Visual Analogies for Enhancing the Scholarship of Teaching and Learning

Susan Spezzini
University of Alabama at Birmingham, spezzini@uab.edu

Follow this and additional works at: https://digitalcommons.georgiasouthern.edu/sotlcommons

Part of the Curriculum and Instruction Commons, Educational Assessment, Evaluation, and Research Commons, Educational Methods Commons, Higher Education Commons, and the Social and Philosophical Foundations of Education Commons

Recommended Citation
Spezzini, Susan, "Visual Analogies for Enhancing the Scholarship of Teaching and Learning" (2009). SoTL Commons Conference. 51.
https://digitalcommons.georgiasouthern.edu/sotlcommons/SoTL/2009/51

This presentation (open access) is brought to you for free and open access by the Conferences & Events at Digital Commons@Georgia Southern. It has been accepted for inclusion in SoTL Commons Conference by an authorized administrator of Digital Commons@Georgia Southern. For more information, please contact digitalcommons@georgiasouthern.edu.
Visual Analogies for Enhancing the Scholarship of Teaching and Learning

Susan Spezzini, Ph.D.
University of Alabama at Birmingham
spezzini@uab.edu

2nd SoTL Commons: March 12, 2009
Today’s Presentation

Objectives:

a) Validate the use of visual analogies in college courses
b) Encourage participants to incorporate visual analogies within their own SoTL context.

Learning Outcomes:

1. Provide reasons for using common symbols, familiar images, and everyday language as tools when teaching new ideas and technical terminology;
2. Explain how to incorporate concrete symbols and visual images when teaching abstract, and often complex, concepts; and,
3. Identify visual analogies to use when teaching difficult concepts and/or complex ideas.
Overview

=> Brief Summary of Research

=> Development of *Fun-Analogy Train*

=> Pilot Study on Learner Outcomes

=> Tips for Creating Analogies
Studies about Visual Analogies

College students were helped in overcoming writing blocks (Feild & Graves, 1981).

Learning improved significantly --- when designed properly, used with text, and matched with high structural similarity between base domain/familiar (analog) and target domain (Issing, 1990).

Students were aided in understanding math & science – through new representations on computers (Perkins & Unger, 1994).

Greatest gains were experienced by low achievers (Lin, Shiau, & Lawrenz, 1996).
Other Studies

Visual Analogies were most useful in lieu of non-existent visual aids (Siqueira, Remiao & Azevedo, 1988).

A beginning chemistry teacher’s instructional practices changed before and after web treatment with visual analogies (Lin & Chiu, 2000).

Science knowledge and attitudes of pre-service teachers improved, especially with elaborate analogies -- text for explaining similarities (Paris & Glynn, 2004).

Benefits from using Visual Analogies
Harvey Brightman (2006), UAB Master Teacher seminar

Concrete symbols
- help both instructors and students
- bridge gap between the known and unknown

Instructors are able to …
- communicate in everyday language
- explain complexity simply
- improve teaching (especially from student perspective)

Students are able to …
- use familiar image to better understand new idea.
- make effective connections to critical thinking, meaningful-integrated learning, increased retention, and long-term learning
The logo for the conference is the **chambered nautilus shell**. The self-propelling nautilus **grows** chamber by chamber, each one larger than the previous one, in an unfolding **spiral** as it develops steadily over time. The shell's elegant trajectory **opens outward** and its dynamic design is like the persevering, quiet movement of SoTL through the currents of teaching and learning. The SoTL Commons Conference aspires to be a **growing, spiraling**, lively catalyst for the international momentum of SoTL, encouraging the **opening up and opening out** of teaching and how students best learn into public conversations and collaborations. The **spiraling** pattern of the nautilus is found throughout **nature**. The conference is simply, but importantly, one swirl in the overall SoTL **spiraling** transformation of the **nature** of teaching and academic culture.
The bamboo plant is the symbol for *IJ-SoTL*. It grows around the world, it grows rapidly, its sections are as steps in the process of growth and awareness, and it always has green shoots and leaves as signs of its vitality. Bamboo has been a symbol for longevity, strength and grace. It bends without breaking while having a tensile strength similar to steel. It has had a great reputation in both ancient and modern civilizations for its effective uses and for taking root in all sorts of climates. Such is SoTL and such is the goal for *IJ-SoTL*.

