

Technology for Losers: Re-Equipping the Excluded

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Amputation, prosthesis and separation

- Holistic approach: Losing a leg in amputation makes others talk slowly to the amputee – s/he belongs to another language group than those who still have their limbs, like any excommunicated loser
- “Prosthesis” comes from Gk. prostithenai "add to," from pros "to" + tithenai "to put, place" – but has become to mean “take out from”
- Wiki: “Prostheses are typically used to replace parts lost by injury ([traumatic](#)) or missing from birth ([congenital](#)) or to supplement defective body parts.”

Why to talk about ICT and losers?

- Fresh contexts for inventions
- Attracting students to ICT/CS/IS/SE
- Patronizing colleagues
- Term 'loser' politically sufficiently incorrect
 - Focus on real human beings, not on an anonymous target group
 - Characterizing a group of people which is more heterogeneous than it seems at the first glance
- Identifying a meaningful challenge for the academic community outreach of CS

Tensions from my R&D context

- Nordic, Finnish – egalitarianism or meritocracy
- Special education – differentiation or integration
- Contextualized ICT education in Tanzania – particular or universal
- Rural areas – covered by nature or civilization
- Seniors – life behind or ahead
- IT students – needed but not attracted
- Should – or can – a computer scientist really care?

Who are losers?

- people that lost something that they have had or potentially have
- losing material goods
- losing opportunities
- neglecting or abandoning one's own or someone else's talents
- losing one's track, meaning, or even identity, in life
- people in periphery, outside mainstream

Losing or getting lost?

- Passive or active causes
- Oppression from others or giving up one's initiative
- Mainstream losers: pied piper of Hamelin



What is lost?

- company's R&D unit: "fresh ideas"
- young museum visitor: "meaning of objects"
- relatives of HIV/AIDS victims: "the dignity of my family story"
- ICT employee: "interest in my job or trust in my employer"
- last farmer in a rural area: "future"
- ICT-illiterate teacher: "self-confidence"
- parent or child: "child" or "parent"

Losing and ICT

- Goal-oriented task: Searching for a single piece of relevant, expected information within a mass of data
 - Starts from information shortage, hunger
 - Detail lost
- Data-oriented task: Revealing a latent, unexpected pattern from massive data
 - Starts from data excess
 - Big picture lost

Regular losing: Have-nots misplace critical belongings

- Starting point: losing necessary possessions, like keys
- Consequence: one gets lost because of one's alienation from the haves, or having itself
- Leads to impoverishment

Emancipating losing: Haves get rid of burdens

- Starting point: lost in abundance, like overweight or hyperspace
- Consequence: One must branch off the peripheral, i.e. lose the unnecessary, like weight or information
- Leads to empowerment

Losing as a key to future technologies

- The two types of losing might match or compensate each other
- Preventing or compensating regular losing by concretizing challenges – needs-based
- Promoting emancipating losing by focused inventions – strength-based

4?

