DEVELOPING A VISUAL TRANSPARENCY TOOL FOR IMPROVING INTERNET NAVIGATION

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PURPOSE

 Multiscale documents: Many computer applications in general, and internet applications in particular, demand magnification.

• For example:

- Computerized Graphics.
- Electronic chip industry.
- X-Ray interpretation in medicine.
- Architecture.
- More...



PURPOSE

• In the Internet:

- Map navigation
- Small size font websites





THE PROBLEM

• There is an essential contradiction between the need to see the wider context and the need to examine smaller details.

CURRENT SOLUTIONS

- Magnifying of interest zones
 - Zooming and Panning



CURRENT SOLUTIONS

- Windows approach
 - Overview plus detail
 - DragMag Image Magnifier



CURRENT SOLUTIONS

- magnifying glass
 - Opaque magnifying glass
 - Fish Eye



SHORTCOMINGS OF CURRENT SOLUTIONS

- o The context problem
- The screen size problem
- The occlusion problem
- o Distortion problem

OUR SUGGESTION

o Translucent magnification

- The whole context is seen through the magnification.
- The magnification does not occlude the wider scene.
- There is no distortion of the image.



WILL IT WORK?

- Can humans adjust to see through the transparency?
- Will it help them to understand the context of the magnification in the wide image?
- Will it improve the performance relative to opaque magnification?



RESEARCH PLAN

o Dr. Hagit Hel-Or developed the transparency algorithm.

• Experiments with normal sighted participants:

- Map navigation.
- Web site surfing.
- Experiments with low vision participants:
 - Web site surfing.

MAP NAVIGATION - METHOD

EXPERIMENT 1

- Map of roads was presented.
- A magnifying glass, which moved with the mouse cursor, was placed on top of the wide map.
- The task is to navigate the way out.
- o 3-6 possible solutions.
- Participants: 8 students

STIMULI - OPAQUE



STIMULI - TRANSLUCENT



PREDICTIONS

• Translucent condition will be more efficient: RTs will be faster and accuracy will be higher.

RESULTS – RTS

RTs for Single Response



RTs for Whole Map



RESULTS – ACCURACY



RESULTS – SUBJECTIVE RATINGS

• 4 participants out of 8 preferred the translucent magnification

• We analyzed the results of these participants separately.

RESULTS – RTS

RTs for Single Response



RTs for Whole Map



RESULTS – ACCURACY



DISCUSSION

- Trends for faster RTs and higher accuracy in the whole sample. But the trend is reversed for the whole map.
- For the 4 participants who preferred the translucent condition: these trends are more prominent.
- It seems that for those who learned to use the translucent tool - it was beneficial. For those who did not learn to use it – it interfered.

EXPERIMENT 2

• Experiment 2 will use harder task and much more complex maps.













Thank you for listening Enjoy your lunch!!