An example of a visual analogy between a base domain (object = bamboo) and its target domain (idea = IJ-SoTL): [http://academics.georgiasouthern.edu/ijsotl/index.htm](http://academics.georgiasouthern.edu/ijsotl/index.htm)
Development of the Train Analogy

Spring 2006: Taught EESL 625 for 4th time (better but … )
Nov. 2006: Registered for Master Teacher Seminar
Dec. 2006: Sketched idea during seminar

Jan. 2007: Created hand-drawn visual analogies
Jan/Feb 2007: Used hand-drawn analogies in class
April 2007: Shared analogies with mentor
Dec. 2007: Received feedback from a colleague

Jan/Feb 2008: Converted analogies to Power Point
Spring 2008: Used power point analogies in class
Sum. 2008: Designed 14 ppt sets & inserted analogies
Fall 2008: Used ppt sets in class and then adjusted

Spring 2009: Initiated research study
In Search of a Solution for:
EESL 625 Discourse Analysis for ESL Teachers

– Saturday sessions (8:00 am – 5:00 pm)
– Distance students (250 miles) & Large classes (40+)
– High level of anxiety among students

*Is this course going to be hair raising or what?*

As I look at my notes, I wonder if I will survive this.

*I hope I am not in over my head. It scared me half to death.*

*I was so lost. I felt like a foreigner in a world where I didn’t belong.*

*I consumed most of a bottle of wine before retiring for the evening.*

*My first reaction was that I had died and been sent to torment.*

*My initial reaction to your course—I had an adrenalin rush.*

*It reminds me of a chemistry class with all those formulas.*
Birth of an Analogy

UAB Master Teacher Seminar 12/17/06 (Harvey Brightman)

• Identify your most difficult course (or concept)
• Brainstorm association with an everyday object

My most difficult course = EESL 625 *Discourse Analysis*

• Difficult concepts = linguistics, phonology (sound system)
• Most challenging of the MAE/ESL courses =
  – Describe sound production in the vocal tract
    larynx, vocal cords, cavities (pharyngeal, nasal, oral),
    tongue, lips, teeth, alveolar ridge, palate, velum, uvula;
  – Draw vocal tract structures for producing each sound;
  – Recognize sounds (phonemes) and their variations;
  – Match sounds with International Phonetic Alphabet;
  – Identify pronunciation difficulties of English language
    learners (ELLs); and
  – Help ELLs improve their pronunciation.
Notes from my Master Teacher Seminar Binder

- I had jotted down major concepts from EESL 625.

- I had started sketching a train.

- I had selected one major concept.

- I took the idea home.

________________________________________________________________________

- I found an old train analogy that I had created for teaching composition (my first conference presentation—1987).
First Steps of the Train Analogy
December 18, 2006 - January 5, 2007

• Developed the idea
  – Brainstormed: Thought about it repeatedly
  – Identified missing pieces
    • Driving to California
    • Watching trains go by

• Put the idea on paper
  – Looked for an artist (I am not an artist!)
  – Sketched it the night before the first class
  – Started out with 8 train cars on one page
  – Ended up with a separate page per train car
Started with simple shapes for representing different types of consonants: Identified structural similarity between base domain (object = train) and target domain (new idea = types of consonants)
Continued with the more complicated designs
Finished with the engine & coal car
Used Train Analogy in Class

Saturday, January 6, 2007 (8:00 – 4:45)
- Showed each drawing as the corresponding concept was introduced
  – Posted each drawing on the classroom wall
  – Completed a train of 8 cars by end of day

Jan. 20, Feb. 10, Mar. 3, Mar. 10, and April 21
- Displayed drawings throughout each class
- Displayed even during quizzes and midterm
- Emailed explanation of similarities between train cars and types of consonants
Emailed an Explanation of Similarities

Tracks = **Context** (place, topic, speech partners, etc.)
Conductor = **Speaker** (personal characteristics: gender, age, SES, etc.)

