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*The impact of change in Web-based
IR systems on users' experience*

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***Everything changes,
nothing remains.
You can't step into
the same river
twice.***

Heraclitus



Concept of Change

State x_1
(initial)

State x_2
(changed)



TIME

Change is inevitable

- Users change
- IR systems change
- Environment in which users and IR systems operate changes

Users Change

- They change from novice to experienced IR system users
- Their subject expertise changes
- Their information needs and information problems change

IR Systems Change

- Their search capabilities change
- Their content changes
- Their user interface changes

Environment Changes

- Technological advancements in system design and development (e.g., object oriented programming, rapid prototyping)
- Changes in connectivity, mobility, transportability, interoperability

Impact of Change

- Positive outcomes for the user - usually delayed:
 - Better system usability
 - Improved productivity
- Negative outcomes for the user - usually immediate:
 - Confusion
 - Decreased productivity
 - Frustration

Why IR Systems Change?

- Technological advances
- Growth in content
- Change in system purpose
- Improvements in design and capabilities

Change in Web-based IR systems: Examples

- A website doesn't exist any more
- A linked document is not there any more
- A website has a different look and feel
- A new search feature/function has been added

Two Case Studies of Change

Dell Computer:

- 10 mil. Visitors per month (1999)
- “Dell reworks Web site to guide 'solvers,' 'browsers' ” 11/15/99
- Customer support Website redesign by internal Web development group
- Third major Website redesign since 1996
- redesign revoked due to massive complaints

Two Case Studies of Change

Liz Claiborne:

- Online store redesign by Creative Good (<http://www.creativegood.com/>)
- The redesigned site reportedly created 57% increase in sales conversion and a 25% increase in average order size

Implications for Web Users

- What you have once found will not be there when you visit again
- Need to have universal search skills
- Need to have alternative strategies for finding information when system changes

Implication for Web Designers and Content Providers

- Web users notice and care about the changes
- Keep in mind unintended effects of changes
- Think about ripple effect of changes

Research Implications

Need to incorporate change as a factor in the research design for IR system evaluation

- User change: *information problem shift* (Spink & Wilson, 1999)
- System change: ???
- Need to conduct studies about the impact of IR system change on user experience.

Possible Research Approaches

- Experimental studies
- Longitudinal studies
- Dynamic system modeling of potential impacts of change

Heracлитus, again...

- It is the change of water that makes a river.
- It is the change of Web-based IR systems that makes the Web.