On roll but not in studio

Jinhua Chen

Erica Hong

Hsin-Yi Tsai

Guanliang Yan

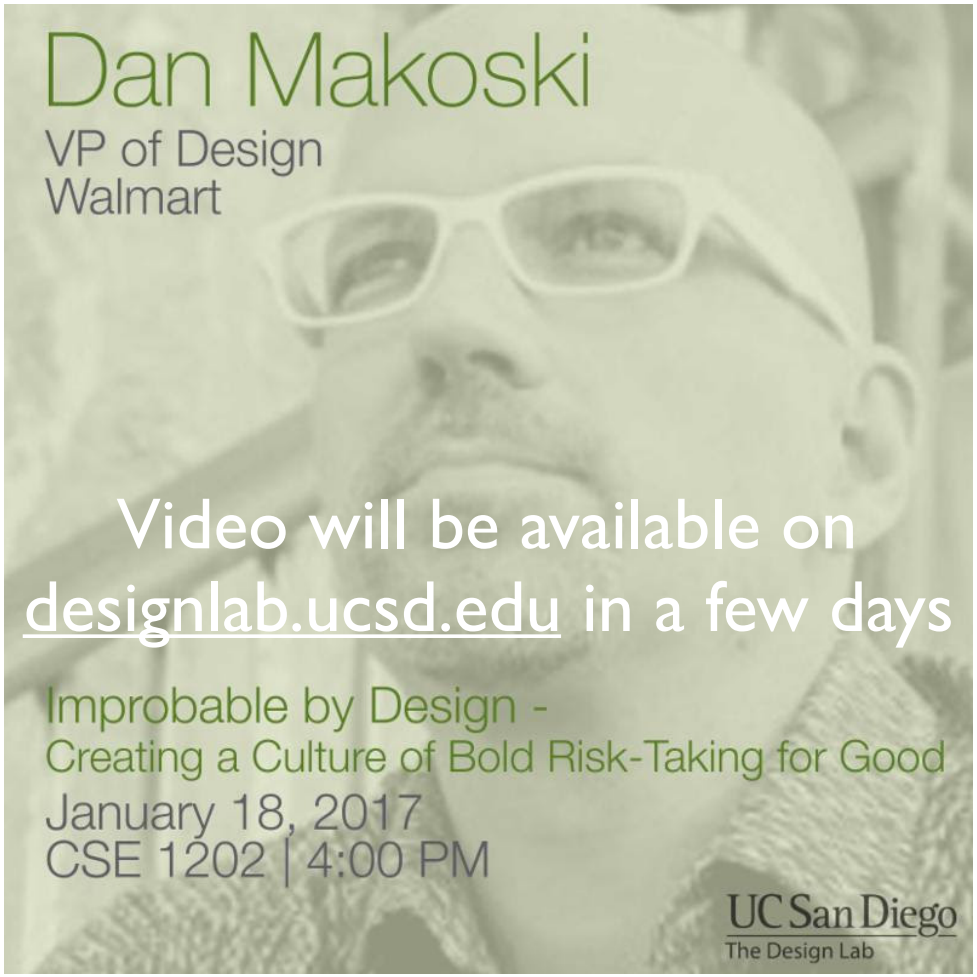
See the TAs at end of class.

Two Former Students Visiting Class Next Tuesday

Ed Langstroth

Nate Bolt

Design@Large Wednesday 4pm CSE1202



Improbable by Design - creating a culture of bold risk-taking for good. Join Dan in a fast-paced, hands-on talk about how to go beyond your comfort zone and create epic experiences that matter.

Dan Makoski leads innovation by design. He started Project ARA at Google, designed the original Surface at Microsoft, led design research at Motorola and was the first Vice President of Design at Capital One. Makoski started his career at the world's top design agencies, started his own a few years ago (Garage Partners), and now leads Design at the Fortune one: Walmart.

Quiz Each Week

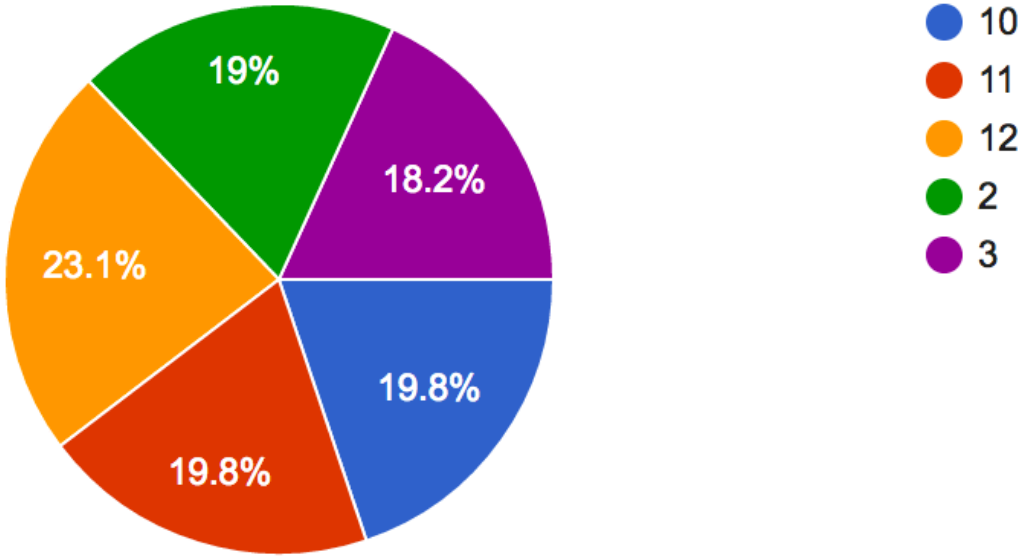
When: Typically in Tuesday lecture but sometimes Thursday

