CONCEPT LEARNING: Examples & Non-Examples
Compare & Contrast

Procedural Knowledge Level
A concept is defined by Lynn Erickson as "a mental construct that is timeless, universal and abstract." Concepts, such as intertextuality, ecosystems, prime numbers, and culture, are rich ideas to which facts and examples are attached.

Using examples and non-examples as well as comparison and contrast as students are learning new concepts helps to clarify complex ideas, to expose relationships and patterns among even dissimilar concepts, and to organize new information into meaningful constructs.

Not all topics are concepts, however, and the two terms shouldn’t be confused. Neither are causes considered concepts.
Examples & Non-Examples

Mission

To use examples and non-examples to enhance student understanding of the concepts.

Instructional Strategies

First Impressions

- How can you use examples and non-examples in a meaningful way to guide student learning?
1. Identify how to teach concepts by using examples and non-examples.

2. Determine when it is appropriate to use the strategy.

3. Plan a lesson that uses examples and non-examples.

4. Examine a video that uses a Frayer Map to illustrate use of examples and non-examples in the classroom.

Examples and non-examples can be featured anywhere in a unit or lesson, but are most often used when introducing new concepts. Using examples helps students to generalize concepts and see relationships among similar ideas. Non-examples, on the other hand, teach students to differentiate among ideas and concepts so that they do not over-generalize.
How do you implement the strategy?

Step 1. Name or label the concept to be discussed.

Step 2. Provide a definition of the concept that is specific enough to differentiate it from other concepts.

Step 3. Identify and discuss key attributes that distinguish the concept in question from other similar concepts.

Step 4. Give examples that fit the definition and illustrate these essential attributes.

Step 5. Identify and discuss non-examples so that students can see and practice differentiation.
The Frayer model is a graphic organizer used to analyze a concept by:
- Name or Label
- Definition
- Examples
- Essential Attributes
- Non-Essential Attributes
- Non-Examples

In this video, the teacher uses examples and non-examples in conjunction with the Frayer model to teach her students about propaganda used during the Holocaust. As you watch, consider what you have learned about using examples and non-examples.
Take a Look

Challenge: Video Analysis

Analyze how the teacher in this video uses examples and non-examples to teach the lesson’s concept to students.

Plan your lesson

Using a blank template of the infographic on the previous page, plan out your own lesson using examples and non-examples.
Hot Links

Discipline References of Examples and Non-examples

- Math: [Polynomial examples and nonexamples](#)
- History: [de facto vs. de jure segregation](#)
- English: [Examples: Paraphrasing Plagiarism: How to Recognize Plagiarism](#)
- Science: [Using Visual Examples to Teach Boyle's Law](#)
- Business: [Business communications](#)
- General: [Frayer Model | Classroom Strategies](#)
Section 3

Think About

Review

Examples and non-examples...

- support concept mastery.
- develops skills needed for problem-solving.
- to help students transfer previously learned knowledge to new concepts.
- promote autonomy in concept acquisition.
Section 4
Resources

Retrieved from http://www.youtube.com/watch?v=7Y2x-3lm9IU.
Compare & Contrast

Mission
To aid students in developing critical thinking skills and provide a means to organize new information.

First Impressions

- How can you design and use the compare & contrast instructional strategy in a meaningful way to guide student learning?
Identifying patterns is a natural process for humans, and compare and contrast capitalizes on this intrinsic ability in order to aid learning. The strategy can be used at any point in a lesson to help students gain a deeper understanding of the concepts being explored.
Section 2

What's This?

Using Compare and Contrast

Comparing and Contrasting being explained by the UNC Writing Center
How do you implement the strategy?

**Step 1.** Select concepts to compare and contrast.

**Step 2.** Determine what format students will use to compare and contrast the concepts, e.g., using a graphic organizer.

**Step 3.** Provide students time to brainstorm similarities and differences between concepts.

**Step 4.** Ask students to determine possible relationships between concepts based on findings.

**Step 5.** Check for comprehension.

How do you use compare and contrast effectively?

The compare and contrast technique works best when there is a close relationship between the concepts being discussed.

For example, you might ask students to compare and contrast...

- the protagonist and antagonist of a story or two poems, movies, or plays in language arts.
- photosynthesis and digestion or two celestial bodies in science.
- two historical figures or two houses of Congress in social studies.
- two geometric shapes or real and rational numbers in math.
Hot Links

- **Instructional Strategies Online: Compare & Contrast** More information about the compare and contrast strategy with links to graphic organizers.

