Writing Advice

• Remember that writing is user-centered design. Users are the readers. Use your design skills!

• Improving writing is a continuing process of skill development.

• One of the most important skills you will develop. Worth major time and effort investments.

• Influences
  – Don Knuth
  – Don Norman

• Alex Horowitz and David Wroblewski
Writing Advice

Clear writing goes hand in hand with clear thinking

Improving either will improve the other

- One of the best examples of a reflective conversation with materials
- Purpose is not mere presentation of information, but rather its real communication
  - If the reader is to grasp what the writer means, the writer must understand what the reader needs
  - What matters is that your audience accurately perceives what you had in mind

- Write with the reader in mind
- Read and attend to good writers
Writing Advice

• Expectation and Context
  – Readers do not simply read; they interpret
    • We cannot succeed in making even a single sentence (even a single word) mean one and only one thing; we can only increase the odds that our readers will tend to interpret our discourse according to our intentions.
  – Structure is important in helping manage interpretation
    • Interplay between substance and structure
    • Information is interpreted more easily and more uniformly if it is placed where most readers expect to find it
  – Take care with the different levels of the units of discourse. Every unit has a purpose and a structure
    • article - section - paragraph - sentence - clause – word
    • spend time thinking about each level
  – Part of learning to write (and read) scientific papers is learning the genre
Writing Advice

Genre of scientific papers

Title

Introduction
Motivate project
Background Information
Brief description of Contextual Design Is appropriate

Methods
How you did what you did
Describe how you accomplished contextual interviews and observations
Goal is to allow others to duplicate

Results
Report the results
Models
Describe and point out significant results

Design Changes
What are they
How tied to data

Prototypes
Recursive treatment of methods and results

Discussion
Summarize significant findings and design recommendations
What to do next
Writing Advice

Knuth’s 50% Rule:

50% of the work is in the first bit
You rewrite this the most

Of books, the first chapter
Of chapters, the first section
Of sections, the first paragraph
Of paragraphs, the first sentence

The first bit informs and inspires
It tells what the whole is about
It motivates the reader why she should read on
Writing Advice

• At each structure level there is a topic position
  – For example, the information that begins a sentence establishes for the reader a perspective for viewing the sentence
    • Readers expect a unit of discourse to be a story about what shows up first
    • Readers also expect the material occupying the topic position to provide them with linkage (looking backward) and context (looking forward)
    • In reading, as in most experiences, we appreciate the opportunity to become familiar with a new environment before having to function in it

• Conflicts between writing and reading
  – One of the many reasons rewriting is important is that on initial writing you are commonly trying to get out new thoughts and you naturally focus on the new information. **This is the need of you as a writer.**
  
  – The reader needs this new information to be tied to old and for a context to be built up to help them interpret
Writing Advice

• Heuristics
  – From simple:
    • Follow a grammatical subject as soon as possible with its verb
    • Articulate the action of every clause or sentence in its verb
    • ...
  – To more complex:
    • Provide a context for the “new information” you want the reader to emphasize
    • Place appropriate “old information” (material already stated in the discourse) in the topic position for linkage backward and contextualization forward
    • Provide context for the reader before asking the reader to consider anything new
    • Try to ensure that the relative emphases of the substance coincide with the relative expectations for emphasis by the structure
    • ...
  – and many, many more heuristics
Writing Advice

• **Before You Write**
  – Put time and thought into your paper before you start a first draft
  – For your paper to be interesting and effectively communicate, you need to
    • Present a point of view
    • Interpret rather than merely summarize
    • Argue your position logically. Build the case for conclusions. Be balanced and fair
  – Outlines
    • Often a good idea
    • Useful when you get stuck

• **Writing from the Inside Out**
  – What are the main points you want to make?
  – What does the reader need to know to understand those points?

