outline:

I. What is Usability Testing:

(& some questions for you folks)

II. Some Methodologies:

    a. Quantitative:

    b. Qualitative:

    c. More???

III. The Lakeshore Nature Preserve Interactive Map

def   some definitions of **Usability Testing**:

Cooper & Reimann (2003):

"usability, or user testing, focuses on measurable characteristics of a user's interaction with a product. Assessing the usability of a product focuses on standardized tests that yield quantifiable data."

Krug (2000):

"one user at a time is shown something and asked to either (a) figure out what it is or (b) try to use it to do a typical task"

Robinson et al. (2005):

formal or informal techniques for assessing design prototypes
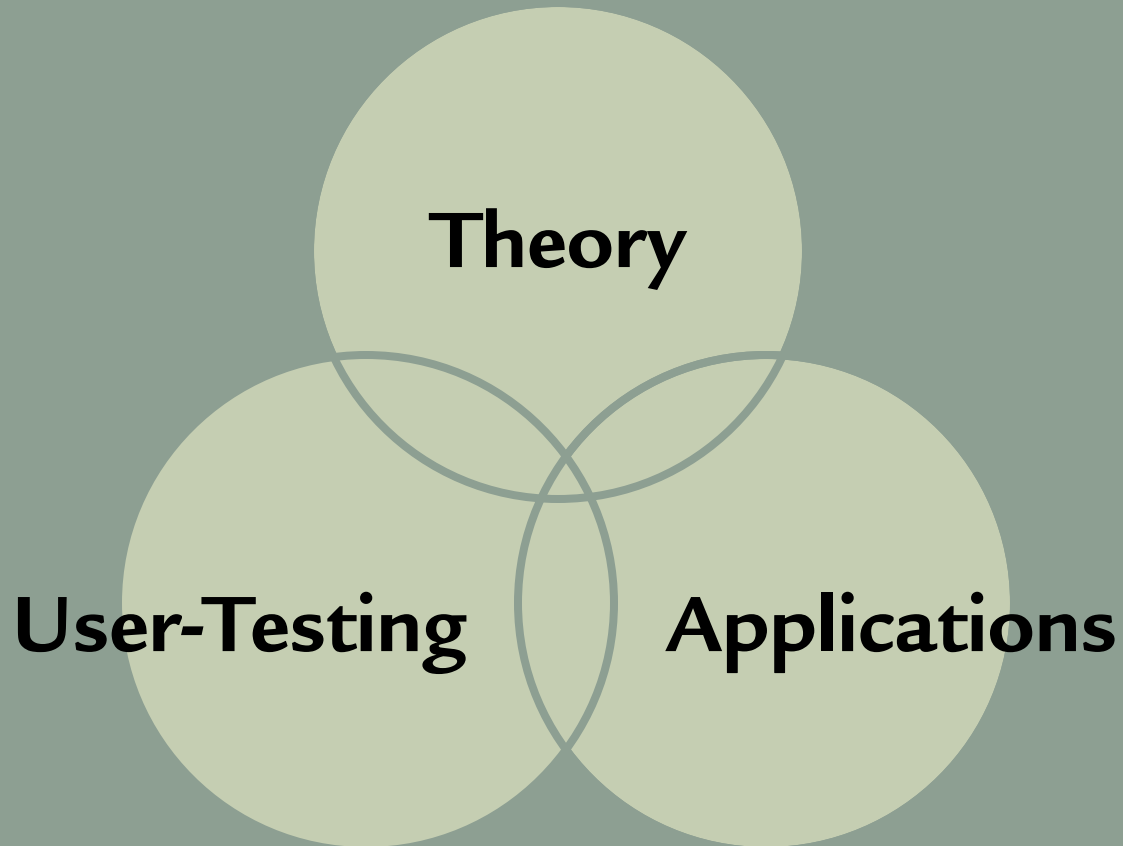
Saraiya et al. (2004)

"evaluation of visualizations to identify and solve user interface problems"

