

# Learning to Change the World

## Interactive Technology in Education

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Sugar Labs

A member project of the  
Software Freedom Conservancy









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The context of human development is always a culture and never a technology in isolation.

--Seymour Papert

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# Why do we care about Learning?

Education is a fundamental human right and the key to social and economic development.



What motivates people?

carrots and sticks?



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# What motivates people?

- (1) autonomy
- (2) mastery
- (3) a sense of purpose





Is our goal learning to use the computer or learning to use the computer for learning?





Back

★  light paint 2 hours, 54 minutes ago











Description:  
ta sensor (brightness block)

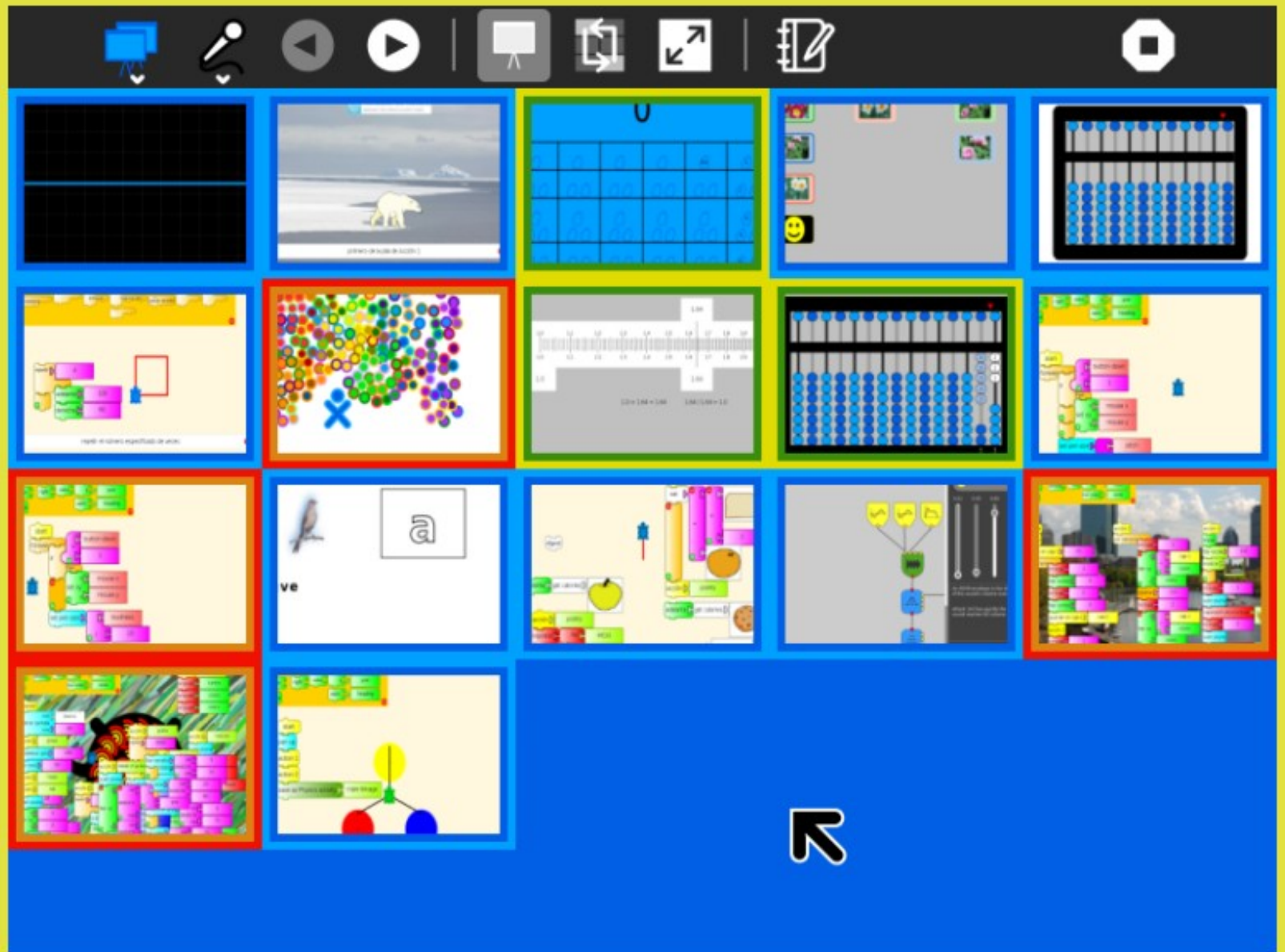
Kind: application/x-turtle-art  
Date: 02/12/2013  
Size: 513 B

Tags:

Coment

 Walta Benda	Turtle Art Activity	
 Walter Bender	painting with light	
 Walter Bender	more tests of comment downloads	
 Walter Bender	one more time...	