• **One Metaphor: Taking your readers on a trip**
  – Keep them from getting lost
  – Make the journey interesting

• **Know Your Reader**
Writing Advice

- Stages: Thinking, Drafting, Revising and Editing (multiple passes)
- Drafting
  - Early drafts are writer-centered; you are telling yourself what you think
  - This is often the most creative part
  - Concentrate on getting out the ideas and then explaining and supporting them
  - Don’t focus on low level details (spelling, word choice, …) at this point
- Revising
  - This is where most of your time should be spent; reflective conversation
  - Become reader-centered; focus should be on readers’ needs and expectation.
    - What do you need to say to convince the reader?
    - Is the organization effective?
    - Do readers need to know X before they can understand Y?
    - Your job is to **make the reader’s job easy and interesting**
  - Focus on structure at each level; from overall argument structure, to section and paragraph structure, to sentence structure, to word choice
  - Make connections between ideas explicit and clear
- Editing
  - Check for grammar, mechanics, and spelling. Don’t forget to spell check your paper as the very last thing you do
  - Avoid low-level editing until late in the writing process
Writing Advice

• Writing is hard work but can be extremely rewarding
• Takes Time
  – Multiple sessions. Putting it aside is important
• Be Willing to Delete and Rewrite
• Get Feedback
  – You are often not the best judge of whether your draft is clear
  – Discuss aloud what you are trying to achieve
  – Read your paper aloud. Ears can pick up what your eyes miss
• Construct a Backward-Outline
  – Identify the main idea or ideas in each paragraph. Rank their importance in advancing your thesis. Consider connections between and among ideas
• Rethink Your Thesis and Structure
  – Consider how your argument can be restructured, how points might be reordered, how you can cut irrelevancies or redundancies, how you can add complications and implications
• Then Work on Introduction and Conclusion
  – Now you know what you want to say
  – Begin paragraphs with topic sentences
  – Link ideas in each paragraph to your thesis
• Proofread
  – Aim for precision and economy of language
  – Sometimes good way to get back into a paper but be careful
Final Papers

• Final Papers due by time of final (Tuesday June 7 11:30AM)

• Suggest Group Binder: One copy of data, notes, models, prototype designs, shared figures, etc. All papers can refer to them

• Be certain to include signed human subject forms!
Papers

• Options: (1) individual papers, (2) papers by subsets of the group members (3) one group paper

• Writing one group paper is appealing but challenging

• Collaborative writing is difficult
  – Just as with other group activities rapidly increases in complexity with the number of people involved.
  – Think of how hard it is to get together for meetings.
  – Everyone's time is even more restricted as finals approach
  – Recommend smaller group or individual papers
  – Don't allow anyone to pressure you into joining them in paper writing

• For multiple author papers: an additional requirement is to specify each author's contributions.
Common Problems and Advice

Not Personal History of You or Group
Too Informal
Better Organization: Use Sections
Give Details About Methods, Participants, Interviews
Be Specific About Data
Report All Group's Data
Do Justice to All Your Effort

Report Data Before Analysis
Tell what it is before telling what it means
Use Effective Images

Analysis and Modeling: Highlight Significant Aspects of Data
Show How Data Motivates Design Changes
Describe Prototypes and Prototype Data Collection and Analysis

Appropriate to Include in Discussion Descriptions of Promising Future Directions
Group Member Contributions

Individual assessment of all the members of your group (including yourself). Due with final papers on Tuesday June 7 by 11:30AM. Assessments should be turned in individually.

Assessment
1. In a few paragraphs describe the contributions of each member of your group. Include a description of your contributions.

2. Considering all the work your group did over the quarter, what percent of the total effort did each member (including yourself) contribute? This should add up to 100 percent.

3. Some contributions are more significant than others. Considering all the contributions that had really significant impact on your project, what percent of those did each member (including yourself) contribute? Again this should add up to 100 percent.
Group Paper Contributions

• In a few paragraphs describe the contributions of all authors. Include a description of your contributions. Each of the authors of a group paper should turn in a separate assessment.

• Considering all the work on the paper, what percent of the total effort did each author (including yourself) contribute? This should add up to 100 percent.

• Some contributions are more significant than others. Considering all the contributions that had really significant impact on your paper, what percent of those did each author (including yourself) contribute?

• Again this should add up to 100 percent.
Paper Grading

Background and Motivation [5]

Methods [10]

Results/Models/Analysis [10]

Data-Driven Design Changes/Prototypes [10]

Overall Clarity [10]
Final Presentations

• Because of time less detail than papers.

• What did you do?

• Why did you do it?

• What did you find out?

• What are the design suggestions?

• How did data drive design?

• Why should the audience be convinced?
Final Presentations Week 10

Tuesday May 31 in class: 3 groups

Wednesday June 1 in CSB 003 at 5 PM:
4 groups (Volunteers?)