Shneiderman et al. (2003):
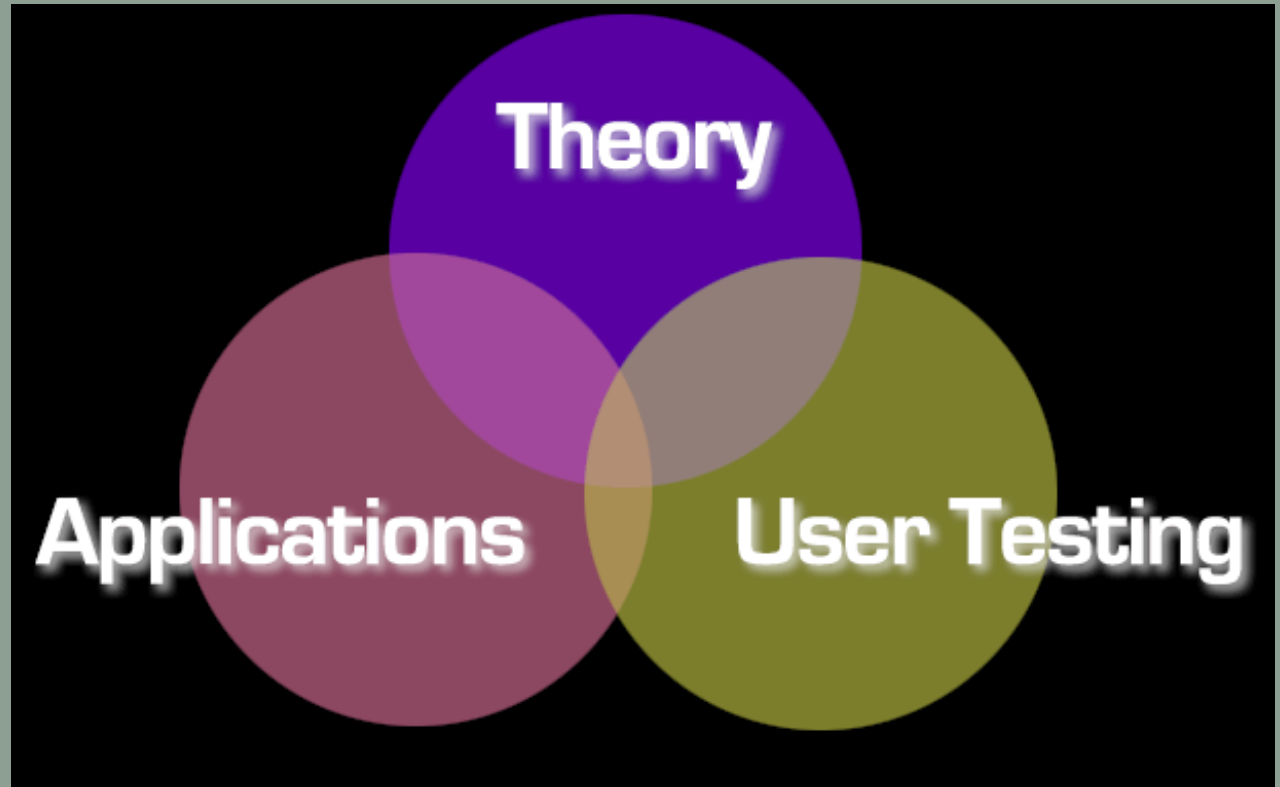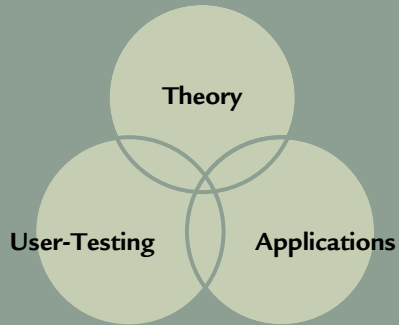
"understanding, stating, and serving user needs"

some schematics:

Theory

User-Testing

Applications

some schematics:

Theory

User-Testing   Applications

some schematics:

some schematics:

GISCIENCE THEORY

Informs

DOMAIN THEORY

Alters

APPLICATIONS

Alters
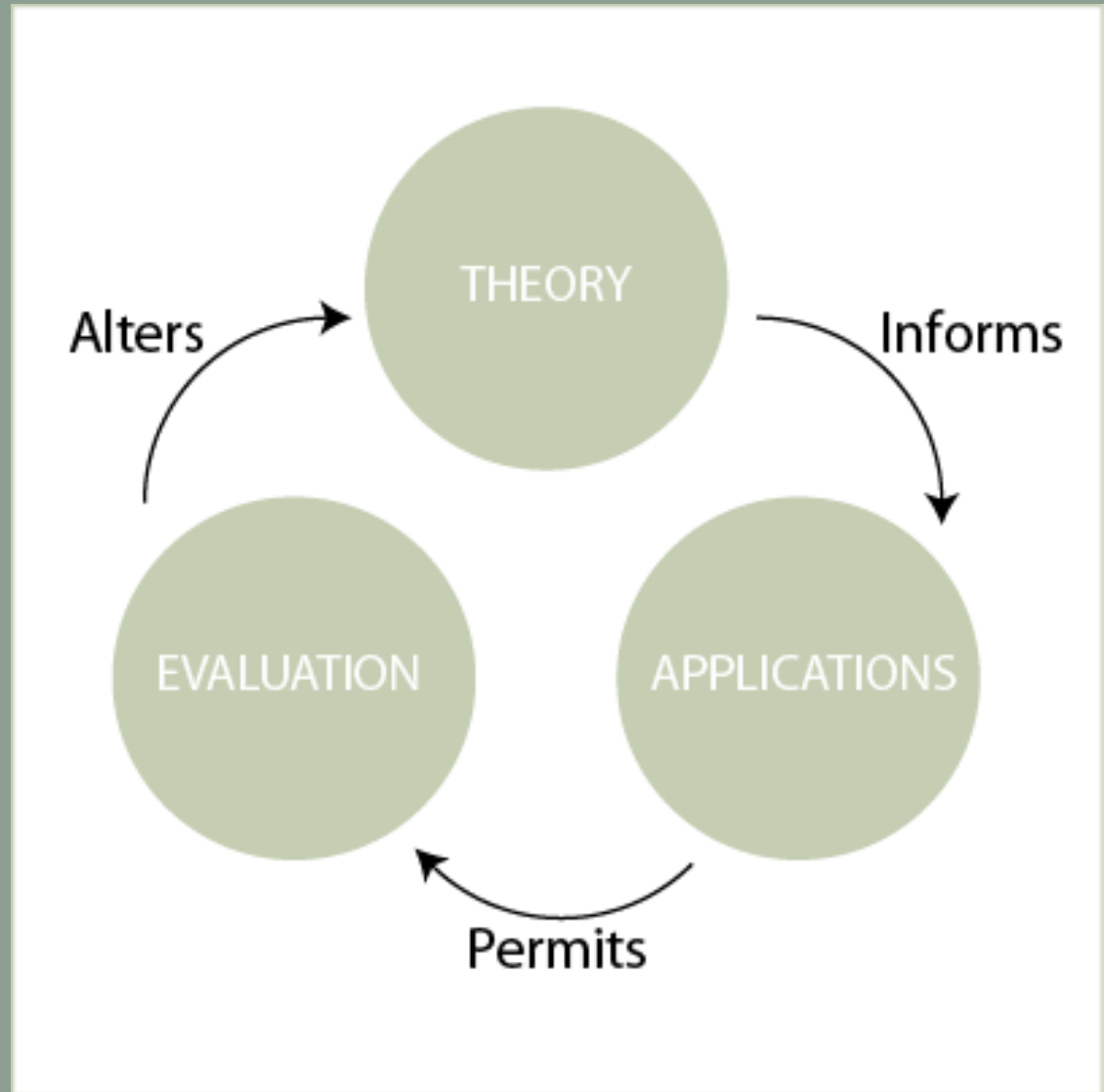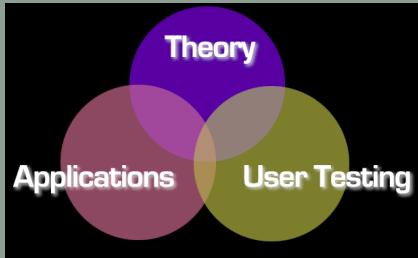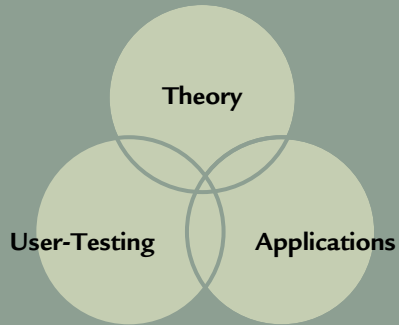
EVALUATION