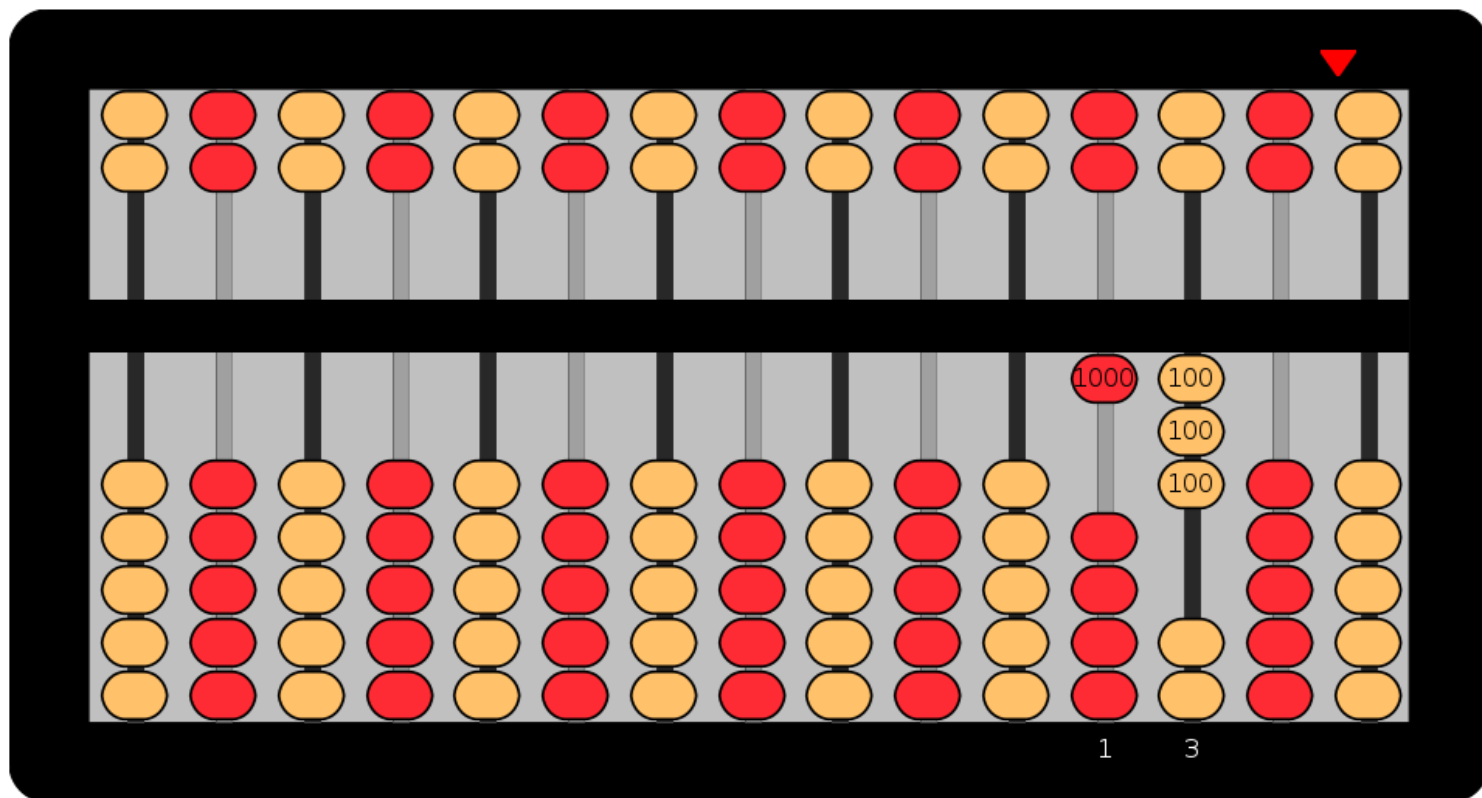
Participants:





Suanpan

$$1000 + 300 = 1300$$



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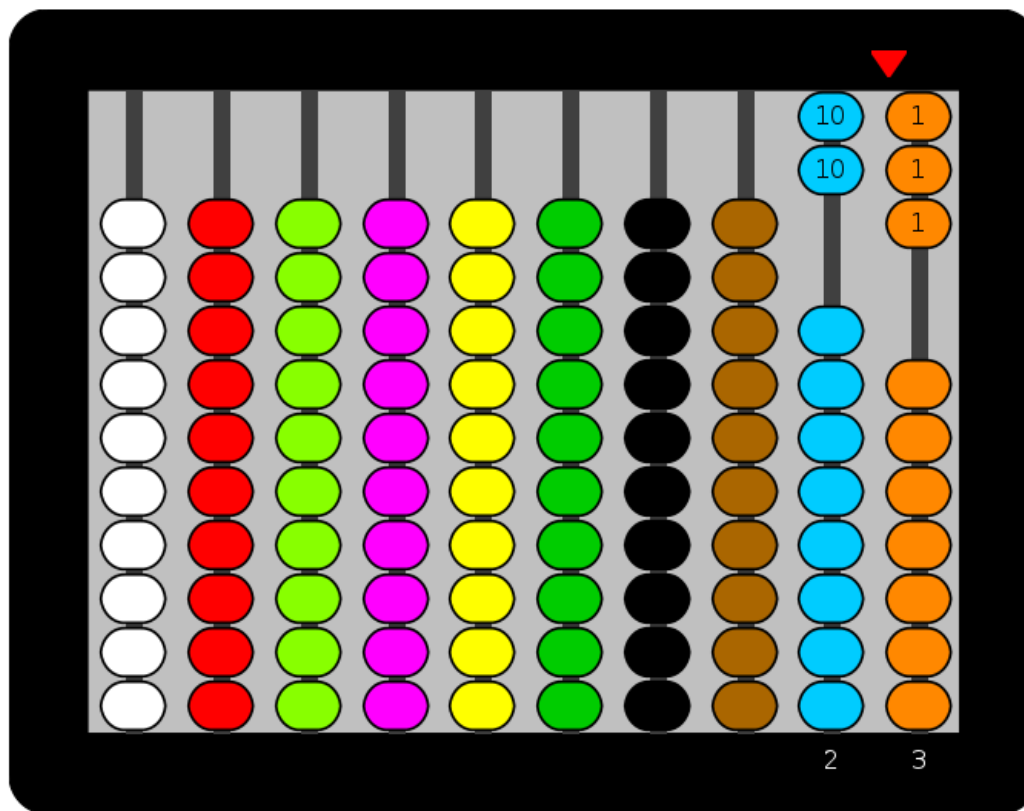
Decimal

A new abacus is loading.

1 Ok

The image shows the top portion of a mobile application interface. It features a dark grey toolbar with various icons: a grid of red dots, a pair of scissors, a calculator icon, a gear, a minus sign, and a square icon. Below the toolbar is a row of ten different abacus designs. A status bar at the bottom of the toolbar area displays the text "Decimal" and "A new abacus is loading." with a small "1" icon and an "Ok" button.

