



2010 DTIC CONFERENCE
March 22-24, 2010

Celebrating 65 Years of Providing Access to Defense Information

DTIC Online Access Controlled & DoDTechipedia: What Users Want

March 24, 2010

Ms. Carol Jacobson, Moderator



DTIC Online Access Controlled & DoDTechipedia: What Users Want

DoD Field Activity Since 2004 DoD Field Activity Since 2004 DoD Field Activity Since 2004 DoD Field Activity Since 2004 DoD Field Activity Since 2004 DoD Field Activity Since 2004

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Project Officer

DTIC

Exploring the Information Needs of DTIC End-Users

Bill Kules, Ph.D.

DTIC 2010 Annual Conference

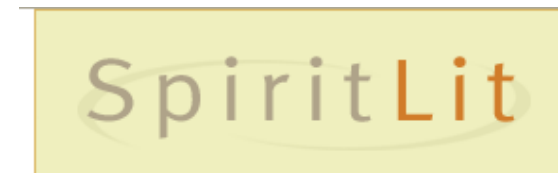
March 24, 2010

Outline

- **My background**
- **Motivation**
- **Method**
- **Findings – personas, scenarios**
- **Applying the method and findings**

My Background

- **20 years experience designing and developing information systems**
 - User interface design & evaluation
 - Information architecture
 - MIS, banking, customer service
 - Search interfaces
- **Research areas**
 - Exploratory information seeking
 - Search interfaces



Motivation

- **Improve DTIC's understanding of "non-traditional" users**
- **Identify potentially unmet information needs**
- **Develop scenarios of real-world information needs**

Challenges

- **Surveys, focus groups, etc.**
- **Reaching the target audience (sampling)**
- **OMB limitations**
- **Culture**

Method

- **Semi-structured interviews**
 - 6 interviews
 - ~45 minutes each
 - Critical incident reports
- **Recorded and transcribed interviews**
- **Created persona by adapting profile**
- **Extracted scenarios from critical incidents**

Applying the Method and Findings

- **Identifying unmet information needs**
- **Envisioning new tools and services**
- **Design process**
- **Usability testing**
- **Limitations**
 - **These are specific examples**
 - **Not representative of the full range of information needs of all DTIC end-users**

Acknowledgements

- **Thank you to the many DTIC staff and end-users who generously shared their time and expertise**
- **Research assistants: Abbey Gerken and Elizabeth McLean**
- **Supported by DTIC contract**



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DoD Field Activity Since 2004 DoD Field Activity Since 2004 DoD Field Activity Since 2004 DoD Field Activity Since 2004 DoD Field Activity Since 2004

Usability Studies for DoDTechipedia and DTIC Online Access Controlled (DOAC)

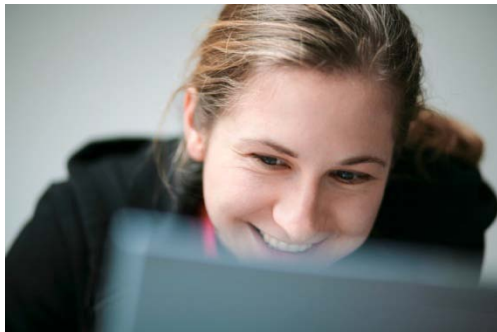
Mr. Jack Jones



What Is Usability?

DoD Field Activity Since 2004 DoD Field Activity Since 2004 DoD Field Activity Since 2004 DoD Field Activity Since 2004 DoD Field Activity Since 2004 DoD Field Activity Since 2004

Usability measures the quality of a user's experience when interacting with a Web site. It refers to how well users can learn and use the Web site to achieve their goals and how satisfied they are with that process.





Why Usability Testing?