- **Thoughtful Classroom: Compare & Contrast Sample Lessons** Sample lessons from prominent author Harvey Silver.

- **Compare and Contrast Ideas on Pinterest** There are more where this came from. Pinterest is quickly becoming a storehouse for educational strategies.

- **Using compare and contrast to teach the Common Core** A collection of strategies for sixth through eighth grade classrooms with blank templates and primary resources in appendix.
Examine this site where one high school teacher demonstrates how she incorporates compare and contrast while covering the topic of essays. Notice how she introduces the topic by specifically stating the purpose of the activity.

She models the technique while emphasizing the academic language used for the instructional strategy, and she includes guided practice time within the lesson.

After reviewing this lesson, take a moment to think about the reasons she provided for choosing compare/contrast as an instructional strategy. Consider how this approach could understanding within your content area.
1. How could you use the compare and contrast strategy with this visual?

2. What format would you use with this visual (e.g., Venn diagram, chart, essay) to convey the most information to your students and check for their understanding?

3. How might your students’ work be enhanced by using the compare and contrast strategy with this visual?
How could you use these images to encourage your students to compare and contrast?

Review

Compare and contrast...

- reinforces concepts in students’ memory.
- deepens students’ understanding of concepts.
- sharpens students’ analytical skills.
- clarifies abstract concepts.
Section 4
Resources


Career & Technical Education

Instructional Strategies

Subject Specific
First Impression

Within the declarative module you were introduced to two types of concept learning; examples and non-examples, and compare and contrast. The use of examples and non-examples in teacher led instruction is the process by which the student distinguishes examples from non-examples (Jerome Bruner, 1967) on particular topics or content. Examples and non-examples let students transfer knowledge from one context to another (Weimer, 2009). The focus of this lesson is on the compare and contrast instructional strategy. Compare and contrast is a technique used with students to address similarities and differences on a particular topic. Comparison is a technique in which a student states, or writes the similarities between subjects. Contrast is a technique in which a student notes, states, or writes the dissimilarities between subjects (Cengage, 2013). The strategy can be used to help students define ideas by distinguishing between varying types of ideas that contrast one another. Commonly used with the strategy is the use of T-charts, graphic organizers or other digital organizers.

Mission

The mission for this chapter is to explore, read, review, watch video, and reflect on how the teacher integrates the instructional strategy, compare and contrast. Additionally students should be able to transfer skills and content knowledge gained from the chapter content and assignments to their internship.
Exploration

Using Browzine or ECU OneSearch please find and read an article dealing with one of the following topics:

- Advance Organizers
- Digital Organizers
- T-Charts, KWL Chart, and Cause & Effect

Reading this article will prepare you for viewing the instructional strategy that deals with concept learning.
CTE Applications

Now that you have completed the exploration portion of the module we will examine how the use of compare and contrast might look in in CTE. The CTE Applications section will provide the context for the lesson, lesson agenda, the individual video segments you will watch, the expanded lesson plan, and a student work sample. Following the CTE Applications section, you will be required to complete reflection activities.

Context for Learning

Teacher: Mr. Kurt Garner

Course: Computer Engineering 2 (Honors)

Computer Engineering 2 is an Honors level course and one of the most advanced course we teach at this high school. The curriculum is tied into a Industry recognized certification from Comptia called the A+ certification (A two part exam).

Modifications: This class has no students with special needs.
D H Conley High School Information

School location:
2006 WORTHINGTON RD
GREENVILLE, NC 27858
(252) 756-3440

School district:
PITT COUNTY SCHOOLS

This high school has a total enrollment of 1413 students with approximately 84 full-time teachers. It has a student to teacher ratio of about 17 students per teacher. The average student-teacher ratio for Pitt County is 15 to 1.

Enrollment by Grade Level

- 9th Grade Students: 448
- 10th Grade Students: 361
- 11th Grade Students: 328
- 12th Grade Students: 276

Total students: 1,413
Total Full-time teachers: 83.9
Student / Teacher Ratio: 17:1

Students eligible for free lunch: 317 (22%)
Students eligible for reduced lunch: 48 (3%)
A lesson agenda is a brief synopsis of a lesson plan that may be submitted to administration.