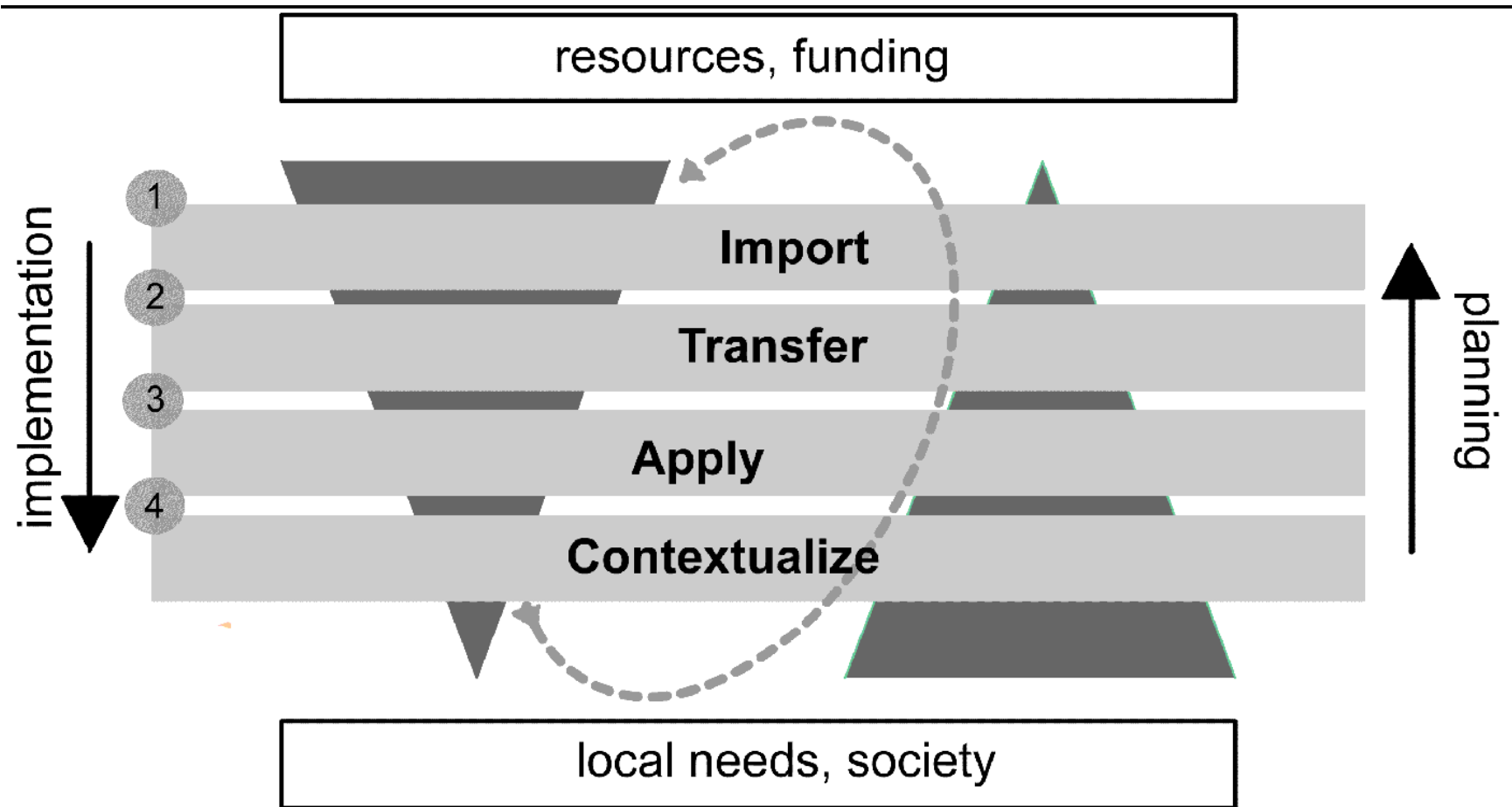
- *Agency*: Technology has always to be a proactive agent for change
- *Bias*: The agenda might be politically incorrect and impartial to defend the rights of those who keep on losing. The question mark after 4 always draws attention to analysis and criticism of the designed technologies
- *Concreteness*: Unlike in policy-oriented, large-scale information society initiatives, small, concrete steps forward do matter
- *Difference*: Technology has a target, task or mission for a difference

Scenario: Tanzania

- Ethnocomputing, self-confidence, African I-BLOCKS, context. ICT program



Tanzania cont: CATI



Scenario: HIV/AIDS stories

- Stories that you were ashamed of become your pride
- <http://cs.joensuu.fi/~duveskog/EEPD/>

Scenario: ICT for special education

- Designing tools for kids with autism, ADHD, or Asperger's syndrome
- Emphasis on tangible technologies
- Promoting social integration by interaction and teamwork

Scenario: Rural villages

- <http://www.vuonis.net/taiteilijatalo/index.htm>

	Agency	Bias	Concreteness	Difference
<i>ICT studies in a developing country</i>	ICT education needs to transform the society surrounding its future graduates	Does ICT education make technology the master or a slave of its future users?	It is better to educate ten students in such a way that they can invent than to train thousand experts for a narrow, imported application	Refresh the existing ICT curriculum
<i>Technologies for special education</i>	Technology needs to increase the self-confidence of those that have used it	How does the technology give voice to its users?	Make one fresh tool rather than evaluate tens of existing tools	Renew the ways that diverse learners can integrate to regular education by the help of technology

Way to re-equip: designing together

- identify a potentially motivated group
- involve them from the earliest possible stage
- encourage technologists to get acquainted with users and cope with their prejudices
- make sure that everyone understands the technology utilized, and its opportunities
- appreciate diversity and heterogeneity
- create an open, supportive atmosphere ready to take risks

What does inclusive design entail?

- rethinking & reworking ICT/CS curriculum (Tzn)
- promoting societal awareness as an intellectual and technical challenge
- back to Plato in academia: understanding one's surroundings from a multidisciplinary perspective
- complementing needs-based design with strength-based thinking
- from patronization towards emancipation
- creativity as a prerequisite of technical solutions
- emphasis from problem solving to problem identification
- shifting focus from evaluation oriented controlled lab tests to technical explorations or expeditions in real settings

ICT matches us losers w/ our strengths

- not just technology for an individual
- participation: everyone receives
- getting results in terms of research requires a long time
 - mutual trust
 - space to try out and take risks
- needs-based approach, based on universal rights or similar, can be more easily standardized (MDGs) than a more contextual or particular strength-based approach

Welcome to create technology with losers

- www.impdet.org
- www.scifest.fi
- www.cs.joensuu.fi/edulink