Does technology drive social change?

Psychological, social and cultural effects of olpc among Ethiopian children

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OLPC

- Small sturdy laptop (XO)
- Not for profit
- Launched 2005
- Price $180
- OS sugar (linux-derived)
- Software: educational (maths, reading, writing, programming, music, etc.), communication, web, games, camera

OLPC Model:

- Give XO to children in developing countries
- Let things happen

Biggest takers:

- Peru 100,000
- Uruguay ±150,000
- Rwanda 50,000
OLPC’s Stated Mission

To create educational opportunities for the world’s poorest children by providing each child with a [...] laptop with content and software designed for collaborative, joyful, self-empowered learning.

When children have access to this type of tool they get engaged in their own education. They learn, share, create, and collaborate. They become connected to each other, to the world and to a brighter future.
Primary effects

- Technology is designed to achieve specific educational objectives
  - Learning outcomes
  - Educational approach
- It *sometimes* achieves these objectives (e.g., Kulik, 2003)
- Need for evaluations!
Technology adoption in developed countries

› Some marked discrepancies between design intentions and uses
› Social factors more central than originally envisioned:
  • Users transform and adapt technology to meet current needs (e.g., Feenberg, 1992; Fulk, 1993)
  • Communication and social needs best predictors of usage (Kraut et al., 1999)
  • Among children & adolescents, technologies used to express and develop social identities (Postmes & Baym, 2005).
› Thus, focus on *unintended secondary effects* of OLPC (social development, cultural change etc.).
Likely secondary effects

- Personal, social and cultural transformation
  - Psychological: e.g., self-efficacy, future goals and aspirations
  - Social: e.g., social networks, capital
  - Cultural: e.g., beliefs and practices
Expectations
Studying effects of OLPC

› 5000 laptops donated to Ethiopia
› Implemented by Engineering Capacity Building Program (intergovernmental coop Ethiopian–German govts)
› Initial introduction via 4 schools
› Strong emphasis on teacher training

› Research
  • systematically track child development for 2 years
  • grade 5 and 6
## Research Design

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<th>Introduction Schoolserver</th>
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Study

› Sample: 662 children with, 582 without laptop; 1078 matched t1-t2
  • Gender: 41% boys, 59% girls
  • Age: $M = 12.7$ years
  • Grade: 5th and 6th
  • Schools: 3 schools equipped with laptops (2 in Addis, 1 countryside) 3 matched control schools (without laptops)

› Variables:
  • Laptop usage
  • Psychological: self-efficacy, self-esteem, future goals and aspirations
  • Social: social networks, groups
  • Cultural: cultural beliefs and practices
  • Educational: performance, retention
First Results:
Laptop Usage
Where do they use their laptop?

at home

- high status city
- low status city
- countryside

every day, often per week, a few times per month, never

at school

- high status city
- low status city
- countryside

never, often, very often
How do they use their laptop?  

Favorite activity:
What do they do with their laptop?

What do you like to play most with?

- My friends
- My favorite playing toy (not laptop)
- My laptop
With whom do they share their laptop?
Cultural changes
Cultural value: power

\[ F(1, 788) = 4.11, \ p < .05, \ \eta^2 = .01 \]
Cultural value: tradition

\[ F(1, 788) = 12.75, \ p < .001, \ \eta^2 = .02 \]
Cult.value: equal treatment of boys and girls

\[ F(2, 718) = 3.02, \quad p < .05, \quad \eta^2 = .01 \]
Attitudes towards education
Does a laptop increase the motivation to go to school?

$F(2, 822) = 89.64, p < .001, \eta^2 = .18$
Summary of first changes

Laptop usage:
› Children mainly use their laptop at home.
› A learning device! Favorite activity is writing.
› They share it, often with parents

First social transformation:
› Some changes in cultural values
› The laptop increases the motivation to go to school in the countryside.
Future research activities

› Educational outcomes:
  • Cognitive skills
  • Educational approach (classroom interaction)

› Social outcomes:
  • Social networks
  • Interaction with peers and parents (sharing)
Thank you!

Thanks to:

- Annemarie Bos, K. Annika Tovote, Namkje Koudenburg, Rena Hiersemann
- Tom Snijders (University of Groningen and Oxford)
- Márton Kocsev
- Thomas Rolf
- Eskender Andualem
- and the whole on.e team

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Are they respected by their parents that they have a laptop?

\[ F(2, 588) = 3.47, p < .05, \eta^2 = .18 \]