Task-based Interaction with an Integrated Multilingual, Multimedia Information System: A Formative Evaluation

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University of Maryland  IBM  IBM T.J. Watson Research Center
• Government Analysts
  – Track multilingual news
  – Select important information
  – Integrate
  – Summarize for decision-makers

• Task: Humanitarian Aid
Evacuation and Medical Assistance

U.S., Canadian, Australian, and European citizens must be evacuated as a result of the recent armed conflict in Somalia.

You are assisting with evacuation and medical assistance.

Compile sites of recent armed conflict (in the last month) in this area. Your supervisor will use these data to develop evacuation and medical assistance plans.

For each attack you find, place a number on the map and identify:

- Location:
- Date:
- Type of attack:
- Number killed/wounded:
How old were the wounded?

六名嫌疑人的年龄在20至30岁之间...

Liuming xianyiren de nianling zai ershi zhi sanshi sui zhijian...

This six individual between the ages of Twenty and 30 years of age including...
Tasks

• Create a multidocument integrated report

• Current Workflow - Distributed
• New Workflow - End-to-End
  – Multilingual
  – Multimodal
Input:
TV news (video, audio)

...六名嫌疑人的年龄在20至30岁之间...

Output:
English translation associated with frames

in London in northern Luton arrested one person
	his six individuals at the age of Twenty to 30 between the ages including

He last year in Birmingham at a public activities in ... once interrupted the Internal Affairs Minister Eritou speech and openly questioned Reid
Terrorist arrest* London

Summary: British police this anti terrorism action in the morning local time five points about a total of six suspects arrested. Among Tai Po Yan in northern Luton arrested one person this six individuals at the age of ... Albania matron medical team has support terrorist activities allegations. At present these terrorist suspects are in custody in London’s Paddington police suspected to the suspects with soliciting overseas to carry out terrorist activities for terrorist funds the London police spokesman said this arrest operation is a police in the long as part of the investigation and the relevant search ...

Title: WorldNews | Duration: 120 secs

Summary: welcome you British police announced they arrested six people during raids that alive in the West and East London in ... the police spokesman said Scotland Yard it suspected in the establishment of six men incitement to commit terrorist acts abroad house of the financing of terrorism reported several television networks British in the preparation of the Abu Ezz Eddin who is suspected that the former on behalf of the movement of outsiders extremist emanating from the group of immigrants which ... month following the detention of Iran Fifteen element of the British navy ...

Title: News | Duration: 120 secs

Summary: Sadique Khan enlightenment They two of executors of London attack terrorist. Police extended the Supreme Court activities and documentation about ... was arrested in his country coincided with the American attention Mohammed Babar. On the basis that the relief against ... question unanswered Why is not intentionally British intelligence bodies to intervene to try to derail the process of seven terrorist here in London. Drums of knowledge clear connects seven cell cell July chemical bombs entry of Arab before the Supreme Court since from London with US political analyst Shamaseddin Shamaseddin Shamaseddin heard the question Antoine Khoury ...

Title: News | Duration: 120 secs

Summary: in secret hearings took place during the trial. the intelligence organs was watched the cell between Britain and Pakistan at the beginning of the Year 2004 during control retirement tents four times Mohammed Sadique Khan the They two of executors of London attacks terrorist Police extended the Supreme ... Canadian accent of but Khawaja was arrested in his country coincided with the American attention Mohammed Babar. On the basis ... try to frustrate operations seven terrorist here in London.

Drums of knowledge clear ...

Title: News | Duration: 120 secs
Falconer said the new Department of Constitutional Affairs would try to set up a Supreme Court within the next three years, or responsibility for management of the courts, legal aid, data protection and human rights.

He said the Home Office would continue to have responsibility for police matters.

Blair’s Cabinet shuffle also included the appointment of a new health secretary, John Reid, following the resignation of Alan D.
Controlled Variables

- Training approach
- Tasks
- Languages
- Collections
- System features
Participants

• 15 users
  – 12 information studies graduate students
  – 2 practicing librarians
  – 1 history Ph.D. student (a domain expert)

• 6 observers
  – 1 information studies Ph.D. student
  – 4 information studies graduate students
  – 1 speech sciences graduate student
Why This Group?

- Target users: trained analysts performing complex tasks
- Surrogate users: students with formal training in search techniques
- Both groups are familiar with:
  - Information gathering
  - Synthesizing data
  - Assessing credibility
  - Evaluating claims based on supporting evidence
Study Design

• Three-hour experimental sessions
  – N-users = 3-8
  – N-observers = 3-5


• Ongoing collaboration with University of Pittsburgh and Carnegie Mellon
Timeline

Data from June 2, 2006 to May 9, 2007
Procedure and Conditions

• **Training**
  – Inductive, deductive
  – Degrees of explicitness
  – Placement and length of hands-on experience

• **Users and Observers**

• **Debrief**
  – Reaction paper
  – Post-Search Questionnaire and Interview
Findings

1. User Adaptation
2. Novel Ways to Use Video
   • Fact vs. Opinion
3. User Interest in “under-the-hood”
Findings: Adaptation

1. Started broadly for Named Entities
   • Example: Turkey vs. Dogubeyzait
   • High probability vs. low probability terms

2. Compensated for translation problems
   • Users recognized common mistranslations
   • Changed their query
   • “Iran nuclear program” for “Iran nuclear file”
Findings: Use of Video

Task:

"man-on-the-street" opinions about the trials and sentence of Saddam Hussein.

"it is the best news in my life, but I cannot assume the sentence is fair or not."

"it is fair because Saddam committed many crimes..."
Findings: User’s Curiosity

• Wanted to know about what was “under the hood”
• Needed explanation on how system worked
• More satisfied with system transparency
"DON'T GET SMART WITH ME!"
Contributions

Methodologies: Transferable to other Projects

Researchers:  
*Understanding the Process

System Designers:  
*Fast Feedback  
*Importance of User Input

Managers:  
*Training Users to Maximize Technologies
• Zhang, Plettenberg, Klavans, Oard, Soergel.

• Supported by DARPA – GALE to UMIACS
Any Questions?