What: Cover concepts from readings and lectures from previous and current week as well as topics discussed in previous week's studio session

Why: Motivate you to keep current on readings and provide us with a little feedback

Week 2 Quiz

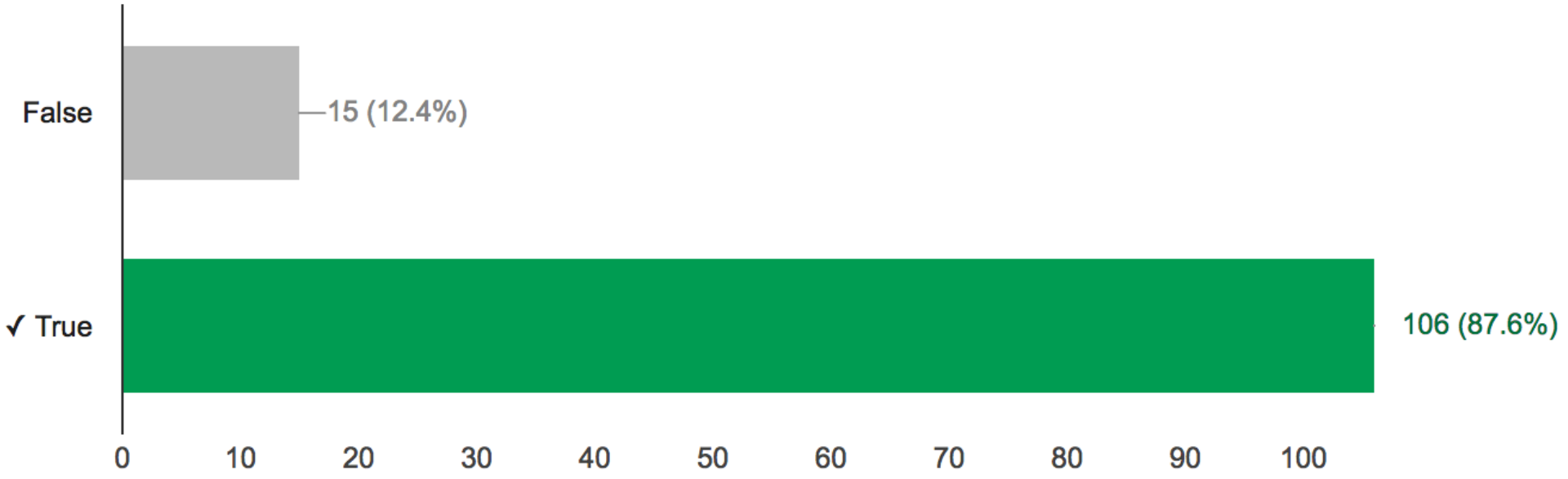
Studio (121 responses)



Week 2 Quiz

All artificial things are designed.

