Building a Test Collection for Investigating Contextual IR

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Why Build a Collection?

- Building a test collection is a time-consuming and laborious process

- Standard test collections allow for:

  - More rapid progress

  - Comparison of techniques

  - Examination of alternative hypotheses

  - Replication of previous findings

- Examples of highly used test collections: TREC

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Minimum Criteria

- The collection should contain more than just documents, topics and relevance judgments

- The collection should contain information about users, such as their:
    - information needs and goals
    - information-seeking context
    - behaviors within this context

- The collection should be constructed within a natural use environment & over an extended period of time

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Challenges

- Discussion about:
    - what context is
    - what elements of context matter in IR
    - how to measure these elements has to occur
- Construction & evaluation of new data collection tools
- Recruitment, retention and compensation of subjects
- Funding

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An Example Collection

Users: Seven Ph.D. students from unique departments

Time Period: 14 weeks = 1 university semester

Instruments & Variables

- Laptops & printers (compensation)

- Client- and proxy-side loggers (**behaviors**: display time, URLs requested, print & save, keystrokes, local copies of all documents requested)

- Task & Topic Questionnaires (**context**)

  - Task [Endurance, Frequency & Stage]

  - Topic [Persistence & Familiarity]

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An Example Collection
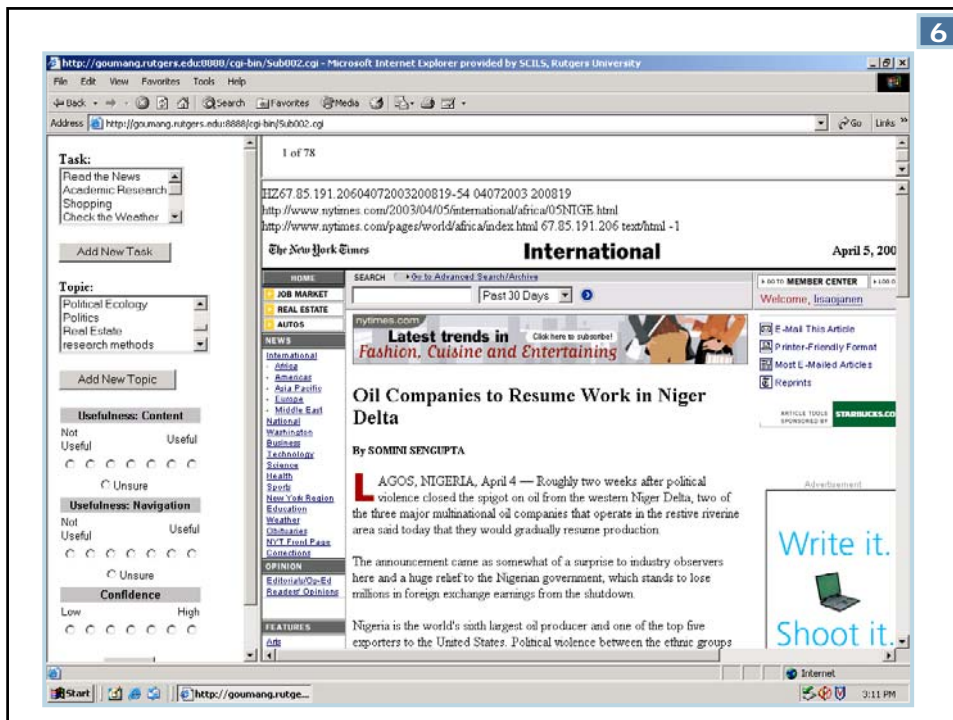
Instruments (continued)

- Evaluation Interface (**document usefulness** and confidence ratings; 7-point scales)

Procedures

- Initial Meeting

- Weekly one-hour meetings

- Exit Interview

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```
<document>
    <id>0000001</id>
    <date>03052004</date>
    <referrer>http://www…</referrer>
    <url>http://www….</url>
    <title>Oil Companies to Resume …</title>

    <episode 1>

        <time>01:24:30</time>

        <user userid=2>

          <context>

              <task>Read the news
                  <endurance>7</endurance>
                  <frequency>3</frequency>

              </task>

              <topic>Political Ecology
                  <persistence>7</persistence>
                  <familiarity>6</familiarity>

              </topic>

              </context>
```

Continued on next slide…

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```
<behaviors>

    <display_time>00:00:40</display_time>
    <print>1</print>
    <save>0</print>
    <keystrokes>0</print>
    <scrolling>0</scrolling>

</behaviors>

<usefulness_content>6</usefulness_content>

<usefulness_navigation>1</usefulness_navigation>

<confidence>7</confidence>

        </user>

    </episode>

CONTENT OF DOCUMENT

</document>
```

Results: QUANTITY OF DATA

		Client Log	Proxy Log	# Req	# Eval	# of Tasks	# of Topics
	1	2.6 MB	1.7 GB	15,499	843	6	9
S	2	6.8 MB	83 MB	5,319	771	11	80
U	3	3.9 MB	39 MB	3,157	381	19	17
B J	4	2.0 MB	42 MB	3,205	351	25	35
E C	5	1.5 MB	48 MB	3,404	193	12	25
T	6	21.7 MB	2.9 GB	14,586	1,181	21	40
	7	4.9 MB	2.1 GB	11,657	1,125	33	26
TOTAL		43.4 MB	6.9 GB	56,827	4,845	127	232

Costs

	Current	Current+	Projected
Users	7	7	21
Time Frame (weeks)	14	14	14
Hours spent per user/per week	6	3	3
Total Hours	588	294	882
Hardware, software, compensation	$10,000	$10,000	$210,000*
Page Evaluations	4,845	4,845	14,535

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Getting Started …

In-workshop exercise

- What does context mean to you?

- If you were building a test collection for IRiX, what are the one or two "contextual variables" that you would definitely collect?

Future Directions

- Conceptualizing and operationalizing context and interactions
- Assembling and evaluating a set of data collection tools
- Establishing an appropriate data format
- Seeking funding

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