4**

### Critical Analysis

- Who created the process chart, for what purpose, and for what audience? Could the process chart be biased?
- Does the information appear complete and current?
- How can you use the information in the process chart? How does it relate to what you have read?



# MODULE 13

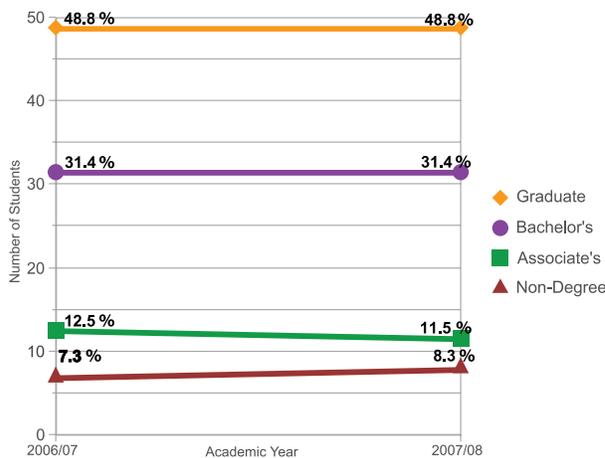
## Reading Visuals

### STRATEGY #4: Reading Graphs

Just as there are many different types of charts, graphs also come in a wide variety including line graphs and bar graphs. Generally speaking, a graph represents relationships or trends via lines, bars, or dots. Each graph has its own purposes and specific ways of reading for comprehension. Therefore, it is important for students to understand what kind of graph they are looking at before they can interpret it.

#### International Students By Academic Level, 2006/07-2007/08

Source: Member Website of the Institute of International Education



**Line graph:** Line graphs use lines to connect data points and indicate changes or trends. Line graphs allow the reader to draw comparative conclusions about how the data has fluctuated over time.

This line graph again uses the data provided in the table for international students by academic level. Teaching students to read this graphic is relatively simple. Have them identify which categories had the greatest and the least fluctuation.

When a line graph is included in their reading, encourage students to follow these steps for better reading comprehension:

#### STEP 1 Previewing and Comprehension

- What is the title/caption?
- What data is recorded along the horizontal and vertical axes?

#### STEP 2 Structural Analysis

- How is the information organized?
- How should the information be tracked and read?

#### STEP 3 Content Analysis

- Summarize the information conveyed in the line graph.

- How does the line graph relate to the reading?

#### STEP 4 Critical Analysis

- Who created the line graph, for what purpose, and for what audience? Could the line graph be biased?
- Does the information appear complete and current?
- How can you use the information in the line graph? How does it relate to what you have read?

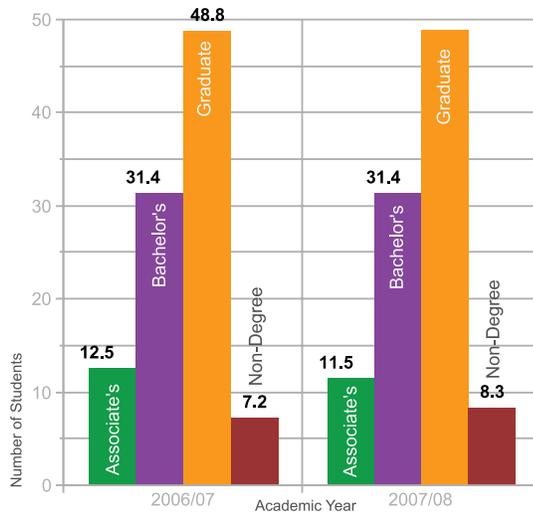


# MODULE 13

## Reading Visuals

### International Students By Academic Level, 2007/08

Source: Member Website of the Institute of International Education



**Bar graph:** A bar graph uses rectangular bars to compare two or more data sets.

The same data on international students by academic level is presented in this bar graph. Teaching students to read this graphic is relatively simple. Have them identify which categories had the greatest and the least fluctuation.

When a bar graph is included in their reading, have students follow these steps for better reading comprehension:

#### **STEP 1** Previewing and Comprehension

- What is the title/caption?
- What data is recorded along the horizontal and vertical axes?