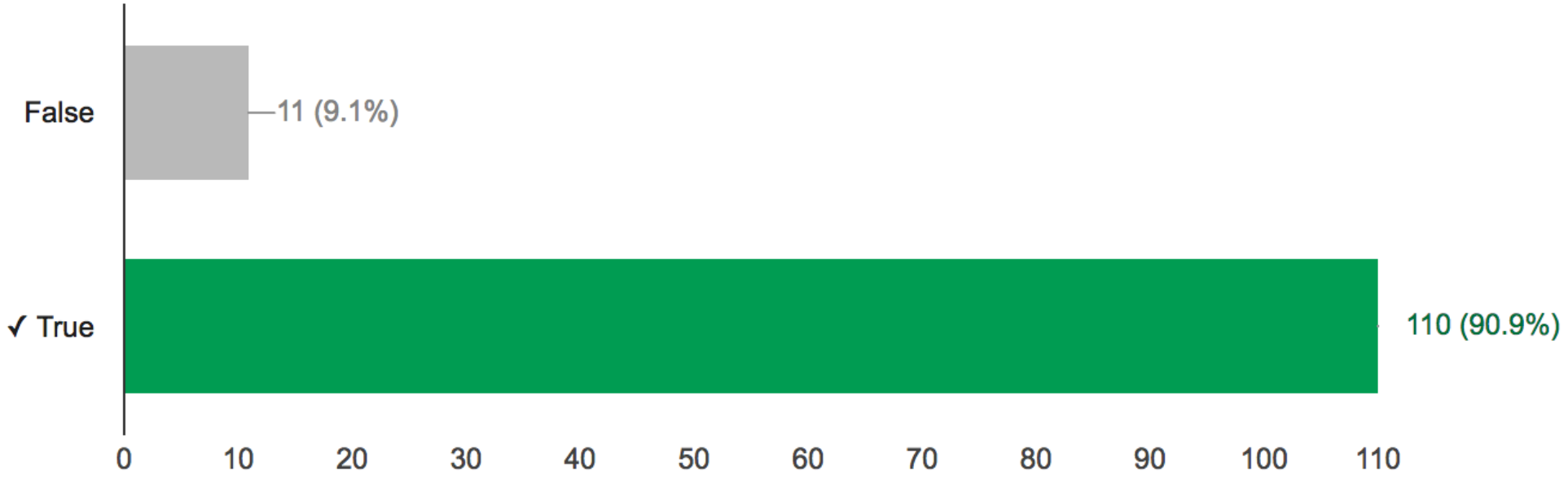
106 / 121 correct responses



Week 2 Quiz

An affordance is not a property but a relationship.

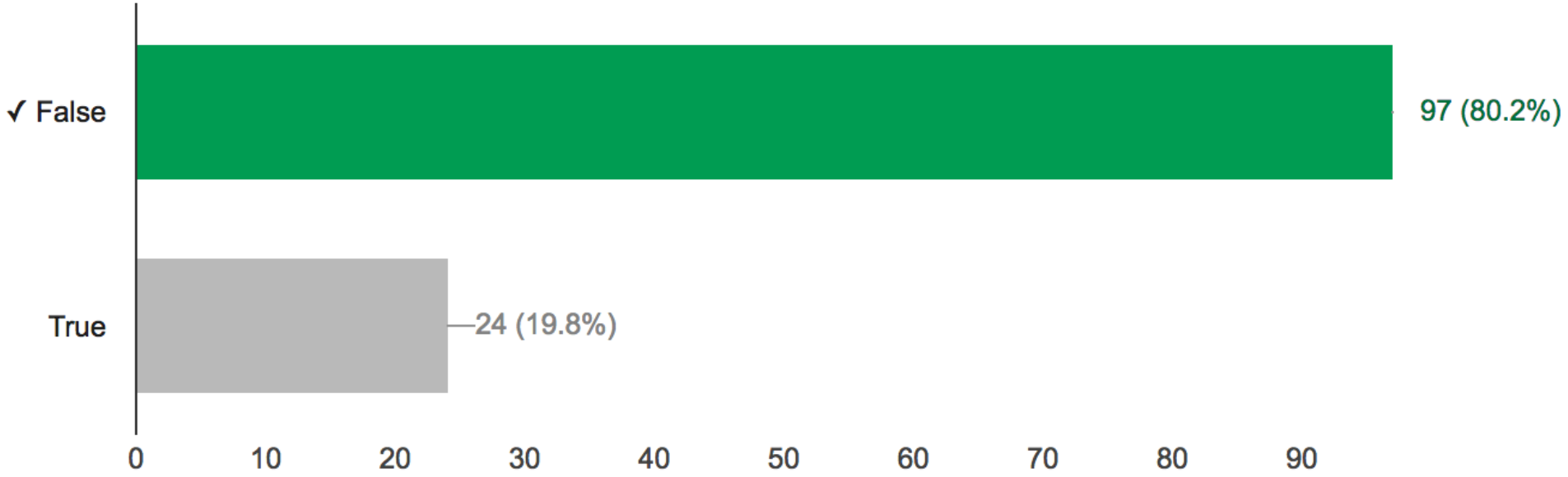
110 / 121 correct responses



Week 2 Quiz

According to the textbook there can be affordances but not anti-affordances.