DoD Field Activity Since 2004 DoD Field Activity Since 2004 DoD Field Activity Since 2004 DoD Field Activity Since 2004 DoD Field Activity Since 2004 DoD Field Activity Since 2004

- **Return on Investment (ROI)**
 - **Lower development costs**
 - **Lower operating costs**
 - **Reduced redevelopment costs**
 - **Increased Web site usage and returning users**
 - **Faster information discovery**
 - **Higher levels of satisfaction**
 - **Reduced support requests**





Usability Test Approaches

DoD Field Activity Since 2004 DoD Field Activity Since 2004 DoD Field Activity Since 2004 DoD Field Activity Since 2004 DoD Field Activity Since 2004 DoD Field Activity Since 2004

- **Statistical and observational baselines**
 - **Future capabilities and Web site enhancements can be measured for their effect on the user experience**
- **Expert review or Heuristic Evaluation**
 - **Performed by usability experts**
 - **Industry usability guidelines, standards, and best practices**
 - **“Rules of Thumb” for the design of Web user interfaces**



Usability Test Approaches (cont.)

DoD Field Activity Since 2004 DoD Field Activity Since 2004 DoD Field Activity Since 2004 DoD Field Activity Since 2004 DoD Field Activity Since 2004 DoD Field Activity Since 2004

- **User-Centered Design (UCD)**
 - **Structured Web site development methodology that involves users throughout all stages of Web site development**
 - **Considers an organization's business objectives and the user's needs, limitations, and preferences**

Poor UCD =





Common Usability Factors Measured

DoD Field Activity Since 2004 DoD Field Activity Since 2004 DoD Field Activity Since 2004 DoD Field Activity Since 2004 DoD Field Activity Since 2004 DoD Field Activity Since 2004

- **Ease of Learning**
 - How fast can a new user learn to accomplish a basic task
- **Effectiveness**
 - A user's ability to successfully use a Web site to find information and accomplish tasks
- **Efficiency of use**
 - A user's ability to quickly accomplish tasks with ease and without frustration





Common Usability Factors Measured (cont.)

DoD Field Activity Since 2004 DoD Field Activity Since 2004 DoD Field Activity Since 2004 DoD Field Activity Since 2004 DoD Field Activity Since 2004

- **Memorability**
 - Can a repeat user effectively use the system again without relearning
- **Error frequency and severity**
 - How often do errors occur, how serious are they, and how do users recover
- **Subjective satisfaction**
 - How much does the user like using the system



Usability Metrics

DoD Field Activity Since 2004 DoD Field Activity Since 2004 DoD Field Activity Since 2004 DoD Field Activity Since 2004 DoD Field Activity Since 2004 DoD Field Activity Since 2004

- **Performance data (what actually happened)**
 - Successful task completion rates
 - Time spent on tasks
 - Number of pages reviewed
 - Pathway or clickstream analysis (measures navigation)
- **Preference data (what participants thought)**
 - Subjective satisfaction
 - User Comments
 - Preference ratings



DTIC Usability Objectives

DoD Field Activity Since 2004 DoD Field Activity Since 2004 DoD Field Activity Since 2004 DoD Field Activity Since 2004 DoD Field Activity Since 2004 DoD Field Activity Since 2004

- **Evaluate the user experience for typical search-related tasks**
- **Solicit user feedback on site effectiveness, efficiency, and satisfaction**
- **Create a set of baseline usability data for the existing versions of these sites against which data from future capabilities can be compared**
- **Identify any Web site design features that are sources of difficulty or confusion for users**





DTIC Usability Objectives (cont.)

DoD Field Activity Since 2004 DoD Field Activity Since 2004 DoD Field Activity Since 2004 DoD Field Activity Since 2004 DoD Field Activity Since 2004

- **Generate ideas for future requirements and possible design enhancements**
- **Demonstrate the value of usability engineering methods and tools**
- **Lay the groundwork at DTIC for implementing a broader user-centered design process in Web site design, development, and operation**



Usability Test Deliverables

DoD Field Activity Since 2004 DoD Field Activity Since 2004 DoD Field Activity Since 2004 DoD Field Activity Since 2004 DoD Field Activity Since 2004 DoD Field Activity Since 2004

- **Provide written recommendations on how DTIC can more effectively use Web analytic tools**
- **Deliver an expert review report on both sites containing aspects of navigation, categorization, content, design, and search functionality**
- **Deliver usability test plans that include moderator's initial questions and points of discussion and task scenarios**
- **Deliver baseline usability reports of both Web sites detailing test results and recommendations**



Usability Test Deliverables (cont.)