Thursday June 2 in class: 3 groups
Final Grade

- Participation: as documented in your wiki postings, the judgment of TA's/IA's, and judgments of your and other group members participation. (25%)

- Midterm Exams (25%)

- Final Project Presentation to Class (25%)

- Final Paper (25%)
Cognitive Design Studio

- Encourage wild ideas
- Be visual
- Prototype everything
Week 9 and 10

Week 9 Project Triage

No class but I will be available on Tuesday and Thursday 9-12:30 (and Wednesday 9-10) in the DCOG-HCI lab (SSRB 100) to discuss projects, papers, and presentations. IAs and TAs will also be there 11-12:30 on Tuesday and Thursday. Feel free to bring drafts of your presentation slides.

Week 10 Final Presentations

<table>
<thead>
<tr>
<th>Tuesday May 31</th>
<th>Wednesday June 1 5PM CSB 003</th>
<th>Thursday June 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cognitive Catographers</td>
<td>A Team</td>
<td>Greenlight</td>
</tr>
<tr>
<td>Shuttle System Redesign</td>
<td>Discourse</td>
<td>Oh Chetos</td>
</tr>
<tr>
<td>Digital Pen and Podcast</td>
<td>Novenary</td>
<td>MusLab</td>
</tr>
</tbody>
</table>
Final Grade

• Participation: as documented in your wiki postings, the judgment of TA's/IA's, and judgments of your and other group members participation. (25%)

• Midterm Exams (25%)

• Final Project Presentation to Class (25%)

• Final Paper (25%)
Final Papers

• Final Papers due by time of final (Tuesday June 7 11:30AM). Drop off in HCI Lab (SSRB 100) or leave with Thanh in CSB.

• Suggest Group Binder: One copy of data, notes, models, prototype designs, shared figures, etc. All papers can refer to them/

• Be certain to include signed human subject forms!
Paper Grading

Background and Motivation [5]

Methods [10]

Results/Models/Analysis [10]

Data-Driven Design Changes/Prototypes [10]

Overall Clarity [10]
Common Problems and Advice

Not Personal History of You or Group

Too Informal

Better Organization: Use Sections

Give Details About Methods, Participants, Interviews

Be Specific About Data

Report All Group's Data

Do Justice to All Your Effort

Report Data Before Analysis
Tell what it is before telling what it means

Use Effective Images

Analysis and Modeling: Highlight Significant Aspects of Data

Show How Data Motivates Design Changes

Describe Prototypes and Prototype Data Collection and Analysis

Appropriate to Include in Discussion Descriptions of Promising Future Directions
Papers

- Options: (1) individual papers, (2) papers by subsets of the group members (3) one group paper

- Writing one group paper is appealing but challenging

- Collaborative writing is difficult
  - Just as with other group activities rapidly increases in complexity with the number of people involved.
  - Think of how hard it is to get together for meetings.
  - Everyone's time is even more restricted as finals approach.
  - Recommend smaller group or individual papers.
  - Don't allow anyone to pressure you into joining them in paper writing.

- For multiple author papers: an additional requirement is to specify each author's contributions.
Group Member Project
Contributions

Individual assessment of all the members of your group (including yourself). Due with final papers on Tuesday June 7 by 11:30AM. Assessments should be turned in individually. Drop off in HCI Lab (SSRB 100), leave in my mailbox in CSB, or leave with Thanh in CSB.

Assessment
1. In a few paragraphs describe the contributions of each member of your group. Include a description of your contributions.

2. Considering all the work your group did over the quarter, what percent of the total effort did each member (including yourself) contribute? This should add up to 100 percent.

3. Some contributions are more significant than others. Considering all the contributions that had really significant impact on your project, what percent of those did each member (including yourself) contribute? Again this should add up to 100 percent.
Group Paper Contributions

• In a few paragraphs describe the contributions of all authors. Include a description of your contributions. Each of the authors of a group paper should turn in a separate assessment. They should be turned in individually. Drop off in HCI Lab (SSRB 100), leave in my mailbox in CSB, or leave with Thanh in CSB. Due by 11:30 Tuesday June 7.

• Considering all the work on the paper, what percent of the total effort did each author (including yourself) contribute? This should add up to 100 percent.

• Some contributions are more significant than others. Considering all the contributions that had really significant impact on your paper, what percent of those did each author (including yourself) contribute?