*Smoke* = **Suprasegmental Features:**
- stress, pitch, length, intonation, juncture, linking, rhythm
  These permeate the utterance (train) & unite the segmental features.

*Cars* = **Segmental Features:** **Vowels & Consonants** (one after the other)

Coal Car = **VOWELS** (energy): Each syllable (and word) must have a vowel.

Other Cars = **CONSONANTS** (Different cars = Manner of Articulation)
- Box Car = **STOPS** (total obstruction of air flow)
- Cage/Racks = **FRICATIVES** (partial obstruction with noisy air flow)
- Combo-Car = **AFFRICATES** (starts as a stop and ends as a fricative)
- Grain Car = **NASALS** (funny shape with different place for releasing air)
- Tanker = **LIQUIDS** (association with a liquid product)
- Flatbed = **SEMI-CONSONANTS** (just partial structure of the others)
April 19, 2007 Course Evaluation: Received feedback from students

April 28 Follow-up with Mentor (Harvey Brightman): Shared feedback

Open-ended questions about train analogy with respect to learning the content and “surviving” the 8-hour class sessions

- 29 helpful, useful, great, awesome, excellent (“loved it”)
- 3 fun, interesting, cute
- 2 seemed somewhat indifferent
- 2 it didn’t really help

It really helps to understand the overall picture and how each “car” depends on the other.

I am a visual learner and the train analogy was very helpful in learning how segmentals and suprasegmentals work together in speech.

I prefer to come up with my own analogies. It’s much more meaningful to me that way.

The visuals made it easier to commit to memory. // It really helped my understanding.

An appropriate analogy— and I know how hard they are to come by.

Cute analogy—helped with initially grasping big picture when so much was new and overwhelming.

One of my favorites! It helped to solidify the concepts. // Helped in recall for the quizzes.

Once explained, it made a lot of sense and was a great resource.

The train helped the difficult information to be more understanding.

It was a little hard to follow at first, but after the initial discussion, it was helpful.

This was great! I referred to it often! // It helped me learn the concepts very quickly!
Another Stage of the Train Analogy  
December 2007

Chance encounter with a colleague (Spanish Dept.)
– Shared his experience in Master Teacher seminar
– Impressed with Dr. Brightman’s comments about the train
– Sent me a copy of train analogy from updated binder

Page 9 from the Master Teacher Program
– PowerPoint of Prof. Spezzini’s “Big picture diagram”
– 4 types of train cars from a child’s train book
Professor Spezzini’s big picture diagram for discourse analysis course in ESL

Vowels  Fricatives  Liquids

➤ Catalyst for finding a different way to do this analogy
Growth of Train Analogy

Saturday, January 12, 2008  (first class session for EESL 625)

– Used hand-drawn train from previous year
  • Not nearly as effective as in January 2007
  • Enormous classroom: 50 students (couldn’t see)
– Realized need to make analogy more effective

Saturday, January 19th  (professional conference)

– Impressed with a colleague’s PowerPoint
  ➔ Transferred analogies onto PowerPoint
  ➔ Added explanations and other features
Maturing of Train Analogy

Saturday, January 26, 2008  (2nd class session for EESL 625)
– Introduced new concepts with PowerPoint analogies
– Continued expanding the train analogy
– Shared PowerPoint with colleagues & former students

Saturday, February 9th  (third class session for EESL 625)
– “The Fun-Analogy Train: An Introduction to Phonology”
– Freight cars :: Manner of Articulation (types of consonants)

NEW FEATURES
Accompanied by text for explaining similarities.
Projected on a screen for showing to large classes.
Posted on Blackboard for online delivery.
A Freight Car is like Manner of Articulation ::

