Instructional Day: 10

Topic Description: Points of view: Telling a story with data

Objectives: The students will be able to:

• Explain how different views of data can tell a different story.

• Recognize that data is an incomplete record of reality.

• Describe the limits of measurement (what can and can’t be captured in data).

Outline of the Lesson:

•Journal Entry (10 minutes)

•Room Activity (45 minutes) Student Activities:

•Complete journal entry.

•Groups complete first part of Room Activity.

•Groups share responses with another group.

•Groups complete second part of Room Activity and share responses.

Teaching/Learning Strategies:

 Journal Entry: What do you think about when you hear the word data? Where can it be found? Where does it come from?

o Class discussion of journal entries

 Write down ideas from students.

 Emphasize that this lesson is meant to stretch their thinking about data.

 Room Activity

o Assign various groups different versions of the Room Activity.

 Depending on the amount of time available and the size of the class, you can have some students work with the picture (in the Supplemental Materials) and some work with the entire word list OR you can assign different subsets of the word list to different groups of students.

o When each group is finished with their first 4 instructions, have them compare with a group that has a different version.

o Have groups share their answers to #2 with the entire class. o Show groups the different versions of the room.

o Have groups complete questions 5-7.

o Have some groups share their answers for 5-7

o Emphasize that the appearance of the data and amount of data collected inform the inferences that can be made.

 Homework: Complete Communications Methods and Data Chart and Data Journal

o Explain that they will be adding to the Communications Methods Chart of the previous day by adding information about data.

o Introduce the Data Journal.

o Both of these assignments will be due on the first day of Unit 2.

o Clarify questions.

Resources:

•Room Activity ~~Picture~~ (Supplemental Materials)

•Room Activity ~~Picture~~ Instructions ~~(to go with the picture)~~

•Room Activity Entire Word List

•Room Activity Possible Word Subsets

•Communications Methods and Data Chart

•Data Journal

Room Activity ~~Picture~~ Instructions

(The following activity has 2 parts. One uses a picture and the other a list. Without the picture, half of the activity and some of the questions are redundant.)

~~Look at~~ Take note of the ~~picture~~ list(s) displayed on your computer or on the handout provided.

~~1. Make a list of the objects in the picture.~~

2. What does this data tell you about the person who lives in this room? What does it not tell you?

3. What are most of the items in this room related to?

~~4. How many toy soldiers are there?~~

Now compare with the other group.

~~5. Are there any advantages to one representation or another?~~

6. Do you think different representations can tell different stories?

~~7. What do you think came first the drawing of the room or the list?~~

Room Activity Entire Word List

Look at the following list of items found in someone’s room.

 Laptop

 Nintendo DS

 Mobile phone

 IPod with ear buds

 PS3

 Radio (2)

 Television

 Toy Car (3)

 Calendar

 Ribbons (3)

 Sprite Can

 Plaques (3)

 Gold Medal

 Phone

 Mug

 Trophy

 Picture Frame

 Posters (8)

 Harry Potter poster

 Lava lamp Glasses

 Violin  
Globe Person Paintings (2)

 Shoe

 Burger

 Books (75)

 Pizza

 Guitar

 Sandwich

 Goldfish

 Toy soldiers (3)

 Pringles can

1. What does this data tell you about the person who lives in this room? What does it not tell you?

2. What are most of the items in this room related to?

3. How many Radios are there?

Now compare with the other group.

~~4. Are there any advantages to one representation or another?~~

5. Do you think different representations can tell different stories?

~~6. What do you think came first (the drawing of the room or the list?)~~

Room Activity Possible Word Subsets

(Depending on the implementation of the activity, the above list can be used, or these lists can be used. Giving only the above list to the entire class would focus on trying to point out that people make different conclusions based on the same data. The 4 lists below can be given in at least 2 different fashions. The first option is to give each group in the class (granted that we have 4 groups) a different list. Part of the instruction would need to mention that these are all descriptions of the same room. It would be a slightly more concrete way to point out that those who take data down can see the same data from different perspectives, and, therefore, can make radically different conclusions about the same data. The second option is to give every group all 4 lists. Part of the instruction would be to say that each of the lists are of different bedrooms. It's like an extended version of what could be used with the above list. We would ask each group to make a conclusion about the person who lives in each "room". Finally, at the end, we could throw a twist in saying that the list descriptions were all of the same room. Only, the lists were all taken from different peoples' perspectives. We'll definitely be able to find something to do with this activity.)