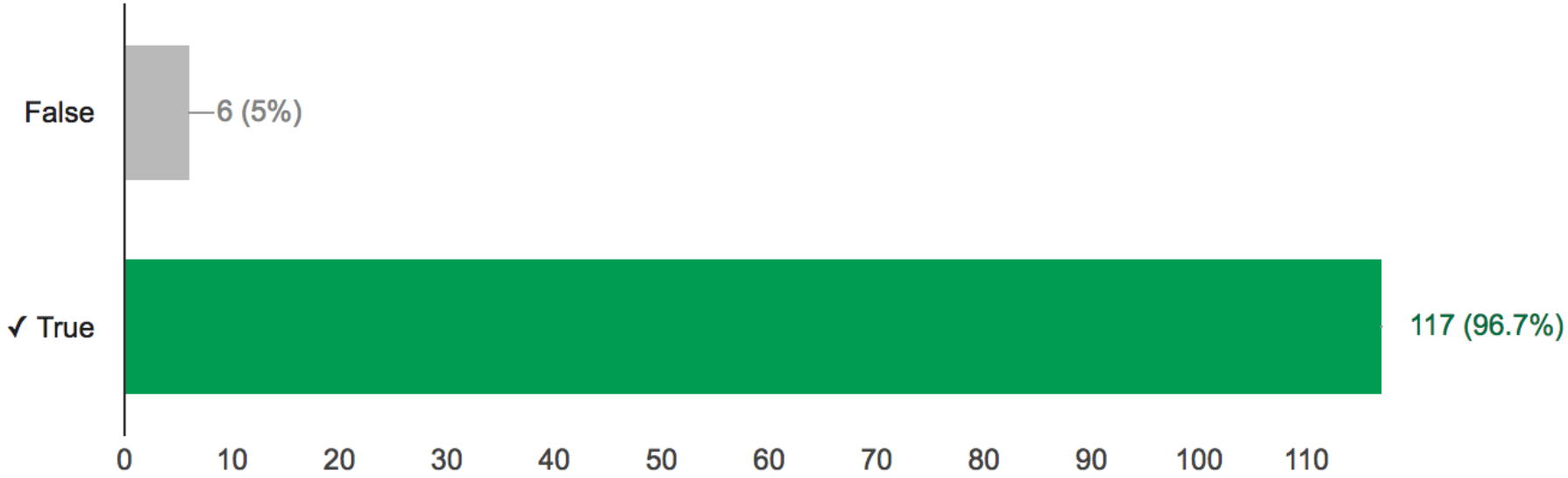
97 / 121 correct responses



Week 2 Quiz

Any perceivable indicator that communicates appropriate behavior is a signifier.

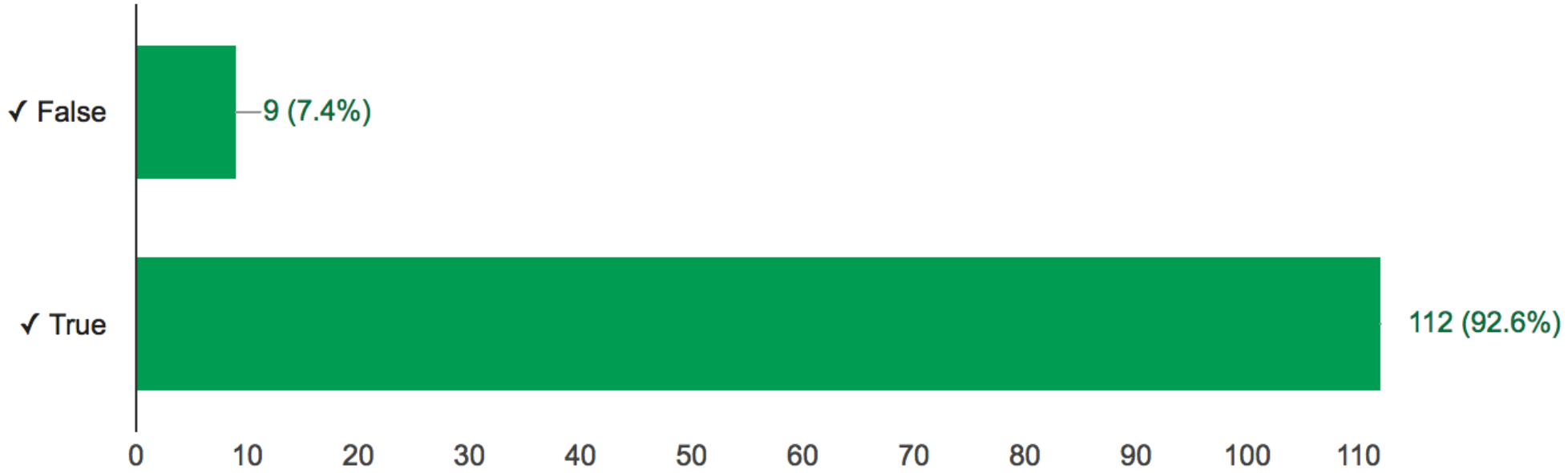
115 / 121 correct responses



Week 2 Quiz

Some affordances are not perceivable.

