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**A Model for Addressing Navigation Limitations and
Metacognitive Constraints
in Hypermedia Training Systems**

Dr. Glenn Freedman
University of Houston - Clear Lake
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The Problem

Hypermedia training tools still suffer from limited navigational systems.

Hypermedia users are constrained by their own metacognitive limitations, schema, lack of knowledge about the developer's schema, and limitations of linking (associational) systems.

The Result

Hypermedia training systems are often difficult to use, to gain optimal value from, and can be downright confusing, unless a person already knows the system, the developer, or the content.

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Sample of Software Problems

1. Difficult to browse through the system
2. Difficult to seamlessly link media types
3. Too few associational options

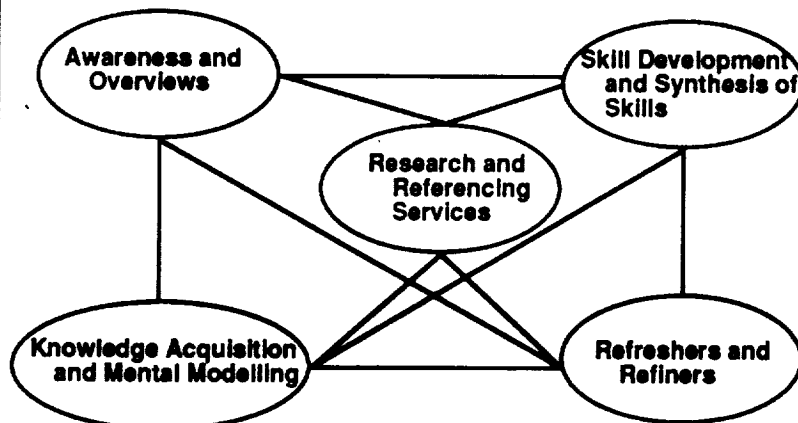
FILTERING, ORGANIZING, BROWSING (CONKLIN, 1987)

Sample of People Problems

1. Easily confused -- lack of cognitive 'gravity'
2. Too hard to remember everything -- can't hold one's place
3. Too many choices
4. Too much information in too many formats

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Hypermedia in Training



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The Three Biggest Challenges

System Design

System Design

System Design

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What Are We Designing?

1. **A Database System**
2. **A Knowledge Representation Scheme**
3. **A Hypertext System**
4. **An Instructional System**
5. **An Interface System**
6. **A Layered Layout**
7. **Graphics**
8. **An Evaluative System**
9. **A Search and Find System**
10. **A Model for Teaching**
11. **A Model for Learning**

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Strong Training System

Confirmability

Abstraction

Localization

Completeness

Information hiding

Uniformity

Modularity

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Attributes of a Well Designed System

Safety and security

Modifiability

Understandability

Interoperability

Portability

Correctness

Efficiency

Extensibility

Reliability

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A Design Worksheet

Instructional Goal:
Instructional Objectives:
Target Population:
Setting:
Hardware/Software Requirements:
Time Boundaries:
Proficiency Level:
Prerequisites:
Follow-up:
Node Varieties:
Link Associations:
Level of Abstraction:

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Establishing a Universe of Discourse

1. Spatial Frames of Reference
2. Temporal Frames of Reference
3. Shared Domains; Coreference
4. Points of Departure
5. New Information
6. Coaching and Mentoring
7. Free Indirect Style
8. Presuppositions
9. Lexicons
10. Rules

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Summary: **Hypermedia Training Systems**

Addressing the Metacognitive Issues:
Training for the training!

Addressing the Navigation Problems:
From Landsat to Antfarms!

Addressing the Communications Problems:
Back to the Basics!



Session 3

Issues for Real-World Hypertext Projects

Chair: Robert J. Glushko

Panel: Three Issues for Real-World Hypertext Projects

Robert J. Glushko
David Gunning
Bruce Warren