<table>
<thead>
<tr>
<th>Freight Car</th>
<th>Manner of Articulation</th>
<th>Consonant Type</th>
<th>Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>BOXCAR</td>
<td>Stop Consonants</td>
<td>p b t d k g</td>
<td></td>
</tr>
<tr>
<td>CATTLE CAR</td>
<td>Fricative Consonants</td>
<td>f v θ ð š ž h</td>
<td></td>
</tr>
<tr>
<td>CIRCUS CAR</td>
<td>Affricate Consonants</td>
<td>č Џ</td>
<td></td>
</tr>
<tr>
<td>GRAIN CAR</td>
<td>Nasal Consonants</td>
<td>m n ŋ</td>
<td></td>
</tr>
<tr>
<td>TANKER</td>
<td>Liquid Consonants</td>
<td>l r</td>
<td></td>
</tr>
<tr>
<td>FLATBED</td>
<td>Semi-Consonants (Glides)</td>
<td>y w</td>
<td></td>
</tr>
</tbody>
</table>

In English:
Displaying the Visual Analogies

Display each analogy on a separate slide.

The base domain is a common object (e.g., train car).
  – Select an easily recognizable well-known object (train).
  – Place the term (boxcar) for the already-known object on the left.
  – Draw a picture of this common object to symbolize the new concept.
    • Use lines and shapes from the drawing tools on Power Point.
    • Select items from Clip Art but for different functions:
      – Lamps viewed from above are the train wheels; and
      – Four-sided arrows are the hitching mechanisms.
        (The fourth arrow is “hidden” behind a black strip.)

The target domain is the new concept (e.g., stop consonants).
  – Place the term for the unknown concept (stop consonants) on the right.
  – Insert drawing of common object under the term for the new concept.
  – Include information about this new concept on the picture. Example:
    /p/ /b/ /t/ /d/ /k/ /g/
    pot bot tot dot cot got
    ape Abe ate aid ache egg
STOP CONSONANTS
(in the English Language)

/p/  /b/  /t/  /d/  /k/  /g/

pot  ape
bot  Abe
tot  ate
dot  aid
cot  ache
got  egg
Identifying the Visual Analogies

Write analogy statements that …

Start with a common object

A *Common Object* is like a __________

End with the new concept

A *Common Object* is like a *New Concept*

Include the symbol ::

A *Common Object* is like a New Concept ::

Example:

* A *Boxcar is like a Stop Consonant* ::
A Boxcar is like a Stop Consonant ::
Explaining the Visual Analogies

Place bulleted explanations under the picture and its analogy statement.

The first bullet describes the common object (base domain):
• *In a boxcar, the door creates an obstruction with total closure. The door fully blocks the air from flowing from the inside to the outside (and vice versa). When the door is opened, the air is released and flows freely.*

The second bullet describes the new concept (target domain):
• *In a stop consonant, the articulator (lower lip or tongue) creates an obstruction with total closure. The articulator fully blocks the air stream (which originated in the lungs) from flowing from the inside (mouth, i.e., oral cavity) to the outside. When the articulator is lowered, the air stream is released and flows freely.*
A Boxcar is like a Stop Consonant ::

- In a boxcar, the door creates an obstruction with total closure. The door fully blocks the air from flowing from the inside to the outside (and vice versa). When the door is opened, the air is released and flows freely.

- In a stop consonant, the articulator (lower lip or tongue) creates an obstruction with total closure. The articulator fully blocks the air stream (which originated in the lungs) from flowing from the inside (mouth, i.e., oral cavity) to the outside. When the articulator is lowered, the air stream is released and flows freely.
Maintaining Parallel Structure

Use parallel structures in the bulleted explanations:
Use the same number of sentences; and
Use the same sentence structure in corresponding pairs of sentences.