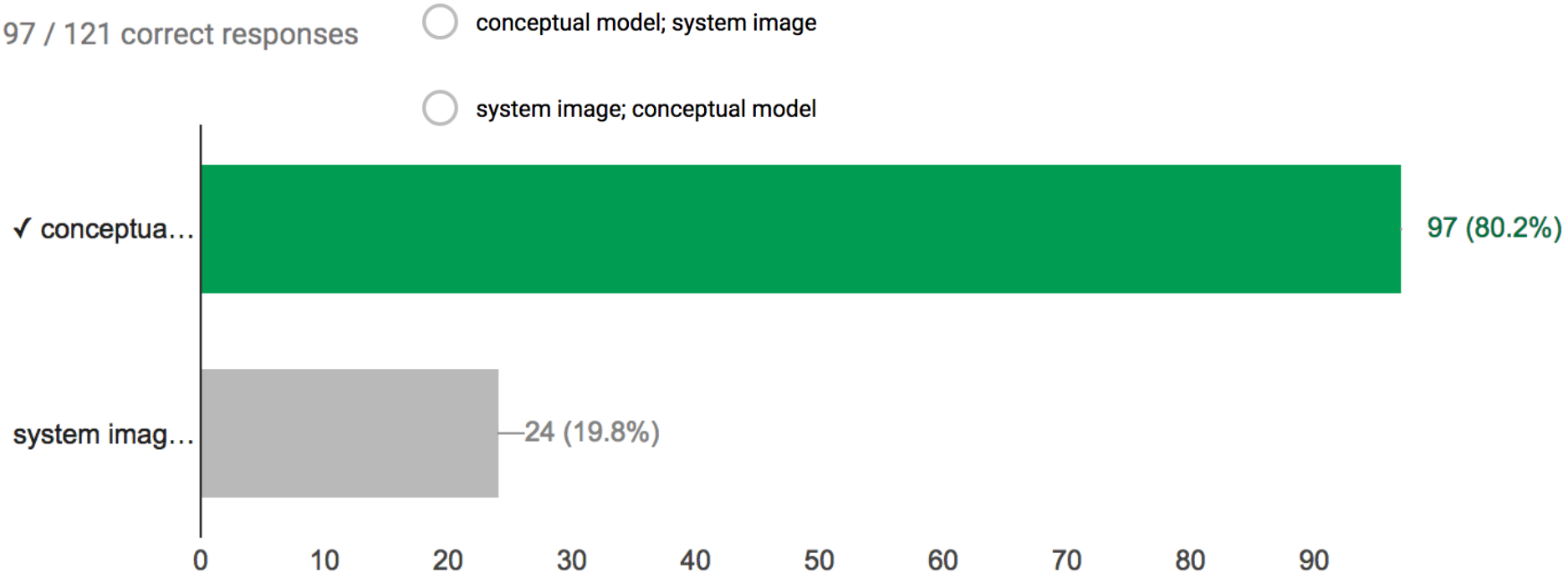
121 / 121 correct responses



Week 2 Quiz

The designer's _____ is the designer's conception of the look, feel, and operation of a product. The _____ is what can be derived from the physical structure that has been built (including documentation).

97 / 121 correct responses



Mental Models

Mental Models

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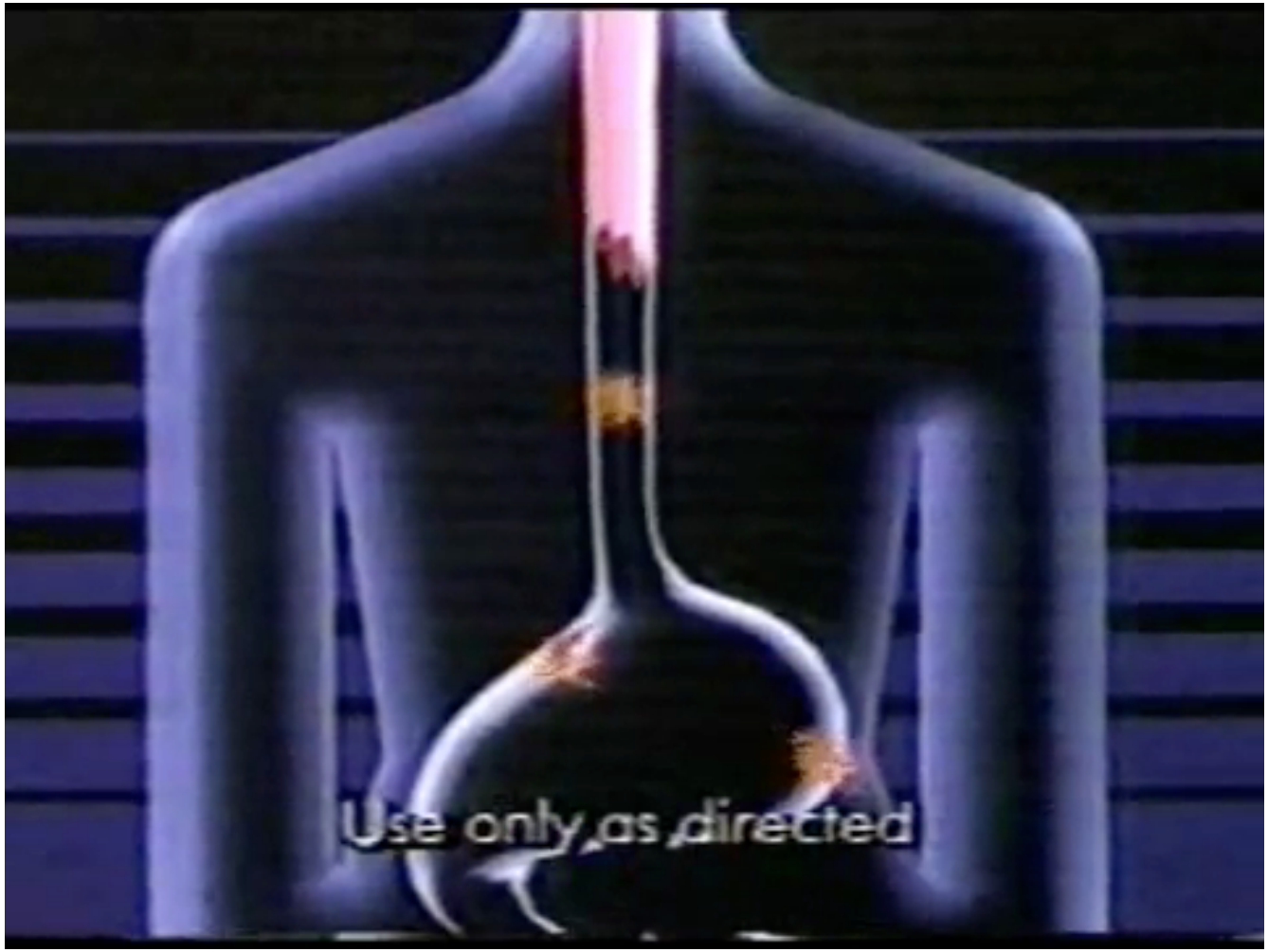


