

## ABSTRACT

### AGE DIFFERENCES AND THE DEPTH-BREADTH TRADEOFF IN HIERARCHICAL ONLINE INFORMATION SYSTEMS

by

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Although the depth-breadth tradeoff in hierarchical menu systems has been considered by researchers as the most important factor when designing hierarchical menu systems, no previous study has attempted to empirically or mathematically study the effect of age on this topic.

This dissertation extends previous research in menu selection systems to the design of hierarchical online information systems first by quantitatively and qualitatively analyzing the effect of age in browsing hierarchical systems both different depth and different layouts, and secondly by proposing an age-driven parametric mathematical model that predicts the time it will take a user to browse hierarchical information systems. More specifically, three models were tested (an Age Equivalence, a General Slowing and the proposed Age-Driven Parametric Model). Finally, a number of hypotheses were also formulated.

The models and the hypotheses were tested with 24 younger Internet users (aged 36 years old and below) and with 24 older users (aged 55 years old and above). All hypotheses apart from one were supported. The general slowing model (with 1.4 general slowing parameter) and the proposed age parameter driven mathematical model predict accurately the total browsing time for both expandable and non-expandable hierarchies and for all depth arrangements tested.