<table>
<thead>
<tr>
<th>Common Object: Boxcar</th>
<th>New Concept: Stop Consonant</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1st Sentence</strong></td>
<td></td>
</tr>
<tr>
<td>In a boxcar, the door creates an obstruction with total closure.</td>
<td>In a stop consonant, the articulator (lower lip or tongue) creates an obstruction with total closure.</td>
</tr>
<tr>
<td><strong>2nd Sentence</strong></td>
<td></td>
</tr>
<tr>
<td>The door fully blocks the air from flowing from the inside to the outside (and vice versa).</td>
<td>The articulator fully blocks the air stream (which originated in the lungs) from flowing from the inside (mouth, i.e., oral cavity) to the outside.</td>
</tr>
<tr>
<td><strong>3rd Sentence</strong></td>
<td></td>
</tr>
<tr>
<td>When the door is opened, the air is released and flows freely.</td>
<td>When the articulator is lowered, the air stream is released and flows freely.</td>
</tr>
</tbody>
</table>
Expansion of the Train Analogy

Summer 2008

Created a total of 15 train analogy slides
Developed 16 power point sets with about 20 slides per set
Threaded the train analogy as a theme throughout sets
Fall 2008

Used ppt sets in EESL 625 (Tuesday evenings)

Observed anecdotal evidence:

• Student concerns regarding course content diminished substantially.
• Students experienced less anxiety and greater success.
• Feedback indicated enhanced abilities and attitudes towards phonology.
• Learner factors (different learning styles and background knowledge) were being addressed.
• Students felt more empowered.
• Students reported incorporating visual analogies into their own teaching.
Timeline of the SoTL Study

Pilot Study (February – April 2009)
  31 Students who took EESL 625 on Tuesday evenings:
    - without visual analogies (Fall 2005)
    - with visual analogies (Fall 2008)

Actual Study (May – August 2009)
  176 Students who took EESL 625 in a Saturday format:
    - without visual analogies (Spring 2004, 2005, 2006);

Extension of Study (Fall 2009 – Spring 2010)
  Students who will take EESL 625 (Fall 2009 & Spring 2010):
    - with visual analogies
Research Questions

1) How did the visual analogies used in EESL 625 affect student learning as indicated by test scores, reflective assignments, and survey responses?

2) As self-reported by former EESL students, to what extent did visual analogies affect their knowledge of phonology, their ability to teach pronunciation, their motivation to learn, their anxiety about phonology and pronunciation, and their attitude towards the course?

3) Did the use of visual analogies for teaching EESL 625 influence students’ use of visual analogies in their own teaching?
Data Sources

Learner based outcomes
   Exam scores (quizzes & midterm)
   Course evaluations (SOE)
   PRAXIS scores (ESOL #0360)

Selected course assignments
   Reaction to first class and to phonology
   Final Course Reflection

Survey responses
   SurveyMonkey: quantitative & qualitative

Selected interviews
   Fall 2009 & Spring 2010
Pilot Study: SurveyMonkey

Invitational emails were sent on March 5\textsuperscript{th} at 3:00pm.
22 potential participants from Fall 2005
9 potential participants from Fall 2008

The first response came the next day at 7:00 am.
\textit{I really like this format. It was fast and easy to participate.}
\textit{It took less than 15 minutes}

Four more responses came that same day.
(One used the attachment but did it electronically yesterday. )
Another response came four days later.

\textbf{5-day Response Rate:} 10\% (2005) and 44\% (2008)
## Information about the Participants of the Pilot Study (March 2009)