#### **STEP 2** Structural Analysis

- How is the information organized?
- How should the information be tracked and read?

#### **STEP 3** Content Analysis

- Summarize the information conveyed in the bar graph.
- How does the bar graph relate to the reading?

#### **STEP 4** Critical Analysis

- Who created the bar graph, for what purpose, and for what audience? Could the bar graph be biased?
- Does the information appear complete and current?
- How can you use the information in the bar graph? How does it relate to what you have read?



# MODULE 13

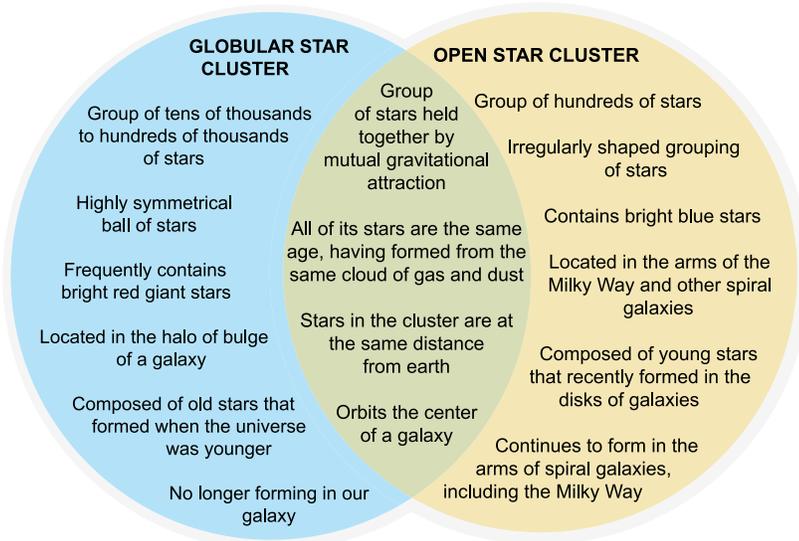
## Reading Visuals

### STRATEGY #5: Reading Diagrams

Diagrams can be used in many different ways, but they are especially good for illustrating concepts and processes. As with the other graphics described here, diagrams come in a variety of types. Therefore, it is important for students to understand what kind of diagram they are looking at before they can interpret it.

#### Globular and Open Cluster

Source: Space Telescope Science Institute (STScI)



**Venn diagram:** A Venn diagram illustrates the points at which two or more groups or concepts overlap.

In the example here, the characteristics of both globular and open star clusters are listed in the left and right spheres. Teaching students to read this graphic is relatively simple. Have them identify the characteristics that are common to both types of clusters.

When a Venn diagram is included in their reading, have students follow these steps for better reading comprehension:

#### STEP 1 Previewing and Comprehension

- What is the title/caption?
- What is the subject of the circles in the diagram?

#### STEP 2 Structural Analysis

- How is the information organized?
- How should the information be tracked and read?

#### STEP 3 Content Analysis

- Summarize the information conveyed in the Venn diagram.
- How does the Venn diagram relate to the reading?

#### STEP 4 Critical Analysis

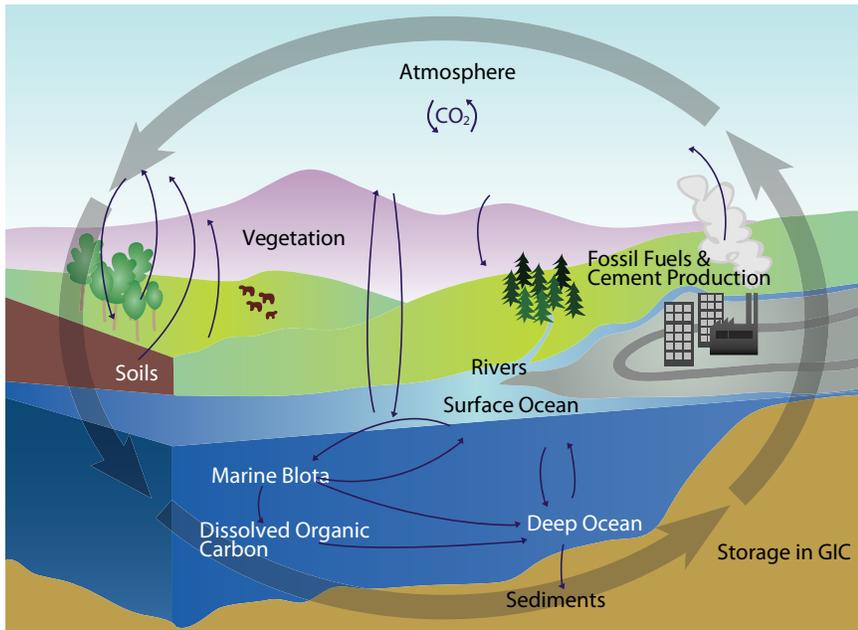
- Who created the Venn diagram, for what purpose, and for what audience? Could the Venn diagram be biased?
- Does the information appear complete and current?
- How can you use the information in the Venn diagram? How does it relate to what you have read?