1. Lava lamp, Books (10), Burger, Cell phone, Pringles can, Television,  
Calendar, Glasses, Lava lamp, Sandwich, Pizza, Paintings (2), Person, Sprite Can

2. Trophy, Pizza, Guitar, Sandwich, IPod with ear buds, Radio(2), Toy soldiers(3), Person, Shoe, Cell phone, Violin, Harry Potter poster, Ribbons(3), Sandwich, Laptop, Goldfish

3. Books (75), Burger, Globe, Gold Medal, Goldfish, Harry Potter poster, Phone, Paintings(2), Person, Plaques(3), Posters(8), Ribbons(3), Toy soldiers(3), Trophy, Violin

4. iPod with ear buds, Television, laptop, Radio(2), Cell phone, Guitar, Toy Car(3), Nintendo DS, PS3, Burger, Pizza, Person, Pringles can, Sprite Can

~~5. Word cloud pictured below.~~

Communication Methods and Data Chart

Let's look at what kinds of data you 'give off' when using the different forms of communication. For each of the following examples, fill in which method you would choose for the given scenario and why (You should already have completed that part.). Keep in mind that “data” here is not just the content you communicate (what you say or write) but could also refer to details like the time of a telephone call and the number.

The methods are:

•Texting

•Phone call

•Talking in person

•MySpace / Facebook

•Twitter

•Email

Scenario to Communicate

1. Breaking up with a significant other (boyfriend/girlfriend)

a. Method:

b. What data is available?

c. Who has access to the data?

d. What can be learned form the data in aggregate?

e. Why you chose the method?

2. Asking parents’ permission to do something when you think they will likely say ‘no’

a. Method:

b. What data is available?

c. Who has access to the data?

d. What can be learned form the data in aggregate?

e. Why you chose the method?

3. Figure out where and when to meet a friend to see a movie

a. Method:

b. What data is available?

c. Who has access to the data?

d. What can be learned form the data in aggregate?

e. Why you chose the method?

4. Gossip about someone who could hear you if you spoke

a. Method:

b. What data is available?

c. Who has access to the data?

d. What can be learned form the data in aggregate?

e. Why you chose the method?

5. Gossip about someone not around you

a. Method:

b. What data is available?

c. Who has access to the data?

d. What can be learned form the data in aggregate?

e. Why you chose the method?

6. Getting help on homework

a. Method:

b. What data is available?

c. Who has access to the data?

d. What can be learned form the data in aggregate?

e. Why you chose the method?

7. Feedback on a big decision (like what color prom dress, what game to buy, what phone to get)

a. Method:

b. What data is available?

c. Who has access to the data?

d. What can be learned form the data in aggregate?

e. Why you chose the method?

8. Announce you met someone famous

a. Method:

b. What data is available?

c. Who has access to the data?

d. What can be learned form the data in aggregate?

e. Why you chose the method?

9. Complain about your parents

a. Method:

b. What data is available?

c. Who has access to the data?

d. What can be learned form the data in aggregate?

e. Why you chose the method?

10. Mourn someone you lost

a. Method:

b. What data is available?

c. Who has access to the data?

d. What can be learned form the data in aggregate?

e. Why you chose the method?

11. Buy something from someone you don’t know well

a. Method:

b. What data is available?

c. Who has access to the data?

d. What can be learned form the data in aggregate?

e. Why you chose the method?

1. How does the type of data being exchanged affect which method you choose?

Data Journal

Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

During this evening ~~the next several days~~, take note of situations when you “generate data”. We’re looking for specific moments when some activity you perform can be observed, recorded and, possibly, combined with similar data from others. Ideally you will carry this paper with you (Will they be carrying the paper? Or, will they have a digital copy?) and take notes over the course of your evening ~~day~~. To start you off, think about what happens when you ride the bus or make a telephone call or browse a web site!

For each entry, list the time ~~of day~~ (A minor cross out that "removes ripples"by removing questionable context that will leave no indication of tampering) and describe what you did to generate data.

1.

2.

3.

4.

5.

6.

7.

8.

9.

10.

11.

12.

13.

14.

15.