How can eye-tracking complement a distributed, web-based testing environment (MUTEP)?

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This presentation is co-financed by the European Social Fund and the state budget of the Czech Republic.
Motivation
Motivation

- Action
- Understanding of objectification
- Reader's mind
- Needs
- Experiences
- Skills
- Psychology
- External stimulation
- Transformation
- Observation
- Cartographer’s mind
- Needs
- Skills
- Psychology
- Experiences
Testing environment prototype

- MUTEP (MUltivariate TEsting Programme)
- interactive web based testing tool
  - Web browser, controlled environment

- Wide variety of inputs
  - Suitable for variety of scientific studies
  - Cartography
    - from isolated cartographic symbols or symbol sets to complex map composition both static and interactive.
  - Technologically based on Google Web Toolkit
  - The cartographic part relies on Open Layers libraries.
Content example

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Task examples

- Symbol identification
Task examples

- Multiply symbol identification

Point out all: Water hydrants
Task examples

- Line selection

Choose the described path:

Path description....

Path description....

NEXT
Task examples

- Line editing
Test examples

- Subjective evaluation

Evaluate how sure are you about your answer. (1 – sure, 5 – not sure)
Generic concept - Psychological testing (NAVON, mental rotation...)

Try to imagine the continuation of story and how the boy could react in this situation. Describe it in detail.
MUTEP + Eye tracking ??
Mixed research design

- Combination of quantitative and qualitative research methods

**Quantitative approach**
(verification of hypothesis)

**Qualitative approach**
(exploration of cognitive strategies)
Eye-Tracking as a tool for qualitative analysis

Possible strategies:

- **Use of eye-tracking for a pilot study**
  
  Eye-tracking → Definition of hypothesis
  → Quantitative method and data collection

- **Use of eye-tracking in case of unexpected findings**
  
  Quantitative method → Unexpected findings by several items → eye-tracking
Combination of SW MuTeP and SMI eye-tracker

- Preparation of experiment on the platform MuTeP
- Use of RED-m Eye-tracking (SMI) and SW Experiment Centre
- Webpage recording
- Split to single scenes
Zakreslete do mapy popsanou cestu.
Basic methods of results visualization

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Future events

- January 2014 – release of new platform Hypothesis
- Computer adaptive testing, interlinking with E-T...

- Workshop „Applying of principles of cognitive psychology in practice,“
  - Masaryk University, Brno, Czech Republic, on 5.-6.6. 2014
  - Focused on usage of Eye-Tracking systems and introducing of SW Hypothesis
  - Topics: cognitive cartography, forensic psychology, neuromarketing, traffic psychology, reading disability, HCI...
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