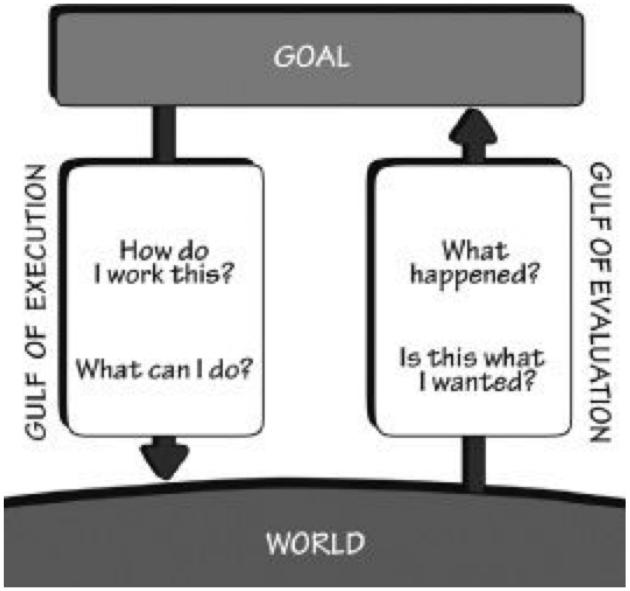
Mental Models

Ideas have histories

This weeks reading discusses the notions of the Gulf of Execution and Gulf of Evaluation

Direct Manipulation Interfaces, Edwin L. Hutchins, James D. Hollan, and Donald A. Norman. In User Centered System Design: New Perspectives on Human-Computer Interaction

Gulfs of Execution and Evaluation



Seven Stages Action

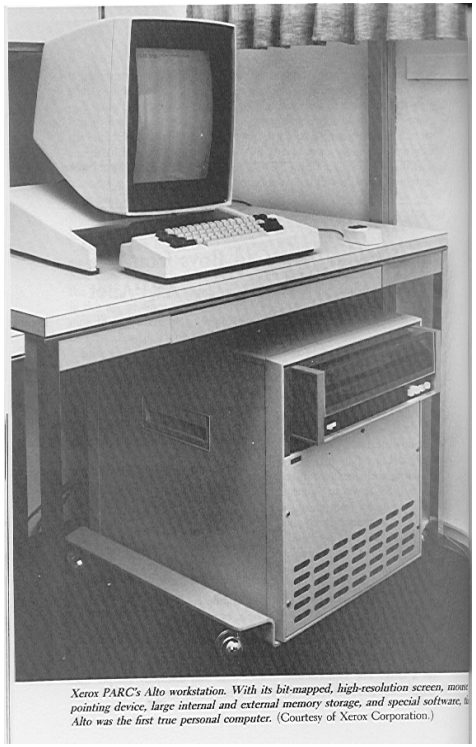
Three stages of execution: plan, specify, and perform

Three stages of evaluation: perceive, interpret, and compare, and, of course, the goal.

Direct Manipulation Interfaces, Edwin L. Hutchins, James D. Hollan, and Donald A. Norman. In User Centered System Design: New Perspectives on Human-Computer Interaction

Graphical or Direct Manipulation Interfaces (WIMP Interfaces)

Sketchpad



Xerox PARC's Alto workstation. With its bit-mapped, high-resolution screen, mouse pointing device, large internal and external memory storage, and special software, the Alto was the first true personal computer. (Courtesy of Xerox Corporation.)

Xerox Alto

Macintosh

Graphical or Direct Manipulation Interfaces

Ben Shneiderman

Direct Manipulation Interfaces

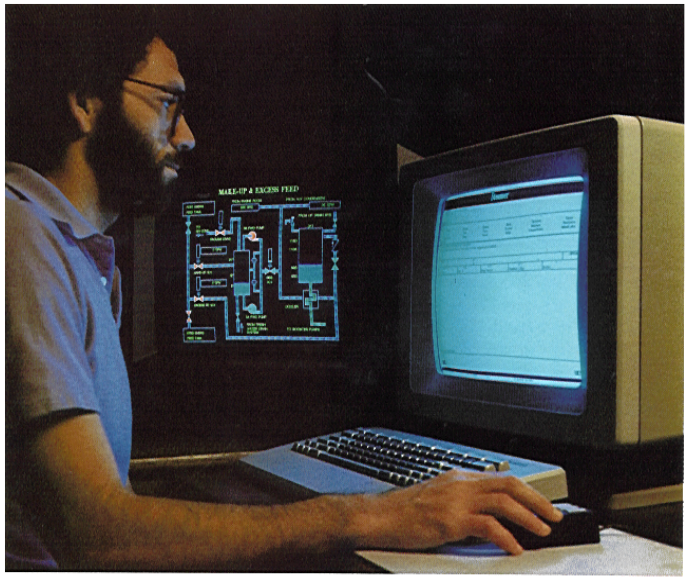
Continuous representations of the object of interest.