# MODULE 13

## Reading Visuals

### The Carbon Cycle



**Cycle diagrams:** A cycle diagram is a useful way to illustrate a process that has the same beginning and ending point.

Notice the complexity within this carbon cycle. The general cycle is illustrated through the big circle, but there are mini-cycles within it as well. Teaching students to read this graphic is relatively simple. Have them talk through the carbon cycle as represented in this cycle diagram.

When their reading includes a cycle diagram, encourage your students to follow these steps for better reading comprehension:

**STEP 1**

#### Previewing and Comprehension

- What is the title/caption?
- What cycle is being illustrated?

**STEP 2**

#### Structural Analysis

- How is the information organized?
- How should the information be tracked and read?

**STEP 3**

#### Content Analysis

- Summarize the information conveyed in the cycle diagram.
- How does the cycle diagram relate to the reading?

**STEP 4**

#### Critical Analysis

- Who created the cycle diagram, for what purpose, and for what audience? Could the cycle diagram be biased?
- Does the information appear complete and current?
- How can you use the information in the cycle diagram? How does it relate to what you have read?



# MODULE 13

## Reading Visuals

### STRATEGY #6: Reading Photographs

Photographs are commonly interspersed within much of our students' reading materials and have tremendous power to communicate information. "Reading" photographs along with the related text presents a unique set of challenges for students. However, we can guide them to use questions to decode, evaluate, and respond to photographic images.

The photograph above is provided as a reference as you work through application of the following steps.



Source: Image provide by CDC Public Health Image Library (PHIL)

### 1. The Five "W" Questions:

A common approach to understanding what photographs communicate is to ask the Five W's: who, when, what, where, and why. While the "Five W's" may seem simplistic, they are a starting point for better comprehension.

Have your students utilize the Five "W" questions starting with this basic comprehension set:

- Who or what is in the photograph?
- When was this photograph taken?
- What is happening in the photograph?
- Where was this photograph taken?

**Adding the fifth W, "Why?" builds on basic comprehension to encourage critical analysis for visual literacy:**

- Why did the photographer select these particular elements to include in the photograph?
- Why did the photographer emphasize certain elements and not others?
- Why did the photographer take the picture at this moment?
- Why did the photographer take the picture from this angle?



# MODULE 13

## Reading Visuals

### 2. Analyzing Photographer's Intention:

When we ask this next set of questions, we put ourselves in the scene of the photograph and in the mind of the photographer. Photographers are like writers—they make decisions about their content in regards to audience and how they want to communicate the information through the image.



Source: Image provide by CDC Public Health Image Library (PHIL)

The photograph above is provided as a reference as you work through application of the following steps.

- What are your eyes immediately drawn to? In photography, they call these “vectors of attention.” Why does the photographer want you to focus here?
- The photographer has captured a moment in time. What do you think was happening before and after?
- The photographer took the picture from a specific angle. How would it look from different angles?
- What if the picture was cropped and framed differently? How would it change the “message” of the photograph?
- The photographer selected particular elements to include—what didn't he/she include in the photograph? Why?

