



A Performance-based Test for Assessing Students' Online Inquiry Competences in Schools

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Presentation highlights

- NEURONE: a performance-based test for students' online inquiry competences (OICs)
 - Dimensions: 1) searching, 2) identification, 3) evaluation, and 4) synthesis
- Test task designs
- NEURONE test environment
- Case study: Preliminary findings
- Discussion

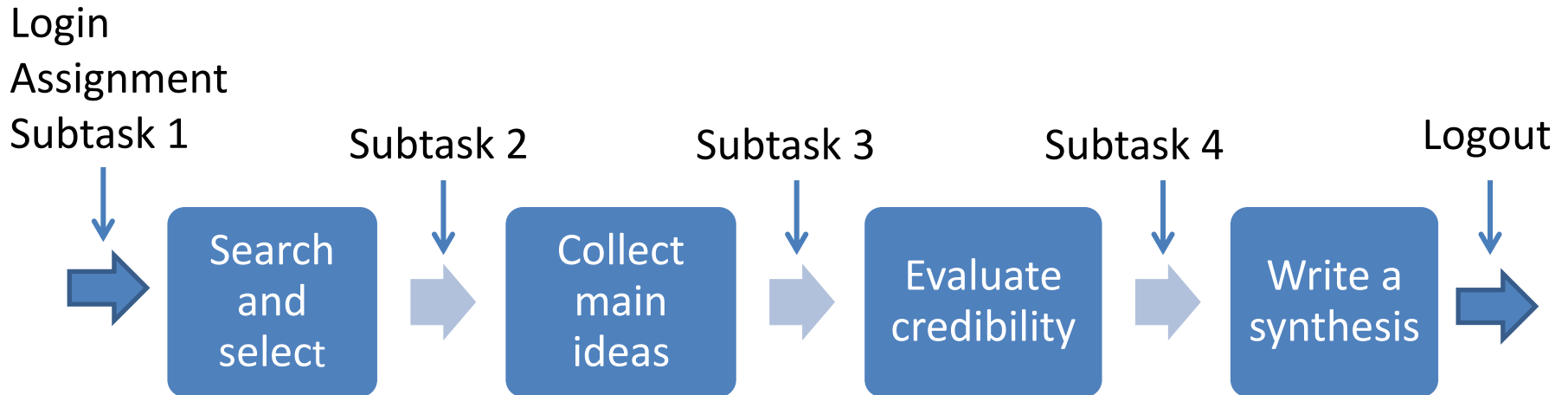
Motivation

- Online research as an integrated part of learning in schools
- Need for new pedagogies and assessment methods
- Fixed-choice tests/self-efficacy surveys are limited -> need for performance-based assessment
- Wide range of testing dimensions in online research: search – evaluate - use

Test components

- Authentic online research task
 - task stages; performance dimensions assessed
- Topics
 - About controversial issues
- Test environment
 - Search engine + controlled collection of Web pages
 - Modules for each task stage, flow control
 - User interface, tutorials, help
 - Logs for data collection

The stages of the Neurone test



Goal	3 best pages	-	3 * 2 snippets	-	Stars + justifications	-	> 50 words
Time limit	8 min	-	12 min	-	7 min	-	15 min

A sample test task assignment:

Gaming



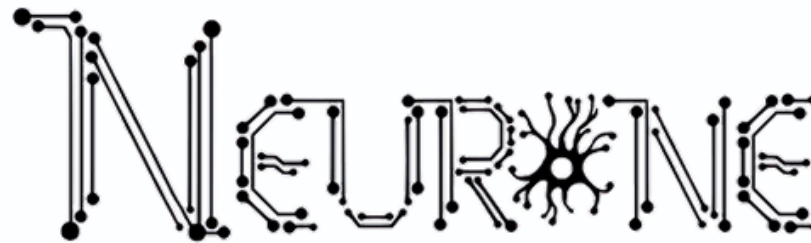
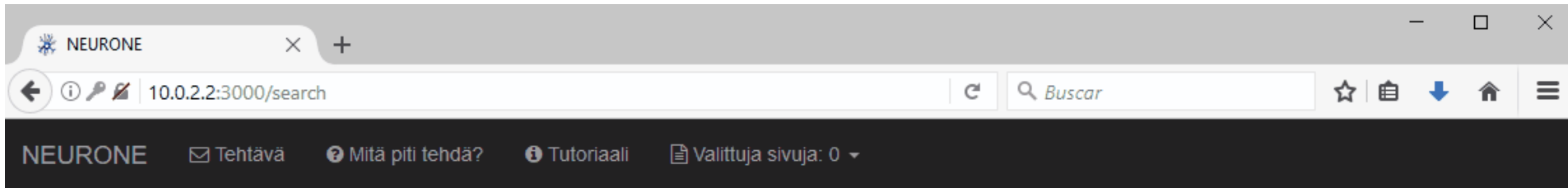
Background narrative: Lets imagine that...