Physical actions or labeled button presses instead of complex syntax.

Rapid incremental reversible operations whose impact is immediately visible

Novices learn quickly, error messages rarely needed, users immediately see if their actions are furthering their goals

Steamer



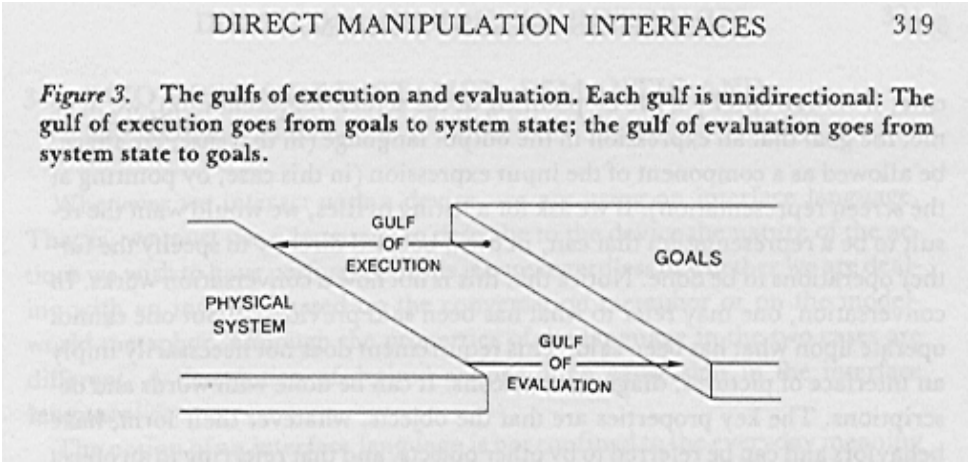
Gulfs of Execution and Evaluation

Every Device Specifies Interface Languages: Input and Output Interface Languages

Semantic Distance

Is it possible to say what one wants to say in this language?

Can the things of interest be said concisely?

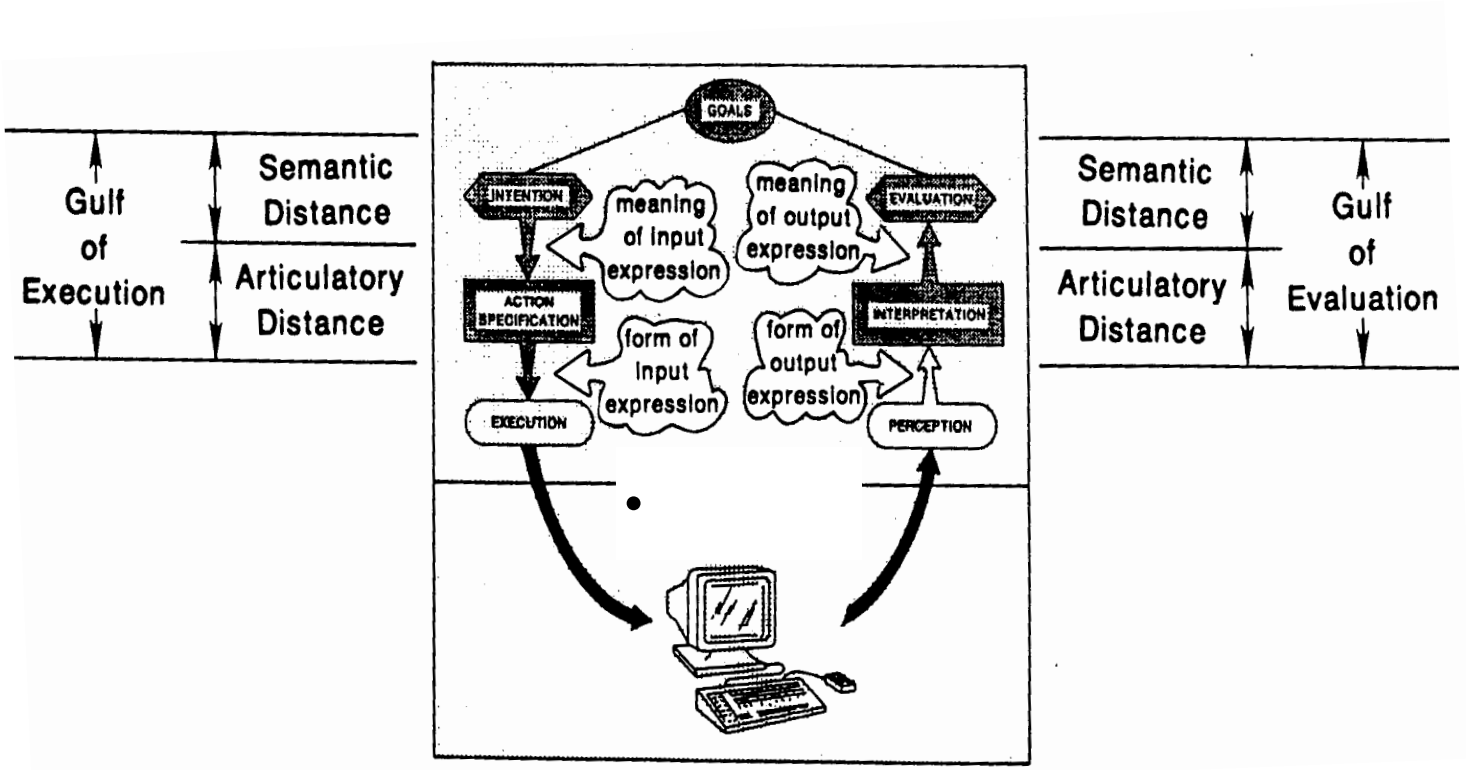


Semantic distance in the gulf of execution reflects how much of the required structure is provided by the system and how much is provided by the user. The more the user must provide the greater the distance to be bridged.

