**Few’s Design Principles for Communication**

(10 min)

surprisingly universal

from chapter 7 of Show Me the Numbers

**Highlight**

graphics: Tufte - “above all else, show the data”

writing: make important info prominent

discuss it early

discuss it at key places (e.g., end)

give it ink

**Organize**

facilitates sensemaking

*Don’t Make Me Think* – Steve Krüg book, title applies here

use an outline

no outline = messy outline

impose some order

group things

by proximity: related things near

by similarity

consistent terms

consistent structure

by direct reference to earlier mention

sequence the things (by priority)

high priorities:

what your point is

strongest evidence/best example for your point

if temporal order, what happened first (usually)

what they need to know to understand the rest

**Integrate tables, text, and graphs**

you can place a graph inside your text

you can place text inside a graph

tables and graphs are part of your groupings

Few: reports need (his own Ws):

author

good title

page numbers (page x of y)

range of dates for data, and when collected (“as of”)

**Know Your Message**

(BLT 4 min)

Pin down your message

iterate!

evolution of a lead – GaN example

started out about studying GaN

ended up about solving lack of blue wavelengths

old example, turned out important

Find a hook

* accessible to audience
* relevant
* intriguing
* example – from exercise, “the blues”
* especially important for public relations
* less necessary for captive audience

**Provide Context**

(5 min)

The Ws

who is text about?

what are you reporting?

where do the data come from? source, location

when was the data collected?

If relevant: why is this the case?

If relevant: how did it happen?

beyond the Ws

A checklist of Ws isn’t enough

think about what else reader needs

how does the sample relate to the population?

what might reader misunderstand?

what are the limitations on what I’m reporting?

error bars, p values, etc.

analysis of alternative explanations

don’t “dumb down” by removing context!

**Development and Flow**

(5 mins)

**Development**

build off previous knowledge

mentioned in Audience module

always important, but can be added to other structure

you don’t have to structure flow this way from the start

argumentative writing

develop your argument

if reader agrees with A, easier to convince them of B

example: meat eating is linked with high cholesterol

high cholesterol is linked with heart disease

eating less meat is good for you

narrative writing

telling a story, development is how story unfolds

descriptive writing – natural order may be there

describing a **machine**,

development could be **what’s attached to what**

describing a **population**,

development could be **from youngest to oldest**

describing a **process**,

development should be **in order of steps**

Give your work an arc if you can

Note: newsy writing, like press releases, can’t really do this (inverted pyramid), but feature stories can.

**Flow**

Stitch paragraphs together.

Stitch sentences together within paragraphs.

Vary sentence length, structure.**The Flow of Your Pen**

(7 mins)

Not about how written word flows, but **how you write**

Best writing happens in a flow state

One sentence follows naturally from previous

Write like you would speak

just a little more formally, can add that later

relax, let it come (hard! paradoxical)

sometimes you can’t get there

may need more learning

-“what am I stuck on?”

-You need to know your subject

may need processing time

* I, at least, need this
* budget for this one!

may need to go without flow (slow)

Tricks

skip ahead, come back later

start over

get some sleep

talk out loud to someone

stream of consciousness exercise

recognize that each piece has its own life

**Examples and Analogies**

(10 min)

Why you want them

something reader can relate to

helps clarify your ideas

makes your ideas concrete (believable)

either show something **typical**

or show an **exception**

What makes for good examples or analogies

(discussed in Clarity module)

**appropriate** to audience

*poor*: introducing a new pesticide to farmers,

“In one of our lab tests, the new formula was 10% more potent than the old one.”

*better*: “A small farm in Alberta that got 125 bushels per acre with conventional pesticides reported that it got 140 bushels per acre with the new one.”

**simple**

*poor*: “On a 50-acre plot, given average summer temperatures and average precipitation, yields could increase from 125 to 140 bushels per acre depending on the time between initial application and final harvest.”

**plausible**

*bad*: “If you sprayed it on your kitchen floor, you’d never have roaches again.”

Make sure you

give enough context for the example

make it clear whether it’s typical or exceptional

Note on Metaphors

Similes versus metaphors

metaphors more risky (poetic), also compliment to reader

Choose metaphors especially carefully in P.R.

avoid mixed metaphors

e.g. “Social networks can be thought of as a spider web

of connected dots.”

**Writing is Rewriting**

(2 mins)

Budget time to rework

Keep reading over your work

Read aloud to hear problems

Get someone else to read it

Iteration is fundamental to any communication

**Tips: Summary Reports**

(12 mins)

Blaise Pascal, 1657, transl.

*“I have made this longer than usual because I have not had time to make it shorter.”*

range of sizes

one-page reports

Christopher: one pagers, including graphics

executive summaries

IPCC 2007 Synthesis Report is 104 pages

Common thread = summarize larger matter

admit it; you’re going to lose detail

Back to basics:

what is it your goal to communicate?

what does your audience expect?

look at what others have done

follow institutional practices

unless they are problematic (people complain)

what does your audience need?

what do they REALLY need?

You still need context

reader should be able to get accurate gist

interpret the big picture

look for ways to pull threads together

GEE may help, or just G\_E

edit, edit, edit

**Tips: Abstracts**

(5 mins)

Goals:

summary for those w/out time to read

enticement to read more

proposal for talk

indexing tool

brief on

reason for study

methods

results

\*conclusions

leave out

details

examples

non-significant findings

leave in

context (Ws)

generally one paragraph

for journal, follow author instructions

often easiest to write after rest of paper**Tips: Introductions and Conclusions**

(7 mins)

**Introductions**

Not a summary!

Not an abstract!

Transition from zero to thick of your report

reader in the world --> reader in your writing

Review related work

identify gaps

State your goals

relate your work to existing work

answer “why should I care?”

list questions or hypotheses

State your methods briefly

why you chose them

**Conclusions**

Not a summary!

Not an abstract!

Transition back out of work

reader in your writing --> reader in the world

conclusions + limitations on them

alternative explanations for results

future work

yours

suggested for others

**Tips: Methods**

(5 mins)

what you did and why you did it

include advantages and disadvantages

helps break it up

If separate tests, describe each separately

passive voice is tempting

don’t get into a rut stylistically

how much detail?

for journal article, enough detail to replicate the study

if methods described elsewhere, give reference instead

don’t describe what’s obvious to your audience

again, know your audience

Give the Ws for data

who – sample or population, response rate, subsetting, outliers

what – what variables were measured

where – geography, institutions, etc.

when – longitudinal, cross-sectional, repeated cross-sectional

for stats audience: how many cases, how data were collected

Always give sources

custom code: share if you can

**Tips: Proposals**

(5 mins)

Apply only for relevant grants

don’t get a reputation for wasting people’s time

Give them what they ask for

be considerate

recognize that there are reasons

Follow format required

insane example: NIH

Write with care

there are people whose job it is to write grants

Edit with care

shows you care

Include

what you propose to do

how you propose to do it

why you propose to do it that way

Give enough detail to show you understand requirements

Different sections may require same info; rewrite**Wrap-Up**

(2 mins)