EVALUATION

Permits
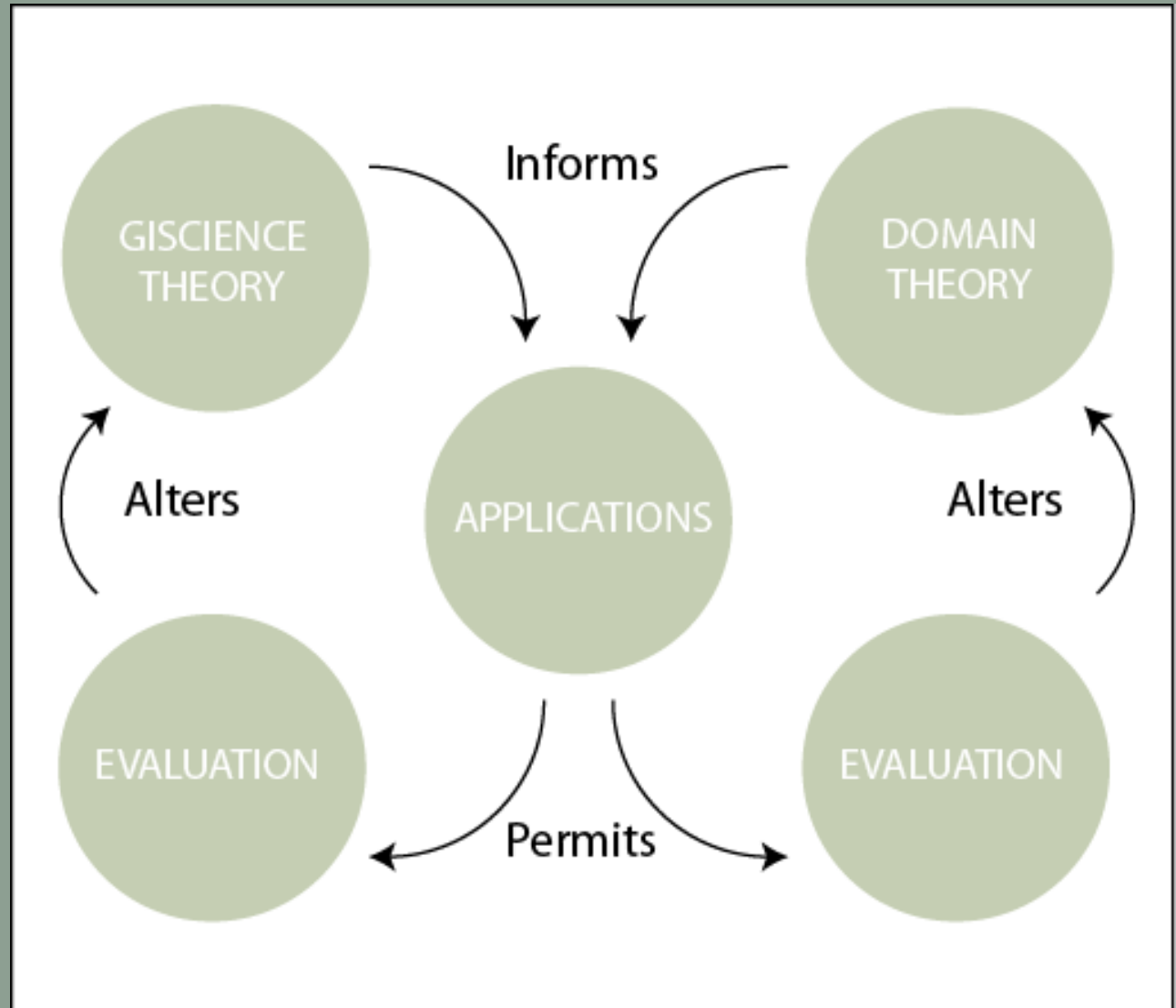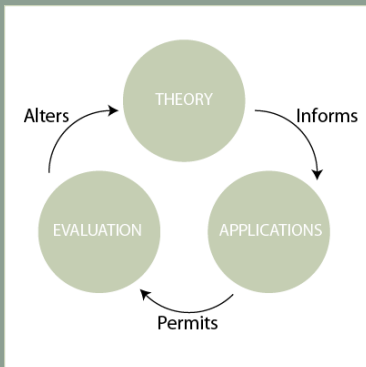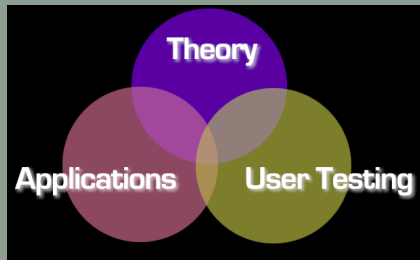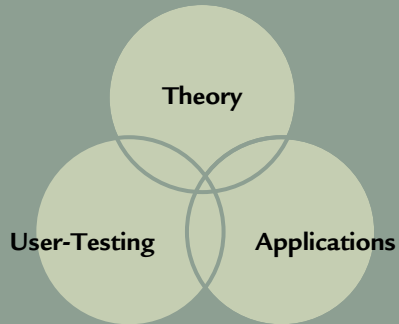
Q1 **evaluation versus usability testing:**

