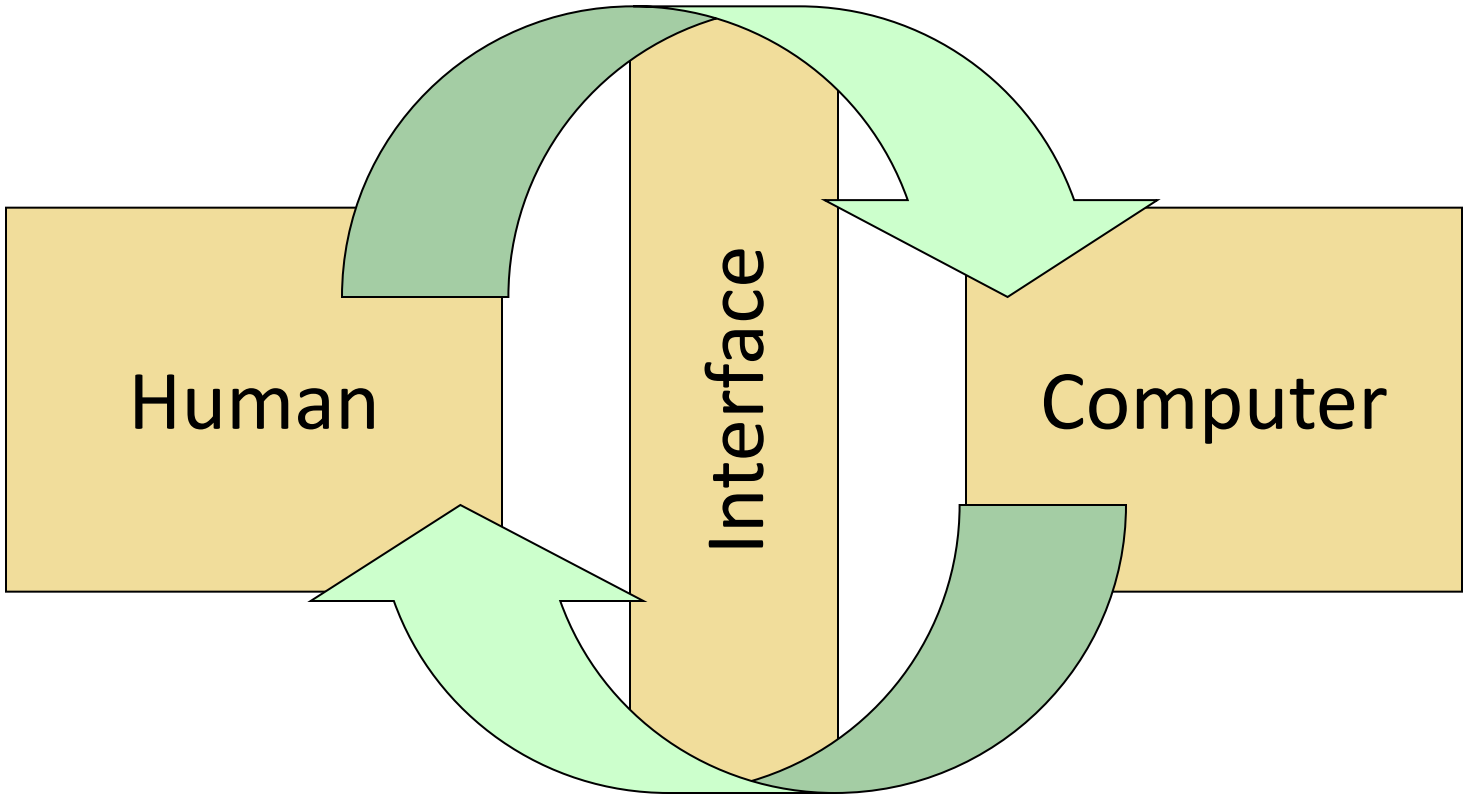
Review Slides

Week 1- Week 3

One Fast Growing Interdisciplinary Discipline
Human Computer Interaction (HCI)