### Self-Reported by Former Students

<table>
<thead>
<tr>
<th>1. How many years have you been teaching?</th>
<th>Fall 2005 (N=2) 10% without visual analogies</th>
<th>Fall 2008 (N=4) 44% with visual analogies</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-2 years</td>
<td></td>
<td>x x</td>
</tr>
<tr>
<td>3-5 years</td>
<td></td>
<td>x</td>
</tr>
<tr>
<td>6-9 years</td>
<td>x</td>
<td></td>
</tr>
<tr>
<td>10-19 years</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>20+ years</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>2. How many years have you been teaching ELLs?</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1-2 years</td>
<td>x x x x</td>
</tr>
<tr>
<td>3-5 years</td>
<td>x</td>
</tr>
<tr>
<td>6-9 years</td>
<td></td>
</tr>
<tr>
<td>10-19 years</td>
<td>x</td>
</tr>
<tr>
<td>20+ years</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>3. What is your current position? (mark all that apply)</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Content teacher</td>
<td></td>
</tr>
<tr>
<td>ESL Teacher</td>
<td>x x</td>
</tr>
<tr>
<td>Resource Teacher</td>
<td></td>
</tr>
<tr>
<td>Admin/Supervision</td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td>x x</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>4. What grades/ages do you currently teach? (all that apply)</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Grades PK-5</td>
<td>x</td>
</tr>
<tr>
<td>Grades 6-8</td>
<td></td>
</tr>
<tr>
<td>Grades 9-10</td>
<td>x</td>
</tr>
<tr>
<td>College ELLs</td>
<td></td>
</tr>
<tr>
<td>Other adult ELLs</td>
<td>x x</td>
</tr>
</tbody>
</table>
## Preliminary Results of Pilot Study

### Likert Scale (1-5):

- none
- just a little
- some
- quite a bit
- a lot

<table>
<thead>
<tr>
<th>Self-Reported by Former Students</th>
<th>Before taking EESL 625</th>
<th>After the first class</th>
<th>After finishing course</th>
<th>Right now</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1. Knowledge about phonology</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>without visual analogies: Fall 2005 (N=2)</td>
<td>2</td>
<td>2.5</td>
<td>4.5</td>
<td>4</td>
</tr>
<tr>
<td>with visual analogies: Fall 2008 (N=4)</td>
<td><strong>2.25</strong></td>
<td><strong>2.75</strong></td>
<td><strong>4.5</strong></td>
<td><strong>4.75</strong></td>
</tr>
<tr>
<td><strong>2. Ability to teach pronunciation</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>without visual analogies: Fall 2005 (N=2)</td>
<td>2</td>
<td>2.5</td>
<td>4.5</td>
<td>4.5</td>
</tr>
<tr>
<td>with visual analogies: Fall 2008 (N=4)</td>
<td><strong>1.25</strong></td>
<td><strong>2.75</strong></td>
<td><strong>4.5</strong></td>
<td><strong>4.5</strong></td>
</tr>
<tr>
<td><strong>3. Motivation to learn phonology</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>without visual analogies: Fall 2005 (N=2)</td>
<td>2.5</td>
<td>3</td>
<td>4</td>
<td>3.5</td>
</tr>
<tr>
<td>with visual analogies: Fall 2008 (N=4)</td>
<td><strong>3.5</strong></td>
<td><strong>4.25</strong></td>
<td><strong>4.75</strong></td>
<td><strong>4.75</strong></td>
</tr>
<tr>
<td><strong>4. Motivation to learn to teach pronunciation</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>without visual analogies: Fall 2005 (N=2)</td>
<td>2.5</td>
<td>3.5</td>
<td>4</td>
<td>3.5</td>
</tr>
<tr>
<td>with visual analogies: Fall 2008 (N=4)</td>
<td><strong>2.75</strong></td>
<td><strong>4</strong></td>
<td><strong>5</strong></td>
<td><strong>4.75</strong></td>
</tr>
<tr>
<td><strong>5. Anxiety regarding EESL 625 (reversed scale)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>without visual analogies: Fall 2005 (N=2)</td>
<td>3</td>
<td>2.5</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>with visual analogies: Fall 2008 (N=4)</td>
<td><strong>1.75</strong></td>
<td><strong>2.5</strong></td>
<td><strong>4.5</strong></td>
<td><strong>5</strong></td>
</tr>
<tr>
<td><strong>6. Attitude towards EESL 625</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>very negative, negative, indifferent, positive, very positive</td>
<td>4</td>
<td>4.5</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>without visual analogies: Fall 2005 (N=2)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>with visual analogies: Fall 2008 (N=4)</td>
<td><strong>2.75</strong></td>
<td><strong>3.75</strong></td>
<td><strong>4.75</strong></td>
<td><strong>5</strong></td>
</tr>
<tr>
<td>Self-Reported by Former Students</td>
<td>Very negatively, Somewhat negatively</td>
<td>I’m not sure</td>
<td>Somewhat positively</td>
<td>Very positively</td>
</tr>
<tr>
<td>----------------------------------</td>
<td>-------------------------------------</td>
<td>-------------</td>
<td>-------------------</td>
<td>----------------</td>
</tr>
</tbody>
</table>