“You receive an email from a student representing another school. He gives a tip to you on how to earn some money for a field trip by making a magazine that can be sold to parents.”

Assignment: The student suggests that

- You compose an article titled “*Computer-gaming has both advantages and disadvantages*” for the magazine.
- In the article, you give a recommendation on how children should use computer-games.
- To accomplish the task, you search for three Web sources and write an article on the basis of them.

Stage 1. Searching & selecting



Stage 2. Identifying main ideas



NEURONE x +

10.0.2.2:3000/collection

Buscar

NEURONE Tehtävä Mitä piti tehdä? Tutoriaali Tallenna merkkauk


UUTISTEN
PÄIVÄLEHTI

Tuoreimmat Aihealueet ▾ Arkisto Toimitus

Väkivaltaiset tietokonepelit lisäävät vihamielistä käytöstä

Tietokonepelit ja pelaaminen, psykologia

toimittaja: Kalle Kiiski | Tampere 12.12.2016



Stage 3. Credibility evaluation



A screenshot of a web browser window. The browser's address bar shows the URL '10.0.2.2:3000/criticalEval'. The website's header includes the name 'NEURONE' and navigation links for 'Tehtävä', 'Mitä piti tehdä?', and 'Tutoriaali'. The main content area features the title 'About The Game' in large red letters with a white outline, followed by the subtitle 'blog & beyond' in a cursive font. Below this are four red buttons: 'Tuoreimmat artikkelit', 'Aihealueet', 'Arkisto', and 'Tietoa blogista'. At the bottom left, there is a box for 'Lastenlääkäri Minna Leppäaro'. The bottom of the page has the text 'Tietokonepelaamisesta hvötvä ia'. On the right side, there is a feedback form with three tabs: 'Sivu 1', 'Sivu 2', and 'Sivu 3'. The form contains the text 'Tietokonepelaamisesta hyötyä ja haittaa terveydelle', a question 'Kuinka luotettavana pidät tätä nettisivua? *', a star rating system with five empty stars, and another question 'Miksi ajattelet näin? *' with a text input field.

About The Game

blog & beyond

Tuoreimmat artikkelit

Aihealueet

Arkisto

Tietoa blogista

Lastenlääkäri Minna Leppäaro

Tietokonepelaamisesta hvötvä ia

Sivu 1 Sivu 2 Sivu 3

Tietokonepelaamisesta
hyötyä ja haittaa terveydelle

Kuinka luotettavana pidät tätä
nettisivua? *

Montako tähteä annat?



Miksi ajattelet näin? *

Stage 4. Synthesis



NEURONE x +

10.0.2.2:3000/synthesis

Buscar

NEURONE Tehtävä Mitä piti tehdä? Tutoriaali

Kirjoita tekstisi tähän. Sen tulee olla vähintään 50 sanan pituinen. Muistathan, että sinun pitää kirjoittaa teksti omin sanoin. Älä siis kopioi tekstiä suoraan nettisivuilta!

Normal text B I U

Tekstisi on nyt 0 sanaa pitkä.

Kaikki [Sivu 1](#) [Sivu 2](#) [Sivu 3](#)

