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 empovertyment
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

resources, funding

local needs, society

1. Import
2. Transfer
3. Apply
4. Contextualize

implementation
planning
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.html](http://www.vuonis.net/taiteilijatalo/index.html)
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<tr>
<th>ICT studies in a developing country</th>
<th>Agency</th>
<th>Bias</th>
<th>Concreteness</th>
<th>Difference</th>
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<tbody>
<tr>
<td>ICT education needs to transform the society surrounding its future graduates</td>
<td>Does ICT education make technology the master or a slave of its future users?</td>
<td>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</td>
<td>Refresh the existing ICT curriculum</td>
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<td>Technology needs to increase the self-confidence of those that have used it</td>
<td>How does the technology give voice to its users?</td>
<td>Make one fresh tool rather than evaluate tens of existing tools</td>
<td>Renew the ways that diverse learners can integrate to regular education by the help of technology</td>
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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