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An Investigation into Various Human-Computer Interfaces which may Enhance Communication for Students with Motor Impairments

Presented by Amy E Lewington

Supervisor: Dr. Steve Woodhead

Overview



- Brief introduction
- Literature findings
- Technologies
- Results and conclusions
- References
- Further work

Introduction

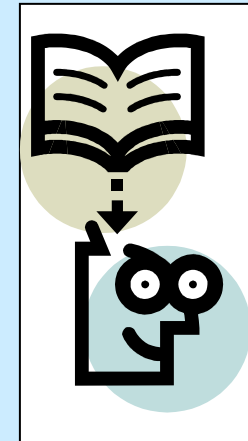


- Background
 - » Aim
 - » Why?
- Technology aiding communication
- Ethics involved
- Current research explored
- Methodology
- Represent results

Literature



- Sources of information
- Current findings
- Engineering Rehabilitation
- Organisations
- Information on various technologies



Mouse Technology



- Head mice
- Three types explored:
 1. Standard mouse
 2. SmartNav
 3. QualiEye



Design



LearnIT

How To Play View

51:7

Mouse Selection

- WebCam (QualiEye)
- SmartNav
- Standard Mouse

Start

Stop

Frame1

NEW USER - SIGN IN

Amy Lewington

Targets


10

Target 1 hit in 3.3 Seconds
Target 2time out.
Target 3 hit in 4.7 Seconds
Target 4 hit in 3.9 Seconds
Target 5 hit in 5.3 Seconds
Target 6 hit in 5.2 Seconds
Target 7 hit in 5.3 Seconds
Target 8 hit in 3.3 Seconds
Target 9time out.
Target 10 hit in 4.7 Seconds

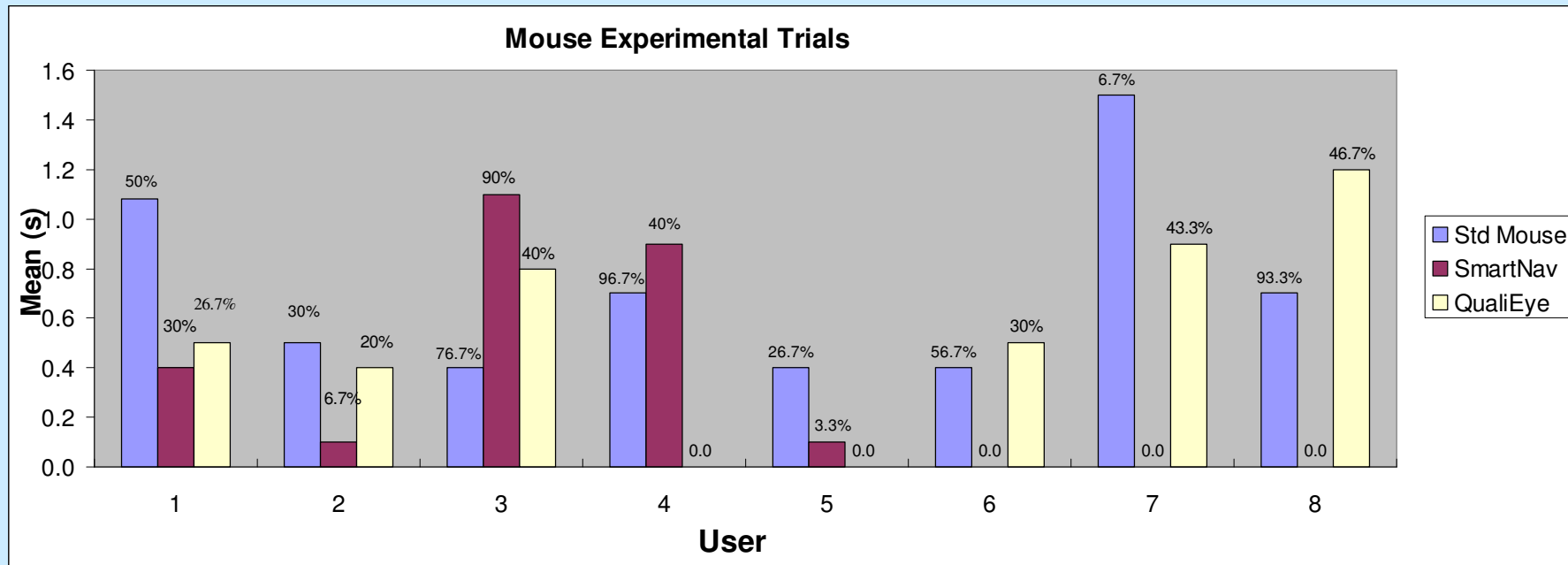
Datalogger1

Finished in 51.7 with 8 targets hit and 2 targets missed.