$$20 + 3 = 23$$



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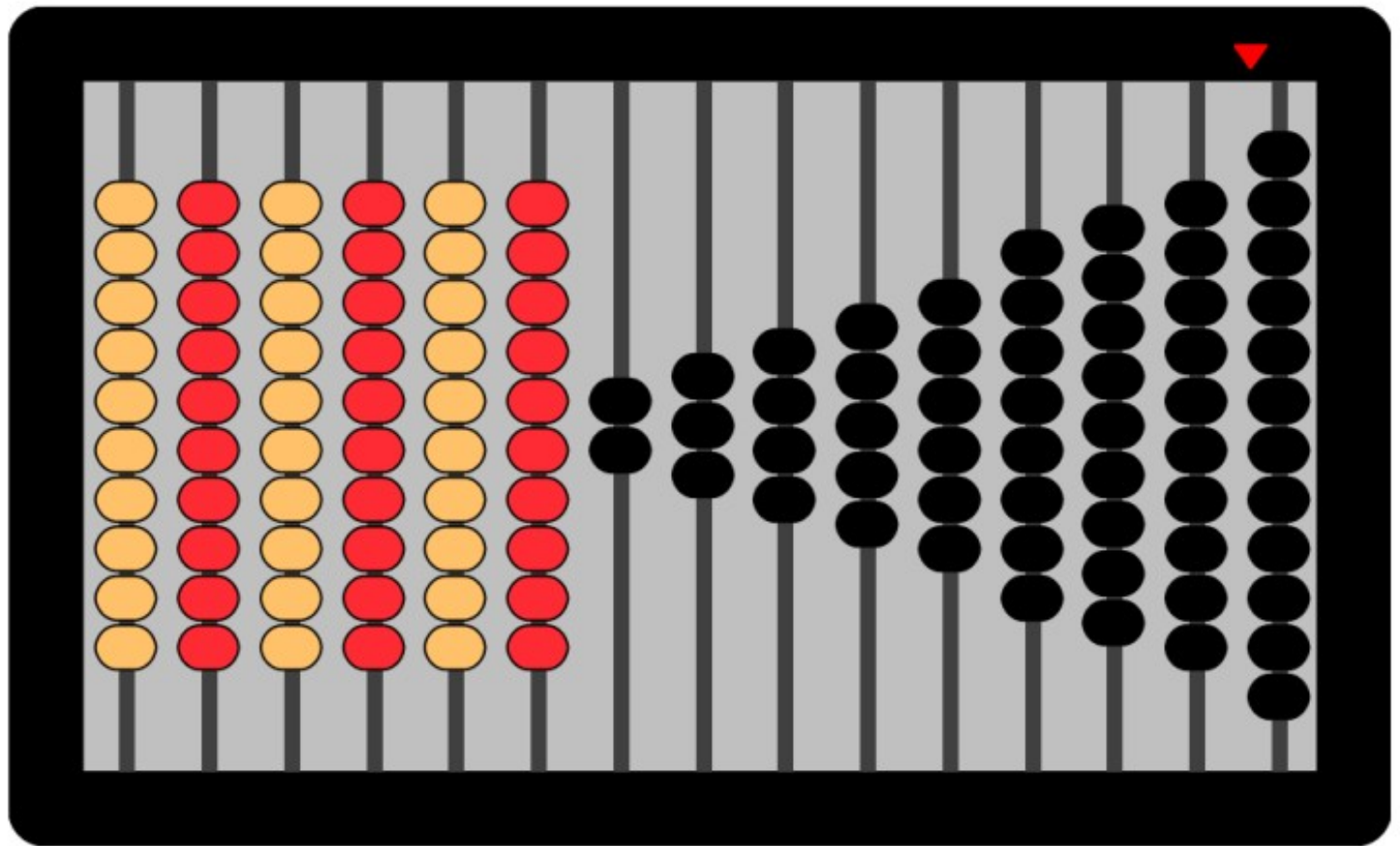
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12 + 11 = 23

A digital abacus interface for the equation 12 + 11 = 23. The interface is divided into two horizontal sections. The top section represents the number 12, with one orange bead in the tens column and two red beads in the ones column. The bottom section represents the number 11, with one orange bead in the tens column and one red bead in the ones column. The result, 23, is shown in a small white circle on the right side of the top section. The abacus has 10 vertical rods, each with 10 beads (5 orange on top, 5 red on bottom). The interface includes a toolbar at the top with icons for grid, scissors, calculator, settings, and a minus sign, and a 'Custom' label. A red triangle points to the top right corner of the abacus.



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View source: Abacus Activity

```
1 # -*- coding: utf-8 -*-
2 #Copyright (c) 2010-12, Walter Bender
3
4 # This program is free software; you can redistribute it and/or modify
5 # it under the terms of the GNU General Public License as published by
6 # the Free Software Foundation; either version 3 of the License, or
7 # (at your option) any later version.
8 #
9 # You should have received a copy of the GNU Lesser General Public
10 # License along with this library; if not, write to the
11 # Free Software Foundation, Inc., 59 Temple Place - Suite 330,
12 # Boston, MA 02111-1307, USA.
13
14 from gi.repository import Gtk
15 from gi.repository import Gdk
16 from gi.repository import GObject
17 from gi.repository import Pango
18
19 from sugar3.activity import activity
20 from sugar3 import profile
21 from sugar3.graphics.toolbarbox import ToolbarBox
22 from sugar3.activity.widgets import ActivityToolbarButton
23 from sugar3.activity.widgets import StopButton
24 from sugar3.graphics.toolbarbox import ToolbarButton
25 from sugar3.graphics.toolbarbutton import ToolbarButton
26 from sugar3.graphics.alert import NotifyAlert
27 from sugar3.graphics import style
28
29 from gettext import gettext as _
30
31 import logging
32 _logger = logging.getLogger('abacus-activity')
33
34 from abacus_window import Abacus, Custom, MAX_RODS, MAX_TOP, MAX_BOT
35 from toolbar_utils import separator_factory, radio_factory, label_factory, \
36     button_factory, spin_factory
37
38
39 NAMES = {'suanpan': _('Suanpan'),
40         'soroban': _('Soroban'),
```