• Again this should add up to 100 percent.
Final Presentations

- Because of time less detail than papers.
- What is the problem or issue you are addressing?
- What did you do?
- Why did you do it?
- What are the design suggestions?
- How did data drive design?
- Why should the audience be convinced?
Final Presentations

- You will have 15 minutes for your presentation and 5 minutes to answer questions. We will strictly enforce the schedule. The 20 minutes includes setup time.
- Be ready and have tested your computer for presentation in the classroom. Be sure to have any needed dongle. There is a little time before class but better to test earlier in this room between classes.
- If you have problems, we will not delay but move to next group and put your group at end.
- We expect everyone to attend all presentations on Tuesday and Thursday. Roll will be taken. You are welcome and encouraged to attend on Wednesday afternoon.
Final Presentations Week 10

Tuesday May 31
Cognitive Catographers
Shuttle System Redesign
Digital Pen and Podcast

Wednesday June 1 5PM CSB 003
A Team
Discourse
Novenary

Thursday June 2
Greenlight
Oh Chetos
MusLab
Midterm 2

- Mean = 124
- SD = 15
Midterm 2

\[ Z = \frac{X - \bar{X}}{s} \]

10Z + 50
Developing a Point of View
Developing a Point of View

• One of the most challenging creative leaps to make in design work is to move from the concrete world of observations to a concisely stated point of view.

• It requires you and your team to extract relevant insights from the observations and data you’ve collected.
What is a point of view?

• Points of view are built out of two things, an *understanding of a user group* and *insight into a need that group has.*

\[
\text{User} + \text{Need} + \text{Insight} = \text{Point of View}
\]

• The *understand* and *observe* phases are where the seeds of great new ideas are to be found.

• It’s the compass heading you will follow to drive your design process as you visualize solutions.
Developing a Point of View

• Beyond Being There Project
  – Examined video teleconferencing projects
  – Numerous issues: eye contact, audio, prefer fact-to-face but not always, …
• Implicit Standard: Face-To-Face
  – Richness of interaction seemingly unmatched by other means of communication
  – Research Supports
    • Predictable fall-off in likelihood of collaboration as a function of separation distance
    • Even after correcting for factors such as organizational distance and similarity of research interest
• Goal has been to create systems with same richness as face-to-face; being there
If, as it is said to be not unlikely in the near future, the principle of sight is applied to the telephone as well as that of sound, earth will be in truth a paradise, and distance will lose its enchantment by being abolished altogether. Arthur Strand, 1898.

• Focus of Most Research
  – Solve the telecommunications problem by creating a sense of being there
  – “The total effect is to produce an environment at each end … which is as close as possible to being there.”
  – Fidelity
  – Asymptotic approach to being there

• Research Findings
  – face-to-face >> audio/video > audio > written correspondence/email
  – Cruiser Study
  – Discrepancies between channels
    • If One Channel is Half As Good, Don’t Use It Half The Time
Beyond Being There

• Develop Tools That Go Beyond Being There
  – An Analogy:
    • It is customary for a person with a broken leg to use crutches, but how odd it would be if they continued using them after their leg healed.
    • In contrast, one wears shoes because they provide certain advantages over our natural barefoot condition. Special purpose shoes, such as running shoes, are designed to enhance our best performance.
    • Both are tools but one designed to make the best of a bad situation. The other to enhance our performance, allowing us to do better than without them

• Implicit Assumption
  – Being There is a natural and perfect state and any other state is less.
  – Goal then becomes to imitate one medium of communication with another
A Needs, Media, Mechanisms Framework

• Communication Needs
  – Human requirements that, when met, encourage and facilitate interaction

• Media Are Simply What Mediates Communication
  – Face-To-Face: physically proximate reality
  – Viewing ppr as a medium might seem strange but it is key
  – Face-To-Face has become the model for communication

• Mechanisms
  – Ways of meeting communication needs that are enabled by a medium
  – Examples from ppr: eye contact, body posture, stereo-typical openings and closings in spoken language, or even hanging out down at the lounge

• Potential Advantages
  – Focuses on alternatives to imitation, frees one to ask what are advantages
Rich Design Examples

- The Success of Email
- Social Networks
- Ephemeral Interest Groups
- Collaborative Filtering
- Anonymity
- Semisynchronous Discussions
Potential Critiques

• Advantages of Imitation
  – Of course, but how far can the familiar take us

• Culture
  – Of course, but culture changes and adapts if needs are better met

• Intersubjectivity
  – I know that you know that I know what we are talking about.
  – No matter how powerful, no reason in principle that underlying requirements couldn’t be better served
  – Selectively enable: remote viewing of lectures
The Argument

- The Telecommunications Problem

- Most Efforts: Accomplish by creating a sense of Being There

- Focus: Imitation

- An Alternative View: Beyond Being There

- Needs, Media, Mechanisms Perspective
A POV will

- Provide focus.
- Allow you to determine relevancy of competing ideas.
- Inspire your team.
- Empower colleagues to make decisions independently in parallel.
- Fuel brainstorms.
- Save you from the impossible task of developing concepts that are all things to all people.
- Be something you revisit and reformulate as you learn by doing.
Getting a POV

• There’s no magic knife to cut through your dense web of observations and insights and allow you to leap straight to a well-formulated point of view.