Plaisant (2004): user-testing/user-evaluation/user-assessment = controlled experimentation + usability testing

User-Testing

Controlled Experimentation
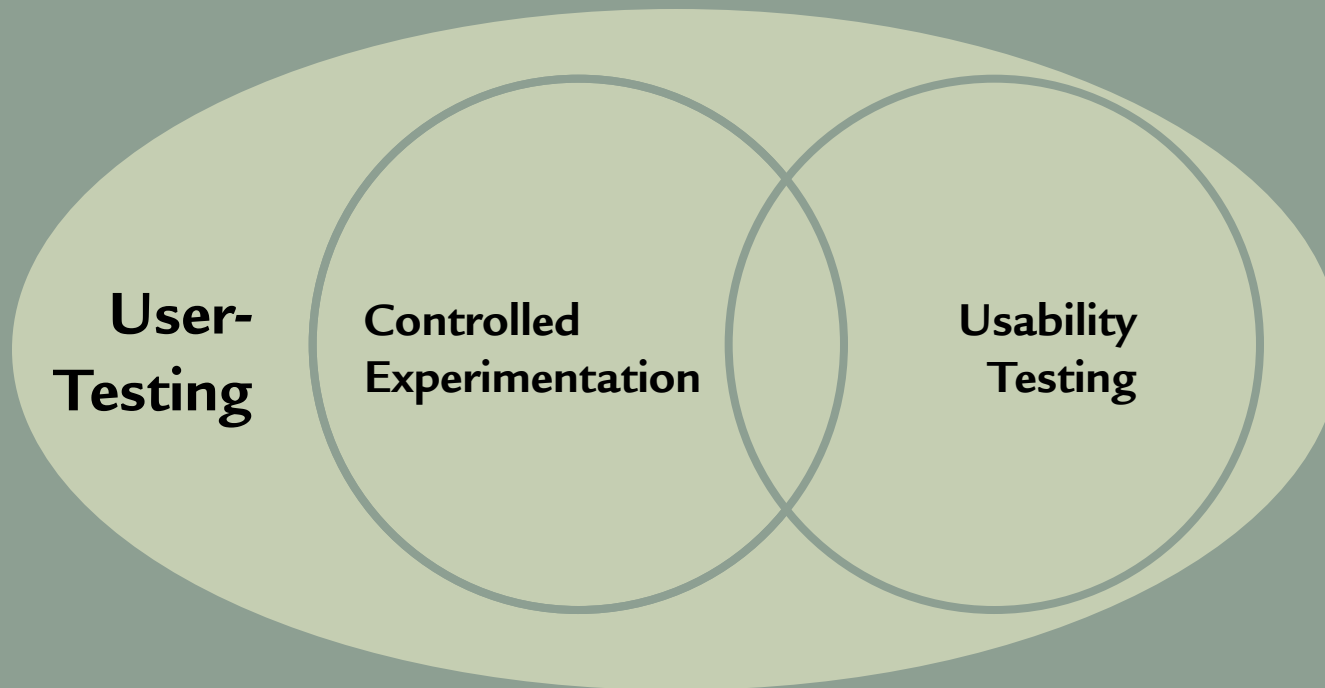
Usability Testing

