Researching education, improving learning

ICILS 2018
Project Update

IEA General Assembly - 58,
9–14 October, 2017
Budapest, Hungary

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Overview

Constructs: CIL - 1

- Computer and information literacy (CIL) refers to an individual's ability to use computers to investigate, create, communicate and solve problems in order to participate effectively at home, at school, in the workplace and in the community.

Constructs: CIL - 2

- **Strand 1: Understanding computers**
  - Knowing about and understanding computer use
- **Strand 2: Gathering information**
  - Accessing and evaluating information
  - Managing information
- **Strand 3: Producing information**
  - Transforming information
  - Creating information
- **Strand 4: Digital communication**
  - Sharing information
  - Using information responsibly and safely

Constructs: computational thinking

- Computational thinking is the style of thinking used when programming a computer or developing an application for another type of digital device.

- **Strand 1: Conceptualizing problems**
  - Knowing about and understanding computer systems
  - Formulating and analyzing problems
  - Collecting and representing relevant data
- **Strand 2: Operationalizing solutions**
  - Planning and evaluating solutions
  - Developing algorithms, programs and designs

Summary research questions

RQ	Computer and information literacy	RQ Computational thinking
1	How does CIL achievement vary within and across countries? How has CIL achievement changed between 2013 and 2018?	How does CT achievement vary within and across countries?
2	What aspects of schools and education systems are related to CIL achievement?	What aspects of schools and education systems are related to CT achievement?
3	How does student ICT use relate to CIL?	How does student ICT use relate to CT?
4	How does student background relate to CIL?	How does student background relate to CT?
5		How is CIL achievement associated with CT achievement?

Instruments - 1

- **Student test**
  - CIL: Five 30 minute modules (each student completes two)
  - CT: Two 25 minute modules (each student completes both modules)
- **Student questionnaire**
  - Background information, computer use in and out of school, experience of CIL/CT instruction in class

Instruments - 2

- **Teacher questionnaire**
  - Background information, computer use in teaching and attitudes towards computer use in teaching
- **ICT-Coordinator questionnaire**
  - School resourcing for use of ICT in teaching
- **Principal questionnaire**
  - School characteristics and policies for use of ICT in teaching and learning
- **National Contexts Survey**
  - Education system characteristics, policies and resourcing relating to CIL education

Progress report

Country participation

- Chile, Denmark*, Finland*, France*, Germany*, Italy, Kazakhstan, Korea* (rep. of), Luxembourg*, Moscow (region of the Russian Federation), Portugal*, Uruguay* and the United States of America*.
- *Also participating in Computational Thinking international option

Milestones – 2016/2017

- November 2016* : Field trial instrument release
- May - June, 2017*: Filed trial data collection
  - 14 counties
  - 6656 students
  - 4236 teachers
  - 327 ICT-coordinators
  - 340 principals
- July, 2017: Scoring†, data cleaning and preparation (IEA Hamburg)
- July - August 2017: Analysis of field trial data (ACER)

*Delayed from originally planned schedule due to software issues

† Completed by IEA Hamburg due to software issues

Milestones – 2016/2017

- 11 – 15 September, 2017: 4th meeting of National Research Coordinators (Berlin, Germany)
  - Final review of instruments for main survey
    - Data showed good psychometric properties for CIL and CT instruments
    - Questionnaire instruments performed as predicted
    - Reviews recommended:
      - retention of all 5 CIL and CT test modules (with refinements to selected items and scoring guides)
      - Reduction of length of CT modules from 30 minutes to 25 minutes
      - small reduction in length of student and teacher questionnaire instruments.
  - Plans for main survey instrument preparation and data collection procedures were presented and discussed
    - Including changes to procedures as a result of change in software delivery

Timeline and next steps

Timeline and next steps

Milestone	Date or period
Finalization of main survey instruments	September to November 2017
Main survey instrument release	13 November, 2017
Main survey field operations and scoring training seminar	20 to 23 November 2017
Main survey preparation (Northern Hemisphere)	November 2017 to March 2018
Finalization of draft assessment framework	October 2017 to February 2018

Timeline and next steps

Milestone	Date or period
Main survey preparation (Southern Hemisphere)	November 2017 to August 2018
Main survey data collection (Northern Hemisphere)	March to May 2018
Final review and production of assessment framework	February to June 2018
Main survey data collection (Southern Hemisphere)	September to October 2018
Data preparation and analysis	June 2018 to March 2019

Timeline and next steps

Milestone	Date or period
Report development and database preparation	December 2018 to October 2019
NRC Meeting 5 (review of International Report)	June 2019
International Report release	November 2019
Technical Report release	March 2020
International Database training	March 2020

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Thank you

Questions?

ACER