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

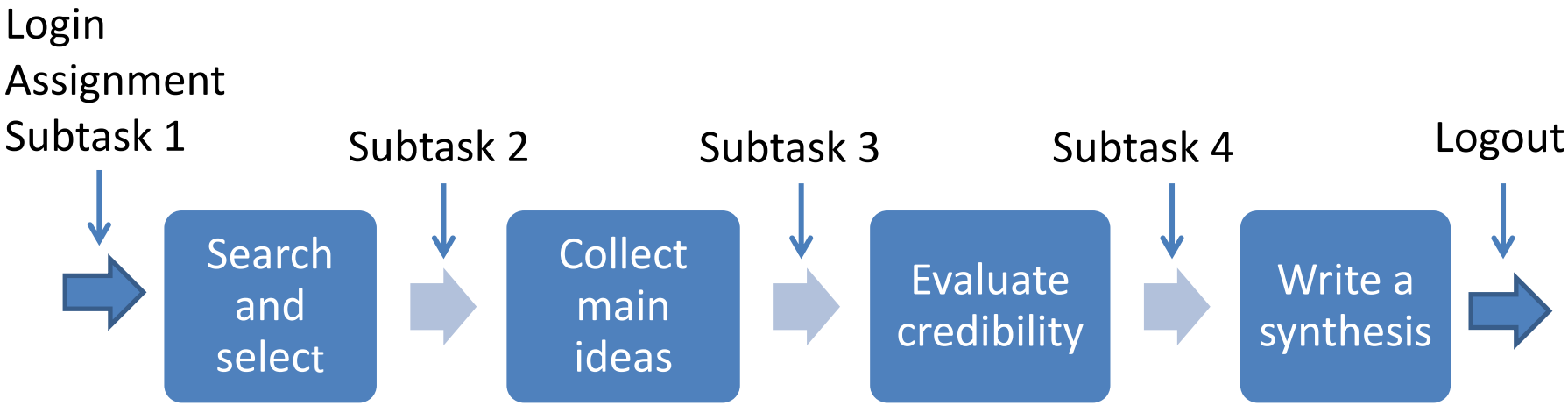
Motivation

- 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…

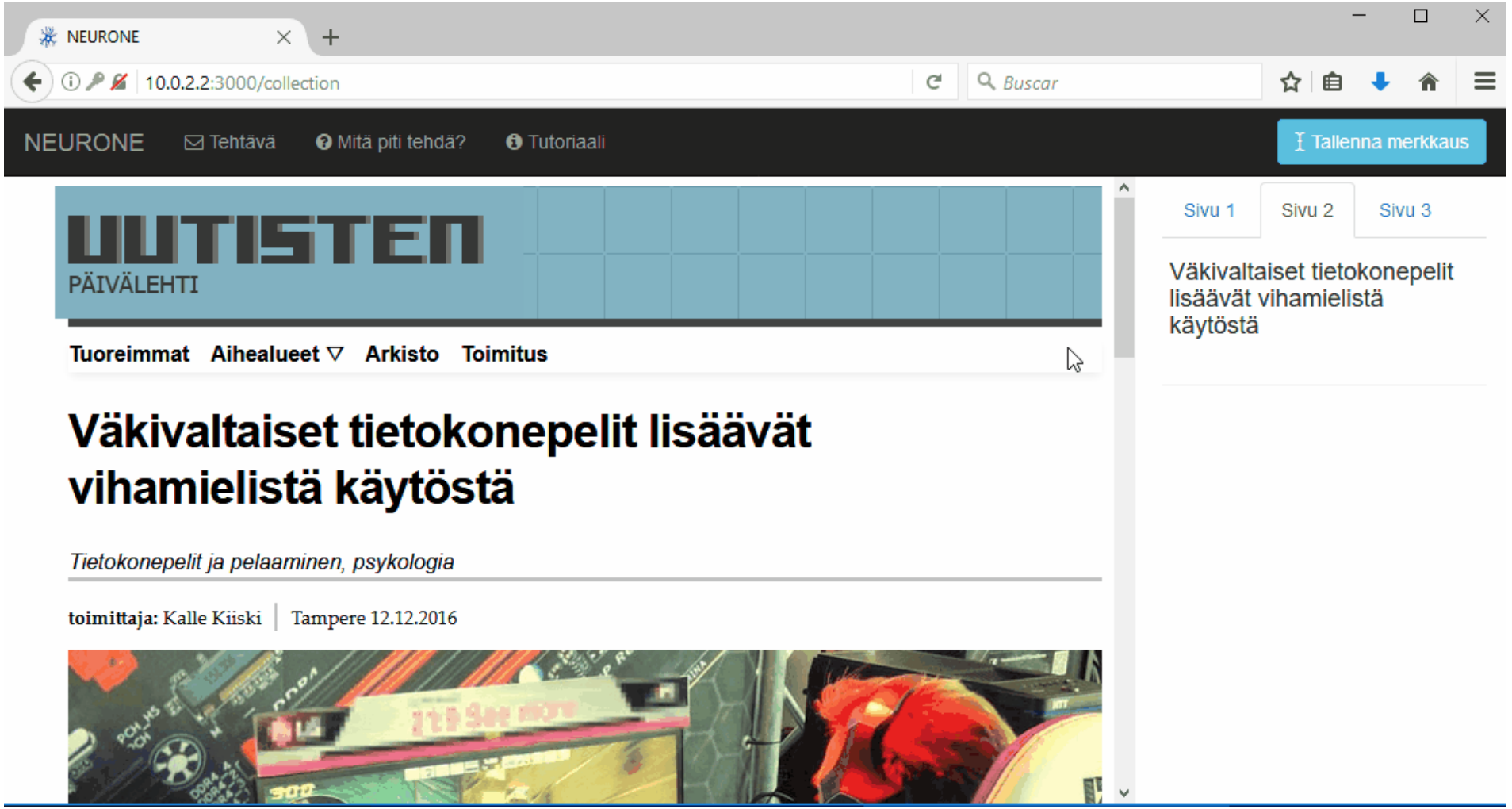
"You receive an email from a student representing another school. He gives a tip to you on how to earn some money for a field trip by making a magazine that can be sold to parents."