Hardisty et al. (2001): cognitive testing versus usability assessment?

Q2   utility versus usability testing:

utility:
usefulness

usability:
ease of use

Hubona & Blanton (1996): usability trumps utility

Liao & Landry (2000): utility trumps usability

Yuen & Ma (2002): importance is gender specific

Plaisant (2004):

On the Sedgway: "Usability studies and formal comparison of speed characteristics and incident data might help worried potential drivers but it is their judgment of utility that will likely trigger adoption "

M **methodologies:**

quantitative:

*controlled experimentation

- *accuracy* (precision, error rates, correctness)
- *efficiency*
  - Kobsa (2001), Plaisant (2001), Saraiya (2001)

*usability metrics

- *interface workload*
  - GOMS - Card et al. (1983)
  - NASA TLX Worksheet - Hart and Staveland (1988)
  - mouse mileage/# clicks – Harrower & Sheesley (2005)

- *data density/information-to-interface ratio*
  - Tufte (1983), Saraiya et al. (2004), Harrower & Sheesley (2005)

- *insight metrics*
  - Saraiya et al. (2004)

qualitative:

*questionnaires/surveys/informal assessment
- Kobsa (2001), Robinson et al. (2005)

*card sorting
- Nielson 1993, Robinson et al. (2005)

*interaction logs
- Howard and MacEachren (1996)

*verbal protocol analysis (VPA) (talk aloud)
- Nielson 1993, McGuiness 1994, Howard & MacEachren (1996), Hardisty et al. (1998), Robinson et al. (2005)

*interviews/focus groups
- Howard & MacEachren (1996), Robinson et al. (2005)

*ethnographic case studies & longitudinal studies
- Yin (1994), Plaisant (2004), Saraiya (2004), Robinson et al. (2005), Shneiderman and Plaisant (2006)

Q3 **methodologies…**

are there any more?

is usability testing scientific?

Universal Usability - Plaisant (2004):

"designing visualization tools so that they are accessible to diverse users regardless of their backgrounds, technical disadvantages, or personal disabilities"

LNP **The Lakeshore Nature Preserve Interactive Map**

http://www.lakeshorepreserve.wisc.edu/imap/LakeshoreNaturePreserve.html

LNP The Lakeshore Nature Preserve Interactive Map

utility:

usability:

*cascading interface density: - providing multiple levels of user interface (e.g. novice versus expert mode) to match the varying level of user motivation

(1) **The Newbie:** a user that has no knowledge about The Preserve

*purpose: publicity and awareness

(2) **The Regular:** a user that regularly visits The Preserve

*purpose: education and entertainment

(3) **The Researcher:** a user who studies the Preserve

*purpose: hypothesis generation and analysis

*The Lorem Ipsum Map: - (after Krug 2000) design the interface for the data you are mapping, don't only map the data that matches your interface

*Panning & Zooming – almost all tested users didn't get direct manipulation (so be flexible)

*The Tufte Critique - while Tufte's principles of minimal data ink work excellently with data graphics, they do not work well for interface design:

Ware (2004): "adding marks to highlight something is generally better than taking them away"