Interaction: Input



Interaction: Feedback

Design Science

- The Interdisciplinary "Design Science" of Human Computer Interaction (HCI) combines knowledge and methods associated with professionals including:
  - Psychologists (incl. Experimental, Educational, and Industrial Psychologists)
  - Computer Scientists
  - Instructional and Graphic Designers
  - Technical Writers
  - Human Factors and Ergonomics Experts
  - Anthropologists and Sociologists

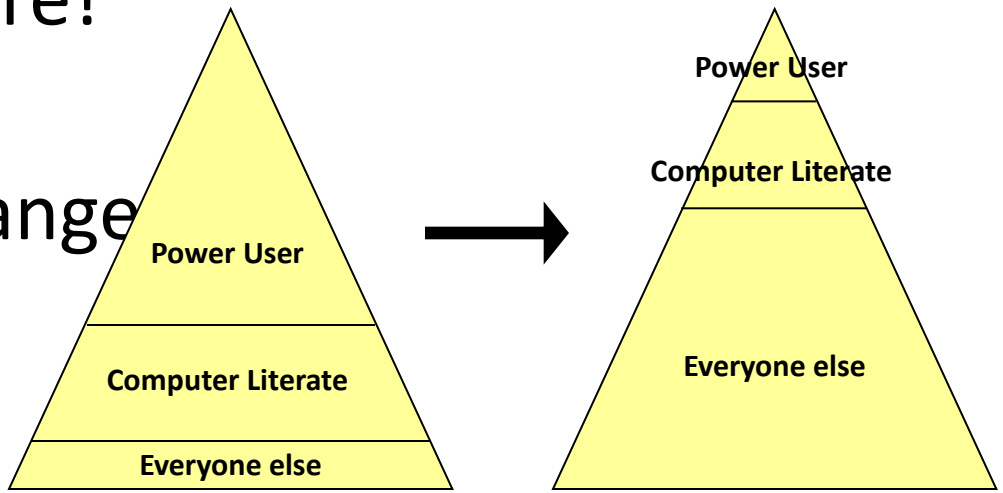
Two Focuses for Rethinking HCI
Designing for **People**

- Find out what people *really* want to do
  - **Daily**-Use Scenarios
    - Main actions/goals that user needs to perform
    - Scenarios that need the most robust interaction support
  - **Necessary**-Use Scenarios
    - Other actions that must be performed
    - May not be that frequently
  - **Edge**-Case Scenario
    - Rarely used, but must be included (like configuration)

Power Users

- Often feel important because they can use complex software
- A status symbol!
- Such users are often engineers, and the ones who write software!

Think about the change from 1970 to 2010:



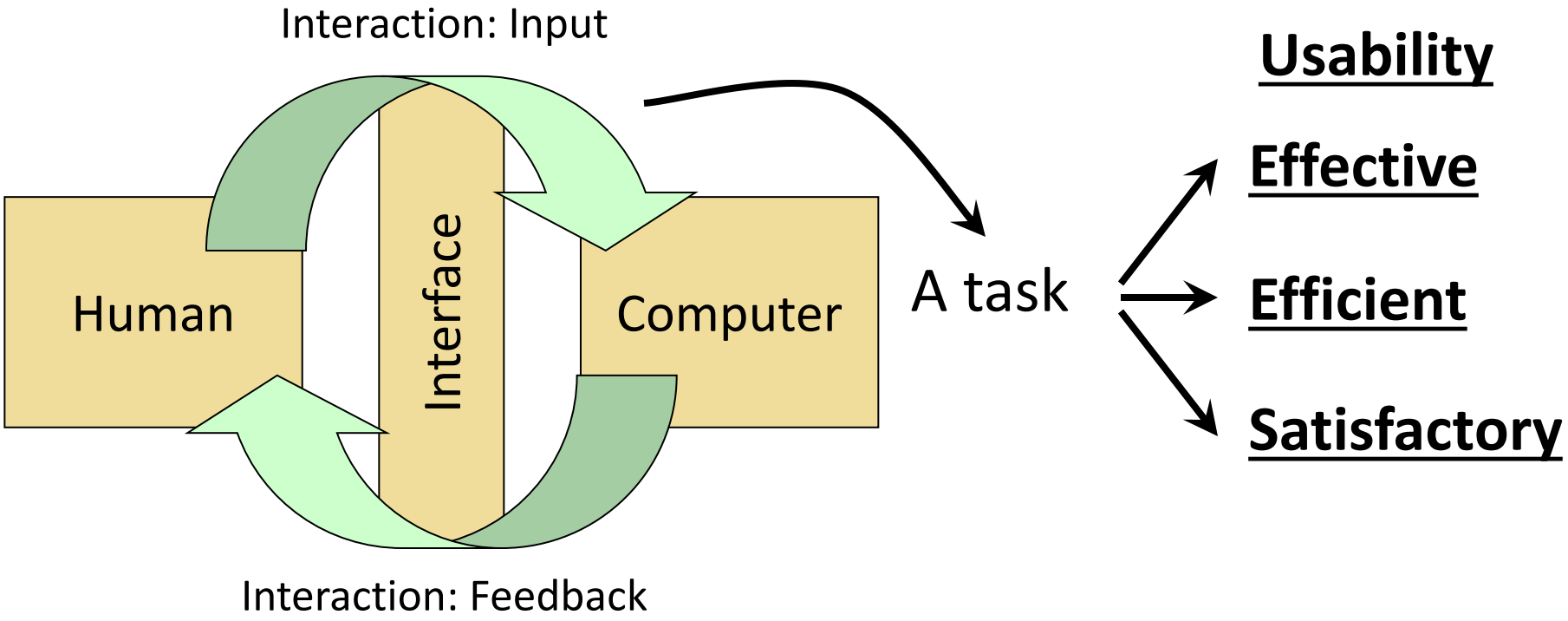
Recommendations

- Have **design at the "heart"**
  - Which includes user studies and clear understanding of the users desires/needs
  - Apply all the principles and practices of good design

- Separate UI from Programming
  - As much as reasonable
  - UI can be designed before the programming starts

- **People**-oriented design
  - Goals versus Features!
  - What are the goals, not features of the system

Three Important Characters for Usability



In this course, we will look at different parts of this diagram

Four Goals for Usability Requirements

Four goals for Usability Requirements (UR):

1. Ascertain the **user's needs**
2. Ensure **proper reliability**
3. Promote appropriate **standardization**, **integration**, **consistency**, and **portability**
4. Complete projects **on schedule** (and within budget)

Five Usability Measures

- ISO 9241, focusing on admirable goals:
  - Effectiveness; Efficiency; and Satisfaction

- 5 human factors central to community evaluation

1. ***Time to learn***
   How long does it take for typical members of the community to learn relevant task?
2. ***Speed of performance***
   How long does it take to perform relevant benchmarks?
3. ***Rate of errors by users***
   How many and what kinds of errors are made during benchmark tasks?
4. ***Retention over time***
   How well do users maintain their knowledge after an hour, a day or a week? Frequency of use and ease of learning help make for better user retention
5. ***Subjective satisfaction***
   How much did users like using various aspects of the interface? Allow for user feedback via interviews, free-form comments and satisfaction scales

Six Application Types and Motivation

Classification by Shneiderman (interactive systems):

1. Life-Critical Systems
2. Industrial and commercial uses
3. Home and Entertainment
4. Exploratory, creative, collaborative applications
5. Social/Technological applications

New

6. Human Computation systems

"*Different applications have different preference for the five measurable human factors*"

Seven Topics of Universal Usability

We will look at seven topics:

1. Physical ability and workplace
2. Cognitive and Perceptual abilities
3. Personality differences
4. Cultural and International Diversity
5. Users with Disabilities
6. Considerations for Elderly
7. Considerations for Children