Kaikki sivut

Merkkaus 1 *Kanadalaisen Brockin yliopiston tutkimuksen mukaan...*

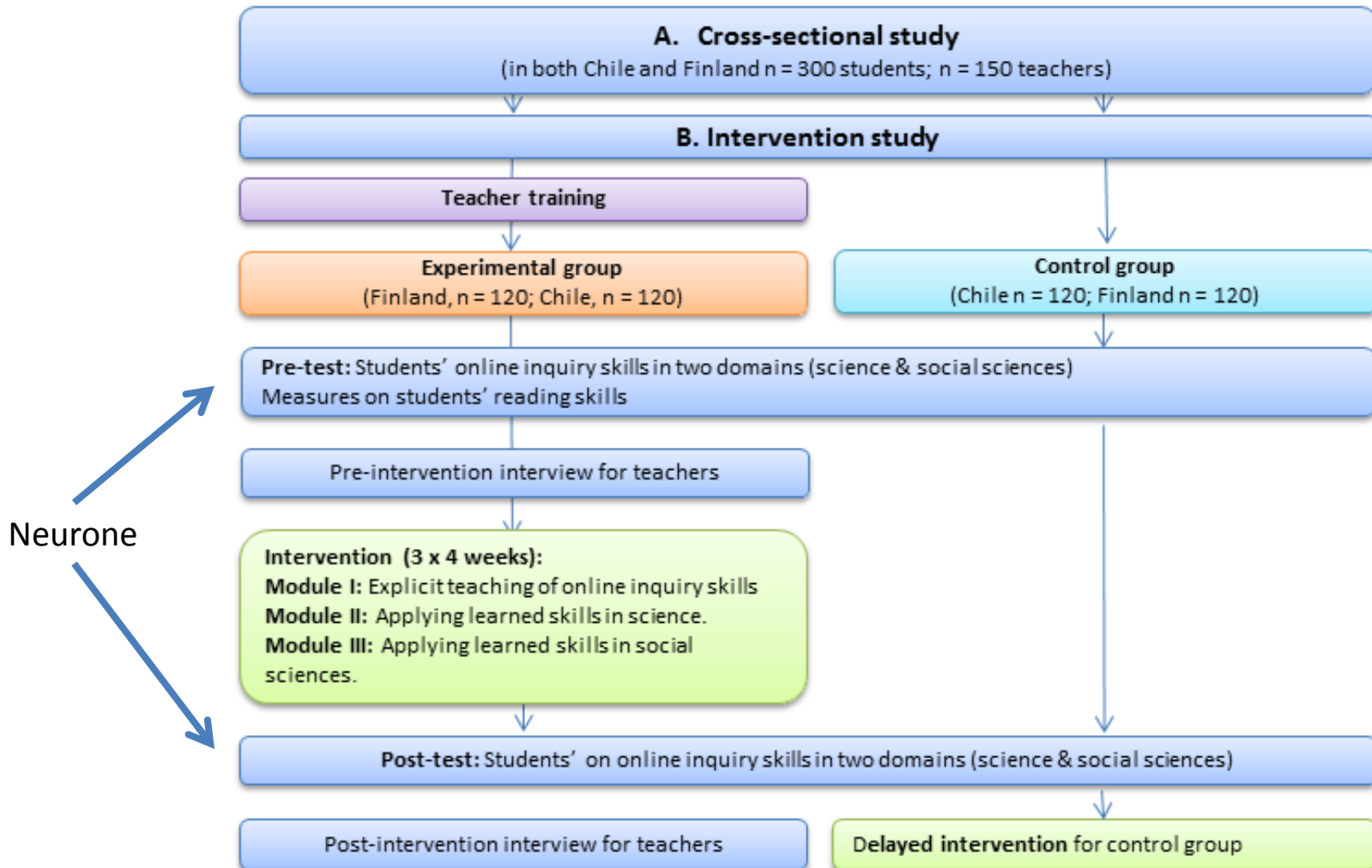
Merkkaus 2 *ta, jos joku vaikka*

Merkkaus 3 *Oppimispelitutkijat kokoontuivat Tampereen yliopistossa*

Merkkaus 4 *uun muassa kehitelty pelejä matematiikan...*

Merkkaus 5 *Liiallisen tietokonepelaamisen haitat voivat näkyä...*

iFuCo research plan



The case study

- Goal
 - to demonstrate test administration and scoring
- Participants
 - n = 36 6th-graders (out of >300 tested students in Finland)
- Scoring
 - Automatic procedures
 - Searching & selection
 - Identifying main ideas from sources
 - Manual procedures
 - Credibility justifications
 - Synthesizing information across sources

Preliminary findings

- Searching
 - 31% of students found all relevant pages; 25% did not find any
- Identifying main ideas
 - 6% found all main ideas, average score 4.4/6
- Justifications for credibility
 - 28% presented multiple justifications; 25% did not present any
- Synthesis
 - 8% presented rich source based arguments, 22% presented weak or no arguments

Discussion

- We designed and implemented a novel performance test for OICs as a multidisciplinary enterprise
- We argue that performance tests are needed to develop pedagogical practices in OICs
- We could demonstrate that the NEURONE test can be administrated in schools
- Work ahead
 - Teaching intervention in Chile (Fall 2017)
 - Analysis of learning outcomes, etc.

Thank you!

Comments? Questions?

Further information

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- Assessment: Carita Kiili, University of Oslo, Norway, c.p.s.kiili@iped.uio.no
- NEURONE homepage: <http://www.neurone.info/>
- iFuCo project [homepage](#)