A screenshot of the Scratch code editor. The stage shows a red spiral drawn with the turtle tool. The code blocks are as follows:

- Start (käynnistä)
- Forever loop (ikuisesti)
  - If clicked (jos painike painetaan) then (sitten)
    - Pen down (kynä alas)
    - Pen up (kynä ylös)
  - Set x and y coordinates (asetta xy)
    - x: mouse x (hiiri x)
    - y: mouse y (hiiri y)
  - Set pen size (asetta kynän koko)
    - volume (äänekkyyys)
    - math:  $+$  /  $100$



Debugging is the greatest learning opportunity of the 21st Century.

--Cynthia Solomon



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10%

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# The next generation

We aspire to raise a generation of critical thinkers with the capacity to solve problems and to establish a culture independent learning.





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# STEM or STEAM?

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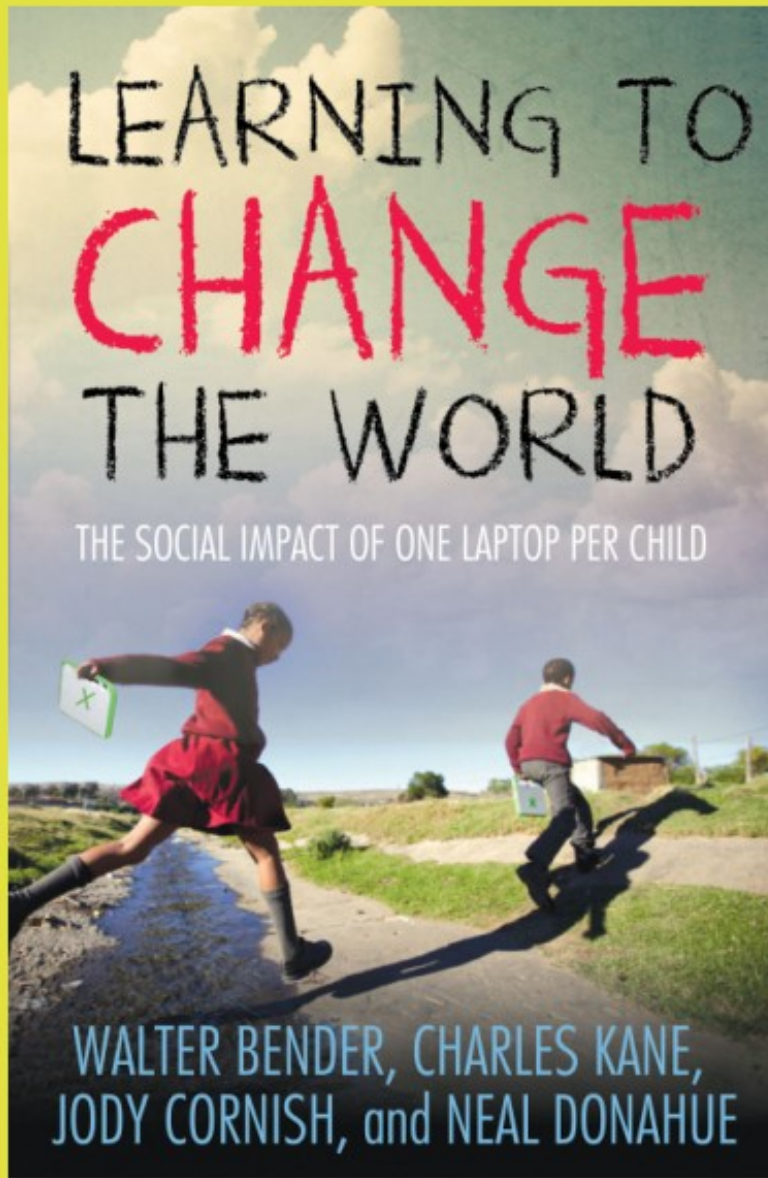


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# kiitos

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