OK

A solid green circle is positioned at the bottom center of the application window.

Results

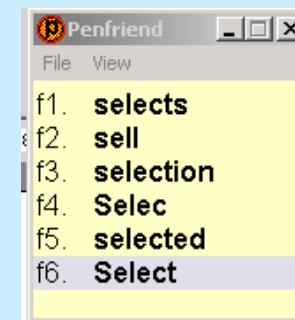
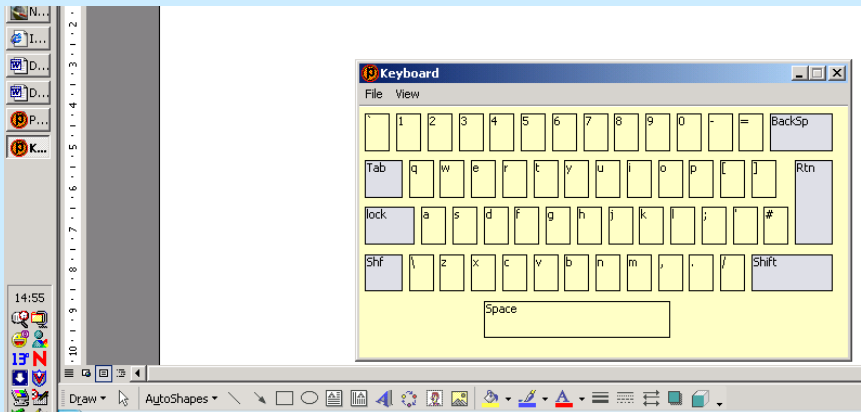