In the gulf of evaluation, semantic distance is the amount of processing structure that is required for the user to determine if the goal has been achieved.

Direct Manipulation Interfaces, Edwin L. Hutchins, James D. Hollan, and Donald A. Norman.
In User Centered System Design: New Perspectives on Human-Computer Interaction

Gulfs of Execution and Evaluation



Gulfs of Execution and Evaluation

Reducing distance

- Move the interface language toward the user
- User builds new mental structure to bridge the gulfs

Higher-Level Languages

Make the Output Show Semantic Concepts Directly

- WYSIWYG, Spreadsheets

Tradeoffs

- Generality and Power versus Specificity, Ease-of-Use, and Learnability

Automated Behavior Does Not Reduce Semantic Distance

- User Can Adapt to the System Representation
- Virtuosity
- Piano versus Violin

Project I Paper Due Monday

By the evening of the due date (Monday 1/23), your two person group will jointly write one document describing Project I. A goal you should have for project papers is to evidence you understand and can use the concepts we are covering. Your paper should include pictures, your analysis of the designs (using the principles from Ch. 1 and concepts of affordances, signifiers, feedback, conceptual and mental models, etc. to explain why each design is classified as it is), ~~and summarize the design critique from 1/18 and your responses to it .~~ You should summarize the critique and how it may have influenced your project in a class activity portfolio entry. You should also document your contributions in your portfolio too.

Each member of the team will include a link to the jointly written Project I document in their personal class activity portfolio. Again be sure you enable editing. In addition, in your portfolio you should also comment on both your and your teammate's contributions to the project and the writing of the document. One person from each project team should respond to the google form on Piazza to provide a link to paper.

Project I Paper Grading

5 Use of photos in ways that are clear and help tell the story

15 Analysis of designs and evidence can use concepts from class (affordances, signifiers, etc)

5 Overall clarity of writing

25 Possible Points

5 A+, 4 A, 3 B, 2 C, 1 D

Length: expect 3-6 pages but criteria is clearness of analysis and clarity of writing

Writing Advice

Writing is hard work but it can also be enormously rewarding and fun

Writing is a skill that improves with practice

Perhaps the most important skill to develop as an undergrad

Worth your time investment

Read good writing. Notice style and structure.
(George Miller Magic Number 7 Plus or Minus 2)

Writing Advice

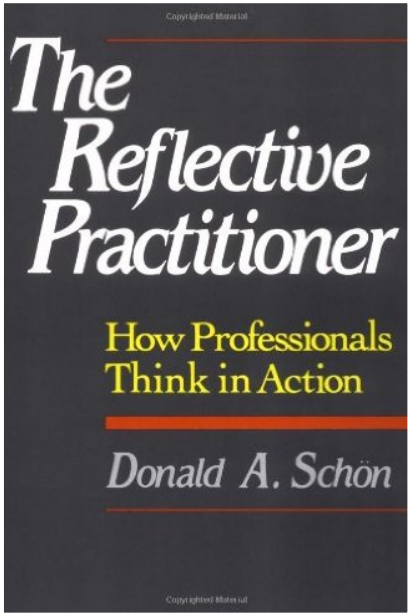
Clear Writing Goes Hand in Hand with Clear Thinking

Improving either will improve the other

The Reflective Practitioner by Donald A. Schön

A Reflective Conversation with Materials

Nice characterization of any creative activity



Writing Advice

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. This is a design activity.

What matters is that your audience accurately perceives what you had in mind

Write with the reader in mind

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

Part of learning to write (and read) is learning the genre of different types of papers

Writing Advice

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

Writing Advice

At each 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

Writing Advice

Conflicts between writing and reading

One of the many reasons rewriting is important is that on initial writing you are often trying to get out a new thought 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 it.

Writing Advice

Before You Write

Put time and thought into your paper before you start a first draf

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 and provide evidence

Writing Advice

Outlines are 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

Writing Advice

Stages: Thinking, Drafting, Revising and Editing (multiple passes; many, many)

Drafting

Draft is writer-centered; you are telling yourself what you know and think; Often discovering 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

Writing Advice

Revising and Editing

This is where most of your time should be spent. 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; Approach writing as a design problem

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

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

Revising and Editing Takes Time

Multiple sessions. Putting it aside is important

Be Willing to Delete

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(s) in each paragraph. Rank their importance in advancing your thesis. Consider connections between and among ideas

Writing Advice

Rethink Your Thesis

Consider how your argument can be restructured, how points might be reordered, how you can cut irrelevancies or redundancies, and 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