Assignment: The student suggests that

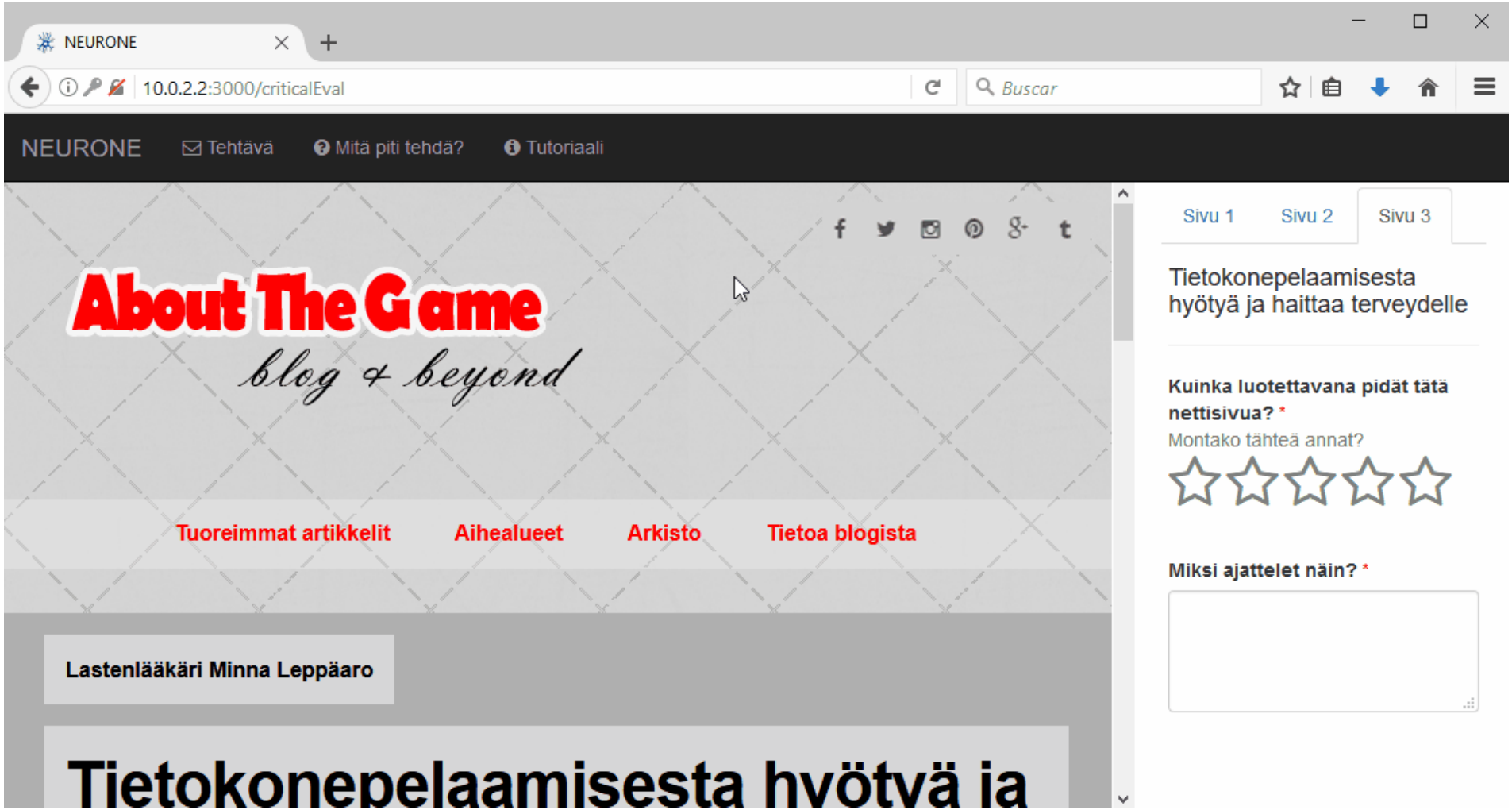
- You compose an article titled "*Computer-gaming has both advantages and disadvantages*" for the magazine.
- In the article, you give a recommendation on how children should use computer-games.
- To accomplish the task, you search for three Web sources and write an article on the basis of them.

