Usability meets assessment:
Equal chances in education

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Overview

1. Context: Assessment & usability
2. Concrete examples & usability
3. Methodology: How to evaluate usability
Content

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Definition

ISO 9241-11 standard:
„the extent to which a product can be used by specified users to achieve specified goals with **effectiveness**, **efficiency** and **satisfaction** in a specified context of use“.
Lack of usability – possible situations and consequences for the test takers of computer-based assessments:

Failing of a **driving theory test** due to **misinterpretation** of function and design of the test.

The **human resources agency** may obtain a **different profile** of the skills of the job candidate.

A **student** may get a **low score** in a computer-based assessment.
Central objectives of our research project

• We suppose that, whenever people are not able to interact with the interface of a computer-based assessment adequately, they are not able to fully demonstrate his or her level of proficiency.

• Moreover, we expect that an optimized usability computer-based assessment instrument would encourage people to show their actual level of proficiency.

• Removing usability barriers supports accurate and objective assessment of proficiency and equal chances to work through the assessment.
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Concrete examples:

Example 1: FreeMind

http://freemind.sourceforge.net
Concrete examples:

**Example 2: Visual Thesaurus**

![Visual Thesaurus screenshot](http://www.visualthesaurus.com)

The screenshot shows a visual thesaurus interface with the word 'collection' as the focus. Surrounding 'collection' are related words such as 'assemblage', 'aggregation', 'accumulation', 'assembling', 'collecting', 'compendium', 'collect', 'solicitation', 'ingathering', 'appeal', 'request for a sum of money', and 'the act of gathering something'. The interface also includes tabs for 'Nouns', 'Verbs', 'Adjectives', and 'Adverbs', suggesting a comprehensive thesaurus tool for language enrichment.
Concrete examples:

Example 2: Visual Thesaurus
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Evaluation of the usability of the computer-based assessment application – somewhat inspired by the UPA „Usability Life Cycle“
Evaluation of the usability of the computer-based assessment application:

- Usability experts (Heuristic Analysis)
- Student pilot studies (Usability Tests)

Results and feedback for re-engineering
Methodology:
Usability evaluation

The aim of the usability evaluation of the computer-based assessment application:

- Address the lack of usability
- Demonstrate and prove the impact of usability
- Verify the increase of usability
- Reduce barriers of interaction with the assessment instrument

- More **objective** and **valid measures** of proficiency
- **Equal chances** in computer-based assessments
Central objectives of our research project (Reminder)

- We suppose that, whenever people are **not able to interact** with the interface of a computer-based assessment adequately, they are **not able to fully demonstrate** his or her level of **proficiency**.

- Moreover, we expect that an **optimized** usability computer-based assessment instrument would **encourage** people to show their **actual level of proficiency**.

- **Removing** usability **barriers** supports accurate and objective assessment of proficiency and **equal chances** to work through the assessment.
Outlook:

**Study 1: Development of instrument**

- Development of an *optimized* computer-based assessment instrument with regard to *usability*.
- This will take place in our Usability Lab.
• Evaluation and comparison of the two assessment instruments

  ➤ Optimized vs. baseline (not optimized) version

  ➤ A sample of 200 students will be randomly assigned

• We expect: students working with the **optimized version** will be able to demonstrate their knowledge with **higher effectiveness, efficiency** and **satisfaction**.
Developing of the computer-based assessment instrument

Preparing the Usability Analysis (Heuristic Analysis and Usability Test)

Designing of project homepage

Start user testing in December
Shed light on the **relevance** and **impact of usability** for computer-based assessment.

Removing usability barriers in computer-based assessment supports:

- accurate and objective assessment of proficiency
- equal chances
THANK YOU!

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