DoD Field Activity Since 2004 DoD Field Activity Since 2004 DoD Field Activity Since 2004 DoD Field Activity Since 2004 DoD Field Activity Since 2004 DoD Field Activity Since 2004

- **Brief DTIC stakeholders on the results and recommendations**
- **Provide recommendations for enhanced integration of usability engineering processes into DTIC's Web site design, development, and operations**





Usability Testing Tasks

DoD Field Activity Since 2004 DoD Field Activity Since 2004 DoD Field Activity Since 2004 DoD Field Activity Since 2004 DoD Field Activity Since 2004 DoD Field Activity Since 2004

- **Kick-off meetings for all teams (Product Development, Marketing, Contractor, Project Manager)**
- **Gather and review Web site usage statistics**
- **Decide test group composition and profiles – test sample of 12 participants**
- **Create participant screeners and consent forms**
- **Select potential participants and schedule participants**



Usability Testing Tasks (cont.)

DoD Field Activity Since 2004 DoD Field Activity Since 2004 DoD Field Activity Since 2004 DoD Field Activity Since 2004 DoD Field Activity Since 2004 DoD Field Activity Since 2004

- **Create usability test plans that include moderator's guides and task scenarios**
- **Set up testing environment and test participants**
- **Arrange for remote testing or portable testing if needed**
- **Write/review usability reports detailing test results and recommendations**
- **Brief stakeholders on the results**



Usability Study Results

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Results due in late April 2010

We will follow up
on the
recommendations!!!



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Survey Results from the Search Enhancements Project

Ms. LaDona Kirkland

Defense Technical Information Center (DTIC^(R))

DTIC Search Survey

We appreciate your assistance in helping us to make improvements to the DTIC search function. The survey will take approximately five minutes to complete. All responses will be confidential.

How often do you visit the DTIC Online Web sites when searching for scientific and technical information?

- Daily
- Weekly
- Monthly
- Several times per year

How likely would you be to search collaboratively (e.g., with a subject matter expert, librarian, DTIC employee, etc.) in a virtual world reference session if available?

- Very likely
- Somewhat likely
- Neutral
- Not very likely
- Not at all likely

Please rate the importance of the following functions once locating a document of interest:

Create and apply tags so that I can find again

Very important

Somewhat important

No opinion

Not very important

Not at all important

Create a review or provide comments

Very important

Somewhat important

No opinion

Not very important

Not at all important

Recommend it to my colleagues

Very important

Somewhat important

No opinion

Not very important

Not at all important

Order a paper copy

Very important

Somewhat important

No opinion

Not very important

Not at all important

Download a copy to my computer

Very important

Somewhat important

No opinion

Not very important

Not at all important

Download a copy to my mobile device

Very important

Somewhat important

No opinion

Not very important

Not at all important

Which of the following search results display would you be most likely to utilize: [check all that apply]

When locating a document of interest, I would be most likely to hyperlink to additional documents:



Survey Results

DoD Field Activity Since 2004 DoD Field Activity Since 2004 DoD Field Activity Since 2004 DoD Field Activity Since 2004 DoD Field Activity Since 2004

Potential Respondents	Total Users Responding	Response Rate
89	37	42%



Overall Findings: #1

DoD Field Activity Since 2004 DoD Field Activity Since 2004 DoD Field Activity Since 2004 DoD Field Activity Since 2004 DoD Field Activity Since 2004 DoD Field Activity Since 2004

Approximately half (43%) of the respondents indicated that they would be most likely to hyperlink to additional documents that are “similar in topic.”



