

INTERACTIVE INFORMATION RETRIEVAL AS MULTITASKING: AN EXPLORATORY FRAMEWORK

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Interactive Information Retrieval

- How is interactive IR constructed by humans?
- Interactive IR is a complex process of coordinating and interplay of various tasks, including *information* tasks and *interactive* tasks
- Interactive IR within a multitasking framework
- What do we already know about multitasking behavior?

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Multitasking Behavior

- Interactive IR in the broader interdisciplinary context: cognitive psychology, human factors
- Multitasking is the ability of humans to handle the demands of multiple tasks by task switching
- Dual tasking is the human ability to simultaneously handle the demands of multiple tasks simultaneously, e.g., talking while driving
- Multitasking researchers: Just, et al (2001), Rubenstein, et al (2001), Wickens (1992)
- Important area of IT and IS design

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Interactive IR as a Multitasking Behavior

- Interactive IR is a multitasking process on two levels: *information* and *interactive*.
- Level 1: Multitasking information behavior
- Level 2: Interactive/search task interplay

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Level 1: Multitasking Information Behaviors

- Interactive IR embedded within human information behavior processes of seeking, organizing and use
- Humans translate of their information problems into a coherent search process
- Humans are often engaged in multiple information problem translation
- Humans switch between different or related information problems or information task switching

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Multitasking Information Behavior or Information Task Switching

- Humans are often search for information on more than one topic concurrently
- Information tasks may be related or distinct, e.g., (1) gardening & (2) prozac use by children
- Information task switching by library users – Spink (JDoc 2004)
- Information task switching and interplay between information and non-information task switching - Spink & Park (forthcoming)
- Studies show multitasking by IR system and Web users – Spink, Ozmutlu & Ozmutlu (2002), Ozmutlu, Ozmutlu & Spink (2003a, b)
- Studies with Excite, AlltheWeb.com, Alta Vista and Vivisimo Web query data - Spink & Jansen (in press)

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Information Seeking and Searching Level	Number of Search Topics	Number of Search Sessions
Level 1: Single Search on a Single Topic	One Search Topic	One Search Session
Level 2: Successive Searching	One Search Topic	More Than One Search Session on a Single Topic
Level 3: Multiple Topic Searching (Multitasking)	Two or More Search Topics Concurrently	One Search Session on Multiple Topics Information Task Switching
Level 4: Multi-Tasking and Successive Searching	Two or More Search Topics Concurrently	Multiple Search Sessions on Multiple Topics Information Task Switching

Level 2: Interactive Task Interplay/Switching

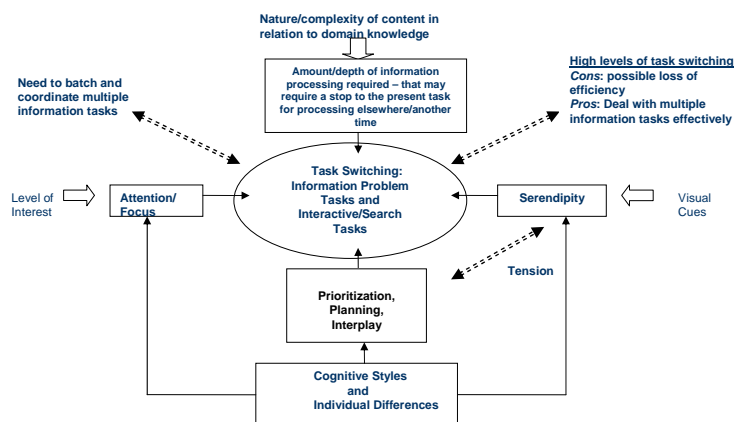
- Users coordinate a sustained complex and coherent interplay of interactive search tasks
- Users switch between different interactive/search tasks
- Types of interactive/search tasks:
 - Search term selection
 - Search strategy and tactics
 - Relevance judgments
 - Feedback judgments

Interactive IR as Multitasking

- Model of interactive IR as multitasking
- Initial diagramming of the factors that may affect task switching during interactive IR
- Draws on cognitive science and human factors studies

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Model of Interactive IR as Multitasking



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Interactive IR within a Multitasking Framework

- Embeds interactive IR research within the broader framework of cognitive/behavioral research
- In the broader research context, multitasking is considered a common behavior, but counter-productive.
- However, interactive IR context is constructed as a process of coordinated task switching on different levels
- Therefore, interactive IR is only achieved through multitasking at different levels

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Further Research

- Currently conducting studies to investigate:
- Degree and patterns of interactive IR task switching
- How users construct and coordinate their multitasking behaviors
- Relation to information seeking stage, domain knowledge, gender or other cognitive variables

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QUESTIONS??

Thank You



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