



DATA COMMUNICATION SKILLS

SYRACUSE UNIVERSITY
School of Information Studies

DATA COMMUNICATION SKILLS

Hone your data communication skills while learning data mining techniques.

E.g., information presentation and visualization

Combine them to become a great “data storyteller,” a critical characteristic of the new data scientist.

<http://www.seas.harvard.edu/news/2014/01/big-data-heralds-new-kind-of-analyst>

QUOTES FROM THE NEWS REPORT

<http://www.seas.harvard.edu/news/2014/01/big-data-heralds-new-kind-of-analyst>

“As computational tools become more sophisticated, the field of data science risks alienating non-experts. Investigative journalists, for instance, have much to gain from accessible research tools.”

“It is important for practitioners of computational science and engineering to be able to accurately and engagingly communicate the results of an investigation to others outside their field.”

“There’s an element we can learn from journalists—hearing how they tell stories and investigate and ask questions, and how they find what’s actually interesting to other people,” explained Schutt. “It’s important in communicating about data [to know] exactly what’s objective and what’s subjective ... and [to make] sure you’re transparent about the data collection process and your modeling process.”

AN EXAMPLE OF INFORMATION PRESENTATION

How would you compare the income distribution of men and women shown in the following table?

INCOME (IN THOUSAND DOLLARS)						
	<\$50K	[\$50K,\$60K)	[\$60K,\$70K)	[\$70K,\$80K)	>\$80K	Total
MEN	10	20	100	30	40	200
WOMEN	10	20	50	20	10	100

ARE THESE DESCRIPTIONS CORRECT?

1. There are equal numbers of men and women in the lower income group (up to \$60K).
2. More men than women earned higher incomes (above \$70K)

INCOME (IN THOUSAND DOLLARS)						
GENDER	<\$50K	[\$50K,\$60K)	[\$60K,\$70K)	[\$70K,\$80K)	>\$80K	Total
MALE	10	20	100	30	40	200
FEMALE	10	20	50	20	10	100

PERCENTAGE VS. RAW COUNT

Let's convert the original data to the percentages. Actually, the percentage of women in lower income group (up to \$60K) is 30%, and the percentage is 15% for men.

INCOME (IN THOUSAND DOLLARS)						
GENDER	<\$50K	[\$50K,\$60K)	[\$60K,\$70K)	[\$70K,\$80K)	>\$80K	Total
MALE	.05	.10	.50	.15	.20	1.00
FEMALE	.10	.20	.50	.20	.10	1.00

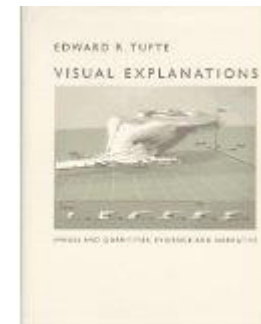
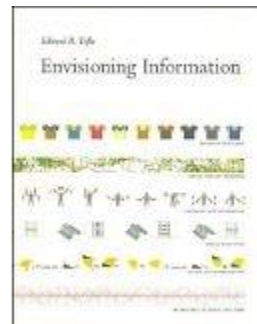
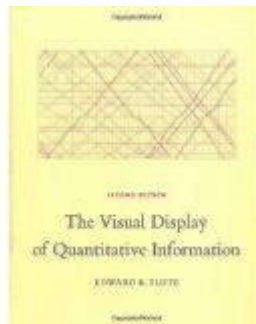
BUT PERCENTAGE IS NOT ALWAYS BETTER

A statement: “The number of students from Mars doubled this year.”

Additional fact: “There was one student from Mars last year.”

HOW TO IMPROVE DATA STORYTELLING SKILLS?

Some general data science books may be fun to read and can improve your data storytelling skills, such as Edward Tufte's books on data presentation and visualization.



BILINGUALISM IN MATH

Steven Strogatz, *The Joy of x: A guided Tour of Math, from One to Infinity*

Check out Professor Strogatz's 15-part series on math in the *New York Times*

<http://opinionator.blogs.nytimes.com/category/steven-strogatz/?module=BlogCategory&version=Blog%20Post&action=Click&contentCollection=Opinion&pgtype=Blogs®ion=Header>