• Techniques:
  – Saturation: Put up post-its, pictures and other artifacts that express the stories you heard and saw in your observations
  – Mapping: Lay out maps of relevant places or times that you can identify the stories with.
Getting a POV

• Grouping: Find common themes among your stories

• MadLibs: Fill in a short, pithy expression that captures the main elements of your POV.
  – example based on a workshop looking at kids and shopping:
  – Overworked, busy Mom with 3 kids seeks help with grocery shopping, to keep kids happy and have them learn from the experience.
  – Safety-concerned parent with toddlers wants a shopping experience with active kids who can be independent but always in sight.

In general:
USER wants a NEED so that INSIGHT.
POV is Getting Good When

• You land somewhere you’ve never been before.

• Your team is speaking its own language.

• You understand ordinary things in new ways.

• You’re dealing with implicit needs rather than explicit problems.

• You can’t sleep at night because of the opportunity you have found…
TIPS on Developing POV

• Focus on the stories that keep you up at night

• If you’re stuck, extract a POV from your favorite idea. Then go further. Grab and go. Don’t fret over being sure it’s right first.

• Use empathetic language – see things from the user’s perspective

• Go for meaning
Traps

• Don’t try to design for everyone

• Don’t confuse solutions for needs

• Don’t try to include all your insights

• Don’t be afraid to choose a POV “before you’re ready”
Focusing and Flaring Heuristics

• Focusing heuristics help you *narrow* your field of view.

• Flaring heuristics *expand* your field of view generating new concepts and frameworks that deepen your thinking.
Flaring

- **Space Saturation**: Get it all out in the open: write post-its, tell stories, share artifacts. Whatever it takes. Get it out and get it visual. Create a space where you are immersed in the observation, artifacts and stories.

- **Powers of 10**: Change your perspective. Back up ten steps. Let’s say you were looking at track shoes for scholastic athletes. What does the track look like? Other shoes at the event? The stadium? The town? The weather? Now move closer. Describe the feet. The toes. The left big toe. The physical shoe/skin interface. The chemical shoe/skin interface. Find your zoom button. Ride it.

- **Mapping**: Create diagrams that capture multiple observations. There are many kinds.
  - Journey (experience vs. time): Map the user; map their footsteps over time as they have an experience.
  - Spatial (presence vs. space): Where does the experience exist in space? Draw the floor plan. Add in user pathways. Combines well with Powers of Ten.
  - 2x2: Pick two parameters and map them against each other. You might place coffee drinkers on a matrix of passion for coffee vs. socio-economic status. How about mood vs. # cups per day. Look for obvious groupings. If everything ends up in one quadrant you might need new axis. If there’s an empty quadrant, you might have found an opportunity

- **Play**: Focus your attention on one/several project elements. Do something fun with them. Involve some members of your team. (Role Play is a good example – note the nuances and ideas that come from this)
Focusing

- **Grouping:** Blur your eyes, fuzz your mind, and find the patterns. Now put the images and artifacts together that way and take a photo. Now develop a new set of “buckets” and do it again. You’re guaranteed to get somewhere, or get a headache.

- **Composite Characters:** Who is that new user your are defining? Create imaginary character profiles that combine your observations and understanding so far. Get creative, and be specific. Give them names. How old? Hometown? Where do they go on vacation? What’s the last book they read? What kind of car do they drive? Combine stories from your observations. Draw out the characters to the greatest depth that your observations and understanding allow – this depth of understanding is what will make your process stronger going forward. Now your team has imaginary friends. Include them in your design process.

- **Insights from Observations:** Draw conclusions (or postulate some) from multiple observations. (10 observations distilled into one).

- **Directives from Insights:** Synthesize insights into directives. Take your insights to the next level and put them in the form of an action. This is getting very close to a Point of View.