A bar graph showing the mean time and percentage number of targets hit out of 30

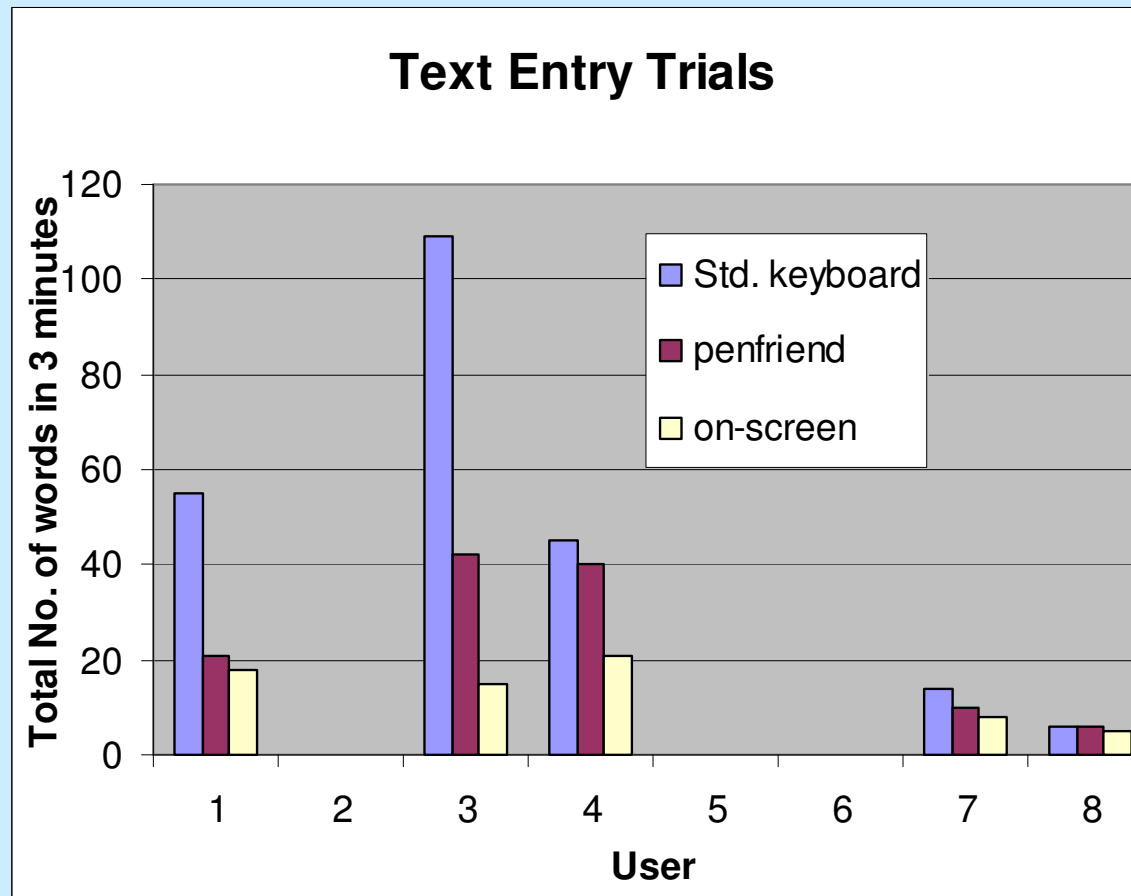
Keyboard Technology



- Text entry
- Three types:
 1. Standard keyboard
 2. Penfriend word predictor
 3. Penfriend with on-screen keyboard



Results

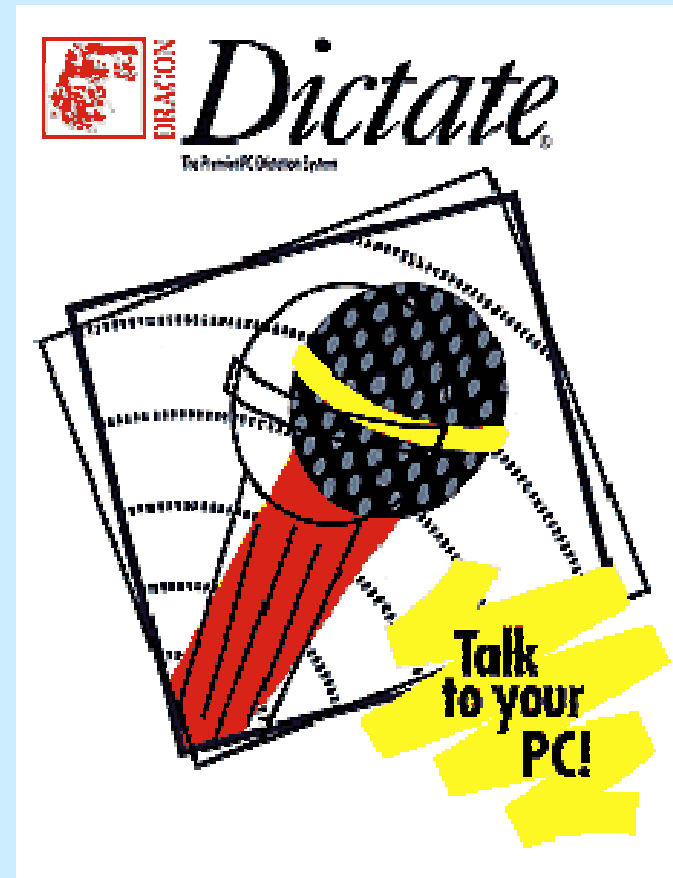


Shows the number of words users typed correctly using each text entry technology.

Speech Technology



- Speech recognition
- Training is required
- Any success rates?
- Valid Results?



Conclusions



- Opinions of participants
- Technology a valuable tool
- Disadvantages/Problems faced
- Some trials unsuccessful
- Time limited

REFERENCES



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Further Work



- Undertake tests with new devices
 - regular periods
- Questionnaires for participants, support workers.
- Include "real work" examples
- Use a "control group"
- Design rigorous recruitment process

Thank you for listening

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