Stage 1. Searching & selecting

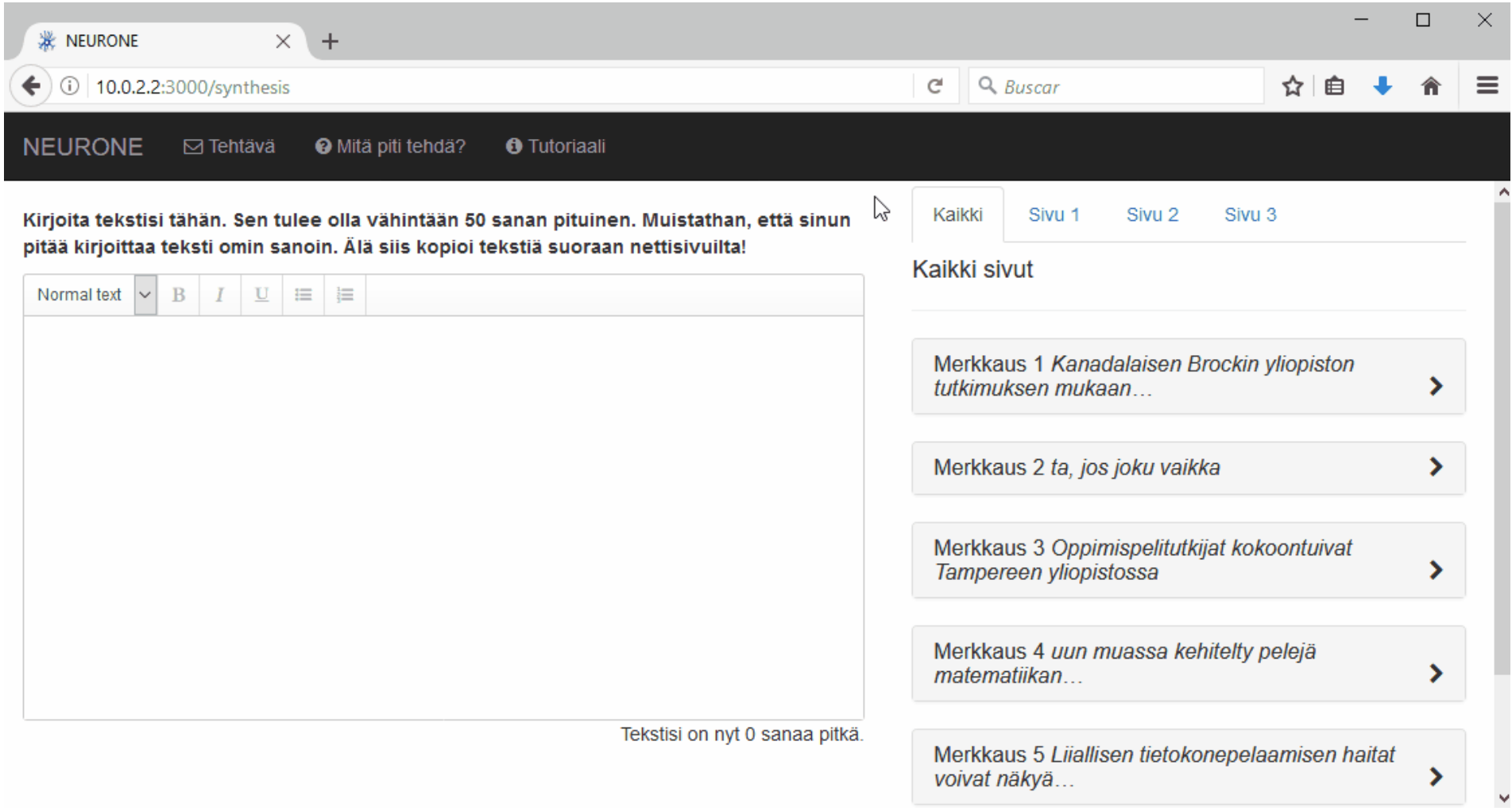
Stage 2. Identifying main ideas



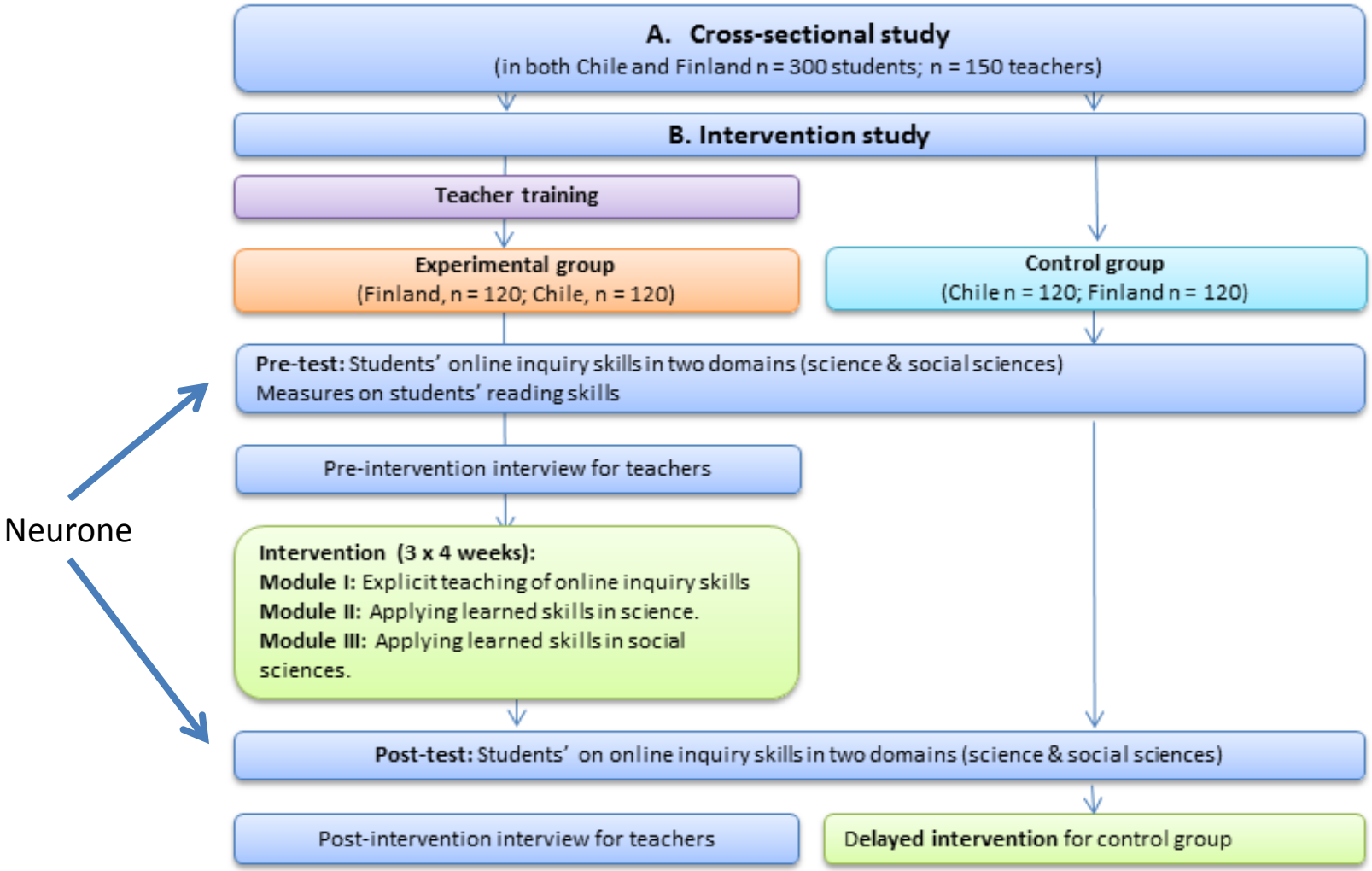
Stage 3. Credibility evaluation



Stage 4. Synthesis



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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