<table>
<thead>
<tr>
<th>DATE: 02/18</th>
<th>COMPUTER ENGINEERING</th>
</tr>
</thead>
<tbody>
<tr>
<td>Objectives</td>
<td>3.07 Compare and contrast various connection interfaces and explain their purpose.</td>
</tr>
<tr>
<td>Materials</td>
<td>TestOut, Online Resources</td>
</tr>
<tr>
<td>Activities/Agenda</td>
<td>Students will identify various peripheral connections. Students will continue with research on their designated topic of Firewire or USB through the creation of a T-Chart. Students will have a debate to discuss the differences between the two. After the debate students will complete a lab to test their understanding of System Tools that are often utilized to troubleshoot these types of devices.</td>
</tr>
<tr>
<td>Evaluation</td>
<td>Review USB and Firewire Facts</td>
</tr>
</tbody>
</table>
Video Segment One

As you prepare to watch the video on conceptual learning think about the instructional strategy compare and contrast and how the teacher is providing instruction and direction for students to set the stage for the lesson.

Think about how the teacher prepares the lesson taking into account students prior academic learning and personal/cultural/community background to support learning.

Now watch the video.
Video Segment Two

After viewing the first video, if you are unsure of the conceptual learning strategy please click on the [link](#).

Prior to watching the second video segment on conceptual learning please think about what your response would be to the following questions.

- What do you think will happen in the second video segment based on the instruction provided within the first video segment?
- What type of instructional strategy will the teacher employ?
- Do you think instruction will be teacher centered or student centered?
- Do you think students will be engaged with the lesson?

Now watch the second video.
This is an example of an expanded lesson plan that accompanies the video that you just reviewed. Teacher candidates at ECU are expected to create a similarly constructed expanded lesson plan for the edTPA.

Lesson By: Kurt Garner

Lesson based on the research: Revised Bloom’s Taxonomy present in A Taxonomy for Learning, Teaching and Assessing; A Revision of Bloom’s Taxonomy of Education Objectives

Lesson Title: USB vs. Firewire

Grade level for the lesson: 11th-12th grade

Essential Standards Curriculum (Subject) Area(s): Computer Engineering II

Essential Standard Statement and Number: II22 4.00 Mobile Devices and Computer Troubleshooting

Essential Standard Clarifying Objective Statement and Number:

4.00 Applied procedures used to troubleshoot computers.

Baseline Data: Computer Engineering 2 is an Honors level course and one of the most advanced course we teach at this high school. The curriculum is tied into an industry recognized certification from Comptia called the A+ certification (two part exam). This class has no students with special needs.

Materials: TestOut Online Software, Worksheet, Computer LCD projector, LAN school Classroom management software, and computer parts illustrating both firewire and USB devices.
Lesson Objective: After the lesson, students will be able to:

1. Identify USB and Firewire devices, ports and cables.

2. Understand the differences between the two.

Assessment Strategy: Accurate facts regarding their topic and successful defense of their topic in the debate will assess their knowledge of this topic.

Focus/Review: Students will identify Firewire and USB ports as a review. Students will continue their study of Firewire and USB from previous days lesson on peripheral devices.

Statement of Objective: Today, we are going to research Firewire and USB devices and debate which one would be best used by consumers.

Academic Language:

Firewire: a technology that allows high-speed communication and data exchange between a computer and a peripheral or between two computers.

USB: a form of peripheral connection, Universal Serial Bus

Device Manager: The Device Manager is a Control Panel applet in Microsoft Windows operating systems. It allows users to view and control the hardware attached to the computer. When a piece of hardware is not working, the offending hardware is highlighted for the user to deal with.

Peripheral Device: Any device added to a computer through an external or internal port.

Teacher Input:

Teacher will facilitate debate amongst students by asking probing questions to keep discussion on target to cover all important points students will be assessed on and to include all students in the debate.
Briefly review topics from the previous day regarding peripheral devices using probing questions:

1. What other options are available for peripheral devices: PS2, Serial, Parallel, PCMCIA, PCI Express Cards
2. You have been given a device or cable identify the port or connection.
3. What types of devices can we connect using peripheral ports/connectors?
4. Why do we need USB and Firewire Ports?
5. What happens if you don’t have one of these ports?
6. How can you add a port?