7. WITHOUT VISUAL ANALOGIES (Fall 2005) If visual analogies would have been used in your EESL 625 course, how do you think they would have affected …

| | Your knowledge of phonology | | |
| | Your ability to teach pronunciation | | |
| | Your motivation to learn phonology | | |
| | Your motivation to learn to teach pronunciation | | |
| | Your anxiety regarding EESL 625 | | |
| | Your attitude towards EESL 625 | | |

7. WITH VISUAL ANALOGIES (Fall 2008) How do you think the visual analogies used in your EESL 625 course affected …

| | Your knowledge of phonology | | |
| | Your ability to teach pronunciation | | |
| | Your motivation to learn phonology | | |
| | Your motivation to learn to teach pronunciation | | |
| | Your anxiety regarding EESL 625 | | |
| | Your attitude towards EESL 625 | | |
### Self-Reported by Former Students

Likert Scale (1-5): never – rarely – sometimes – often - always

<table>
<thead>
<tr>
<th>8. How often do you use visual analogies in your own teaching?</th>
<th>Before taking EESL 625</th>
<th>After taking EESL 625</th>
</tr>
</thead>
<tbody>
<tr>
<td>without visual analogies: Fall 2005 (N=2)</td>
<td>3</td>
<td>3.5</td>
</tr>
<tr>
<td>with visual analogies: Fall 2008 (N=4)</td>
<td>1.75</td>
<td>3.5</td>
</tr>
</tbody>
</table>
9. If you wish, please provide comments and/or insights regarding the use of visual analogies for teaching and learning.

Fall 2005 Respondents (without visual analogies)
a) I’m not sure what visual analogies are and/or if I have used them.
b) Very effective. As a teacher, thinking of the analogies deepens my own understanding which helps me convey information more effectively.

Fall 2008 Respondents (with visual analogies)
I found the use of the visual analogies helpful not only in organizing the information in my mind, but also in my ability to retain that organized information.

10. If you wish, please provide comments and/or insights regarding the use of visual analogies in courses like EESL 625.

Fall 2005 Respondents (without visual analogies)
a) If visual analogies are using a tissue to demonstrate aspiration of sounds, then I feel these techniques are a supportive tool.
b) Visual analogies help learners connect what they are learning to what they already know— which "jumpstarts" understanding and increases retention.

Fall 2008 Respondents (with visual analogies)
(no comments were provided)
Anticipated Adjustments for Conducting the Actual Study

Define visual analogies.

Shorten the invitational email. (pending IRB amendment)

Do not include the survey as an attachment to the invitational email.

Confirm emails in advance or use work emails (A potential 2005 candidate had called about something else and, when asked about the survey, she responded that she hadn’t received the email.)
Tips for Creating Effective Analogies

• **Common Object**
  – Select an object that is immediately recognizable (train)
  – Make sure the object will not need to be defined
    • Example: I replaced the term “Stock Car” with “Cattle Car”

• **Directionality: from Known to Unknown**
  – Describe the common object and then the concept
    • Example: First describe the train car and then the sound system
  – Avoid reversing the direction
  – Use simple language in describing the analogy
  – Use parallel sentence structure in explaining the similarities.

• **Give a Name to your Analogy**
  – “Fun-Analogy Train”
  – The *Fun-Analogy Train*: An Introduction to *Phonology*
References


Thank you!