Overall Findings: #2

DoD Field Activity Since 2004 DoD Field Activity Since 2004 DoD Field Activity Since 2004 DoD Field Activity Since 2004 DoD Field Activity Since 2004 DoD Field Activity Since 2004

Respondents who search for scientific and technical information on DTIC Online Web sites indicated that they visit the site on a daily (42%) and weekly (42%) basis.



Overall Findings: #3

DoD Field Activity Since 2004 DoD Field Activity Since 2004 DoD Field Activity Since 2004 DoD Field Activity Since 2004 DoD Field Activity Since 2004 DoD Field Activity Since 2004

The largest percentage of respondents reported “Download a copy” (97%) to their computer as being an important function once they locate a document of interest.

“Download a copy to my mobile device” (17%) was the least important function.



Overall Findings: #4

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The vast majority (88.5%) of respondents were affiliated with the Department of Defense (DoD).



Overall Findings: #5

DoD Field Activity Since 2004 DoD Field Activity Since 2004 DoD Field Activity Since 2004 DoD Field Activity Since 2004 DoD Field Activity Since 2004 DoD Field Activity Since 2004

The majority of respondents came from three user profiles:

- **Librarian (59%)**
- **Engineer (18%)**
- **Researcher/Analyst (12%)**



Overall Findings: #6

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- Librarian - 20
- Researcher - 4
- Engineer - 6
- Scientist - 2
- Technical Information Specialist - 1
- Other - 4

Total Responses = 37

Defense *Virtual Information* Architecture

Defense Technical Information Center

Search Mode: Subset

Term Mode: Multiterm

Normal

Singleterm

Submit

view history

Context: query: text:Ballistic missile

Accession Number: [ADA430145](#)

Title: Homeland Security: Protecting Airliners from Terrorist Missiles

Corporate Author: [LIBRARY OF CONGRESS WASHINGTON DC CONGRESSIONAL RESEARCH SERVICE](#)

Personal Author: [Bolkcom, Christopher](#) , [Feickert, Andrew](#) , [Elias, Bartholomew](#)

Report Date: October 22 2004

Report Number: None

Enhancement #1

Contextual Linking as Illustrated with DVIA at <http://hdl.handle.net/100.10/ALPHADVIA>.

4. Ballistic Missile Defense Sensors

Budget Activity: 4 - Advanced Component Development & Prototypes, 0603884C

...Budget Item Justification The **Ballistic Missile** Defense System (BMDS) development...the probability of kill for **ballistic missile** threats. The Sensors Directorate...Justification and Contribution to the **Ballistic Missile** Defense System (BMDS) Since...

5. Ballistic Missile Defense Terminal Defense Segment

Budget Activity: 4 - Advanced Component Development & Prototypes, 0603881C

...as the threat **missiles** transition from...deter, and defeat **ballistic missile** threats is through...range **ballistic missiles** and helps ensure...protection against **ballistic missile** attacks to U...s future 2020 **Missile** Defense Architecture...and medium range **ballistic missiles**. Further, Arrow...

6. Ballistic Missile Defense Systems Core

Budget Activity: 4 - Advanced Component Development and Prototypes (ACD&P), 0603890C

...layered **Ballistic Missile** Defense System...and allies from **ballistic missiles** of all ranges...layered **Ballistic Missile** Defense System...and allies from **ballistic missiles** of all ranges...development effort for **ballistic missile** events...reporting to enhance **missile** defense. • Brought on line the **Missiles** and Rockets Knowledge...

Keywords

aerospace agency airborne
aircraft altitude

ballistic missile

ballistics command
countermeasures division

guided missile

interceptor laser mission

radar secret security

surveillance target weapon
system

**Enhancement #2
Tag Cloud of the search
results as protyped for
DTIC Online Access
Controlled.**



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Questions?



Points of Contact

DoD Field Activity Since 2004 DoD Field Activity Since 2004 DoD Field Activity Since 2004 DoD Field Activity Since 2004 DoD Field Activity Since 2004 DoD Field Activity Since 2004

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