This series of questions can provide effective scaffolding for understanding a photograph—and you can take it even further. Ask students to consider why the authors of a text have chosen to use the photograph embedded in the reading, or even why they added photographs at all. The connection of the visual to the text can greatly enhance students' reading engagement and comprehension.



# MODULE 13

## Reading Visuals

### STRATEGY #7: Reading Comics and Cartoons



**Stock Market Vultures**

Comics and cartoons can be an engaging way to connect to and extend the content of reading, but students often need to develop the ability to “read” them in order to gain their full benefit.

Image taken from: [cartoons-political.com](http://cartoons-political.com)

The comic above is provided as a reference as you work through application of the following steps.

**STEP 1**

#### Previewing and Comprehension

- What is the title/caption?
- List the objects or people you see in the comic/cartoon.
- Who or what is involved in the scene?
- What kind of interaction is taking place?
- When does it seem to be taking place?
- Where does it seem to be taking place?

**STEP 2**

#### Structural Analysis

- How is the comic/cartoon drawn: Caricature? Realistically? Symbolically?
- How do the drawings relate to the text?
- Do word placements and font variations impact meaning?

**STEP 3**

#### Content Analysis

- Summarize the message of the comic/cartoon.
- Why is a comic/cartoon appropriate for this message?

**STEP 4**

#### Critical Analysis

- Who created the comic/cartoon, for what purpose, and for what audience? What bias is shown?
- What rhetorical strategies are used to persuade (logical argument, emotional argument, ethical appeals)? In what ways are the rhetorical strategies used? Why?
- How does this connect to what you have read?



# MODULE 13

## Reading Visuals

### Useful Resources

Bleed, R. (2005). Visual literacy in higher education.  
<http://net.educause.edu/ir/library/pdf/ELI4001.pdf>

Bleed's article argues that visual literacy will soon become as important as textual literacy for learning and that instructors and programs must consider effective ways to integrate visual learning into curricula. Assessment, course development, and teacher education are a few of the subject areas covered. (Instructors)

Memory principles: Quick reference guide for brain compatible learning principles.  
<http://frank.mtsu.edu/~studskl/mem.html>

The information on this page, adapted from *Practicing college learning strategies* (3rd ed.) by Dr. Carolyn Hopper (2003), links brain research to study skills in an interesting way. The designers include ten memory principles that are divided into four categories: making an effort to remember, controlling the amount and form, strengthening neural connections, and allowing time to solidify pathways. Each subtopic has a link that leads to sets of ideas for improving memory and a link to brain research that explains how and why the techniques work. (Students)

Picture this: Visual literacy activities.  
<http://museumca.org/picturethis/visual.html>

This website provides a host activities to promote visual literacy. Through the use of historical photographs, students can look and tell, write, and make. The website suggests that students can: "learn to appreciate and analyze photographs, increase their visual literacy, develop and improve observational skills, and increase critical thinking skills." (Students)

Rakes, G. (1999). Teaching visual literacy in a multimedia age. *Tech Trends* 43 (4), 14-18.

This article argues that students often need help reading and understanding visuals, but that it receives little attention. Although this article is more than ten years old, this stands true today. Rakes provides background material, argues for the importance of teaching visual literacy, and includes suggestions for incorporating visuals into courses. (Instructors)

Working with charts, graphs, and tables.  
<http://openlearn.open.ac.uk/mod/resource/view.php?id=200279>

This section on charts, graphs, and tables from Open Learn is an online textbook chapter that helps students read and interpret graphics. It addresses their concerns, helps them make sense of data presented in a variety of formats, presents activities to assess their understanding, and provides a glossary. (Students)

Visual literacy: An e-learning tutorial on visualization for communication, engineering, and business.  
<http://www.visual-literacy.org/>

As stated on the homepage, "This e-learning site focuses on a critical, but often neglected skill for business, communication, and engineering students, namely visual literacy, or the ability to evaluate, apply, or create conceptual visual representations." Although this website features a series of online courses requiring a password, there are many useful resources including videos and an extensive bibliography as well as two demo tutorials. (Instructors, students)

**\*\*Please bear in mind that documents on the web might change location or go away. If a link provided here does not work, try searching the key terms in a search engine or locating more of your own resources.**