Guided Practice: Identify USB/Firewire devices/cables/ports

Independent Practice: Monitor students as they complete research and conduct a debate amongst themselves. Students will complete T-Chart comparing their research. Points of debate:

1. History
2. Number of devices
3. Types of devices
4. Speeds
5. Types
6. Connectors
7. Mass adoption

After the debate students will continue with the lab from the previous day. This lab will continue their use of the Device Manager.
Closure: Review the various peripheral devices with students. Inquire about any advances made in this technology that may be replacing these peripheral connections (Thunderbolt).

Modifications if any: None

Works Cited


Student Sample
**Reflection 1 of 1**

Click the icon to open an email and respond to the following question regarding concept learning. Explain how the instructor went beyond just recall to include higher order questions to allow students to analyze, synthesize, and use critical thinking to demonstrate understanding of the subject matter? Please create two higher order questions of your own that could be applied to this lesson.

**Reflection 2 of 2**

Now that you have completed the CTE Procedural Concept Learning Module click the link to open TaskStream in your browser. Login to respond to the reflection questions.
According to Melinda Sota (2013), “Understanding a concept is not the same as recalling a definition.” By exposing students to both examples and non-examples teachers can provide students with the critical thinking skills used to compare and contrast concepts, deepening a student’s ability to make connections between the characteristics that do or do not apply. Examples would include topics similar to the content that is being taught whereas non-examples (also called instances) are topics that are dissimilar to the content being taught. Examples and nonexamples let students transfer information from one person to another and from one context to another (Weimer, 2009).
Exploration

Using the link below deepen your knowledge on the use of The Frayer Model for assisting students to identify unfamiliar concepts and vocabulary. http://oame.on.ca/main/files/thinklit/FrayerModel.pdf

Reading this article will prepare you for viewing the instructional strategy that deals with Examples and NonExamples.
CTE Applications

Now that you have completed the exploration portion of the module we will examine how example and nonexample might look in CTE. The CTE Applications section will provide the context for the lesson, lesson agenda, the individual video segments you will watch, the expanded lesson plan, and a student work sample. Following the CTE Applications section, you will be required to complete reflection activities.

Context for Learning

Teacher: Mrs. Ashleigh Phillips-Wagoner

Course: Microsoft IT Academy

The course curriculum focuses on Microsoft Word and PowerPoint and includes a Certiport certification exam for each program. Students are expected, but not required, to pass the certification exam. The semester culminates with an end of course CTE post-assessment.

This is an introductory class composed of 13 students: 1 senior, 6 sophomores and 6 freshmen.

Modifications: One student has an IEP for extended time and read-aloud assessments. One student receives services through our ELL program.
Junius H Rose High School Information

School location:
600 WEST ARLINGTON BLVD
GREENVILLE, NC 27834
(252) 321-3640

School district:
PITT COUNTY SCHOOLS

This high school has a total enrollment of 1670 students with approximately 103 full-time teachers. It has a student to teacher ratio of about 16 students per teacher. The average student-teacher ratio for Pitt County is 15 to 1.

Enrollment by Grade Level

- 9th Grade Students: 491
- 10th Grade Students: 424
- 11th Grade Students: 405
- 12th Grade Students: 350

Total students: 1,670
Total Full-time teachers: 103
Student / Teacher Ratio: 16:1

Students eligible for free lunch: 601 (36%)
Students eligible for reduced lunch: 55 (3%)
**Lesson Agenda**

A lesson agenda is a brief synopsis of a lesson plan that may be submitted to administration.

| DATE: 04/03 | **MSITA**  
| * REVIEW SMART BLOCK EXPECTATIONS* |
| --- | --- |
| **Performance Indicator** | • Manage the PowerPoint Environment  
• Understand the elements of successful and efficient presentations |
| **Learning Objectives** | Students will be able to:  
• Explain what an effective presentation contains  
• List various elements that are inappropriate for professional presentations.  
• Seek our resources for creating effective presentations. |
| **Activities** | 1. **Bell Ringer.** Students can choose to either make a list of the Do’s and Don’t’s of PPT or they can draw an example of a good or bad PPT slide.  
2. Together, we will look at various resources of lists and videos that explain what good and bad PowerPoint presentations look like.  
3. Students will begin on their first assigned presentation. Students can chose to work independently or with a partner.  
**Homework:** Students will complete the PPT Intro worksheet |
Video Segment One

As you prepare to watch video segment one on examples and nonexamples think about how the teacher is providing instruction and direction for students to set the stage for the lesson.

Think about how the teacher prepares the lesson taking into account student’s prior academic learning and personal/cultural/community background to support learning.

Did the teacher use learning objectives and examples to lead students to make clear and consistent connections to the subject matter?

Now watch the video.
Video Segment Two

After viewing the first video if you are unsure of the example and non-example strategy please click on the link.

Prior to watching the second video segment on examples and non-examples please think about what your response would be to the following questions.

- What do you think will happen in the second video segment based on the instruction provided within the first video segment?
- What type of instructional strategy does the teacher employ?
- Do you think instruction will be teacher centered or student centered?
- Do you think students will be engaged with the lesson?

Now watch the second video.
Extended Lesson Plan

This is an example of an expanded lesson plan that accompanies the video that you just reviewed. Teacher candidates at ECU are expected to create a similarly constructed expanded lesson plan for the edTPA.

Lesson By: Ashleigh P. Wagoner

Date: Thursday April 3, 2014, 1st period

Lesson Title: Do’s and Don’ts of PPT

Grade level for the lesson: 9th-12th grade

Essential Standards Curriculum (Subject) Area(s): Understand presentation software application skills using Microsoft PowerPoint.

Essential Standard Statement and Number: 2.01 Understand and manager the PowerPoint Environment

Essential Standard Clarifying Objective Statement and Number: 2.01 Understand and manager the PowerPoint Environment

Baseline Data: This is an introductory computer-based class. Students will learn Microsoft Word and PowerPoint 2010. Ideally, students will move on to take Microsoft Excel & Access.

Materials: Teacher laptop, student workstations, index cards, LCD Projector

Lesson Objective: After the lesson, students will be able to:

• Explain what an effective presentation does and does not contain
• List various elements that are in appropriate for professional presentations

Assessment Strategy: Students will create a PowerPoint Introduction Assignment. This presentation should meet the guidelines for an effective and professional looking presentation. A rubric will be provided.
Focus/Review: Bell ringer: Students will can choose to either draw an example of a good or bad PowerPoint or they can create a list with 3 Do’s and 3 Don’ts of PPT.

Statement of Objective: Today we will learn the differences between effective and ineffective PowerPoint presentations.

Teacher Input: Teacher will begin by asking students to write down what they believe makes a presentation good or bad. Teacher will then ask to students to share their thoughts. As the class is sharing their thoughts, the teacher will compile a list. Teacher will discuss each student’s contribution to the discussion.

Teacher will access the PC World Website (link to http://www.pcworld.idg.com.au/slideshow/366369/world_worst_powerpoint_presentations/?image=2) and go through the provided examples of PowerPoint examples. Students will discuss what aspects make the presentations effective or ineffective.

Guided Practice: None.

Independent Practice: Students will begin the PowerPoint Introduction Assignment. Students may choose to work independently (creating the presentation about themselves) or with a partner (creating the presentation about their partner).

*Typically, this assignment is done earlier in the semester, but for this particular semester, it was postponed until later. The course is in field test status and therefore the teacher chose to follow the blueprint directly*

Closure:

Review what is required to make a presentation effective, discuss the elements of a professional presentation and discuss what should be included in their first PowerPoint assignment.

Modifications if any: None.

Works Cited:


BM10 Microsoft Word and PowerPoint, North Carolina Department of Public Instruction, Adapted CTE Course Blueprint of Essential Standards, Summer 2013.
Student Sample

Bad
1 low res. pics
2 unorganized
3 yellow colors

good
1 music
2 Images
3 color
Reflection 1 of 1

Sketch a T-chart that outlines the advantages and disadvantages of using examples and nonexamples to deepen student learning. Share your sketch with your instructor.

Reflection 2 of 2

Now that you have completed the CTE Procedural Concept Learning Module click the link to open TaskStream in your browser. Login to respond to the reflection questions.
Resources

BM10 Microsoft Word and PowerPoint, North Carolina Department of Public Instruction, Adapted CTE Course Blueprint of Essential Standards, Summer 2013.


Public Schools K12:  http://publicschools.k12.com/high-schools/nc/pitt-county/370001201495.html

Public Schools K12:  http://publicschools.k12.com/high-schools/nc/pitt-county/370001202142.html


### Credits

Development of the ISLES modules was supported financially by the Teacher Quality Partnership grant program of the U.S. Department of Education, Office of Innovation and Improvement.

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**Instructional Strategies**

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**89.5**

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