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Student-centred approaches in science and life skills education: What works in Cambodia?

Educaid Conference,

Brussels, December 5, 2013

Outline

- Science, Environmental & Agricultural Life Skills Programme (SEAL)
  - Context of education in Cambodia
  - Outcomes & Impact
  - Challenges & Solutions

Cambodia: the legacy of Pol Pot

75 % of teachers

96 % of university students

67 % of all primary and secondary school pupils

…were killed/starved when the Khmer Rouge was in power.

Long-term Impact on the Education System and Human & Social Capital in Cambodia

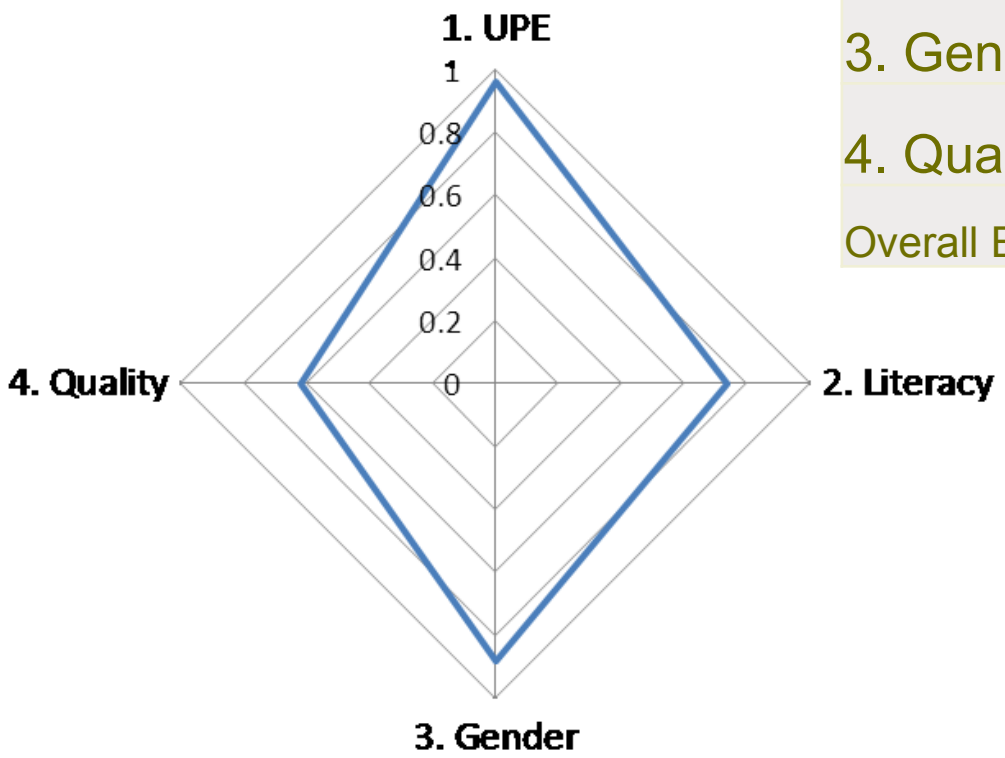
Education Indicators

Education Indicator	Year	Cambodia
Net enrollment primary education (%)	2011	98
Gross enrollment primary education (%)	2011	126
Completion rate primary education (%)	2011	90
Progression to secondary school (%)	2010	80
Overaged primary school attendance (%)	2010	42
% population 15-24 not complete primary edu. (%)	2010	32
Pupil-teacher ratio, primary	2010	48
Pupil-teacher ratio, secondary	2007	29
Literacy rate, youth total (% of people ages 15-24)	2009	87

Cambodia: Quality of Education

EFA Development Index 2010 (N = 127)

EDI Component	Value	Ranking
1. UPE	0.957	59
2. Literacy	0.739	94
3. Gender	0.883	97
4. Quality	0.621	111
Overall EDI	0.801	100



Teacher Training Programme

Objective: Graduate teachers apply improved teaching methodology

Strategy: Capacity Strengthening of Pre-service **Teacher Training** for basic education

Pedagogical skills

Child-centred learning

ICT in Education

Science education

Biology, Chemistry

Physics, Earth Science

Life skills

Health, Environment

& Agriculture

Teacher Training in Cambodia

Teacher training for primary education

(2 years)

→ **18 Provincial Teacher Training Colleges (PTTC)**

Teacher training for lower secondary education

(2 years)

→ **6 Regional Teacher Training Colleges (RTTC)**

Teacher training for upper secondary education

(1 year)

→ 1 National Institute of Education (NIE)

Implementation Model

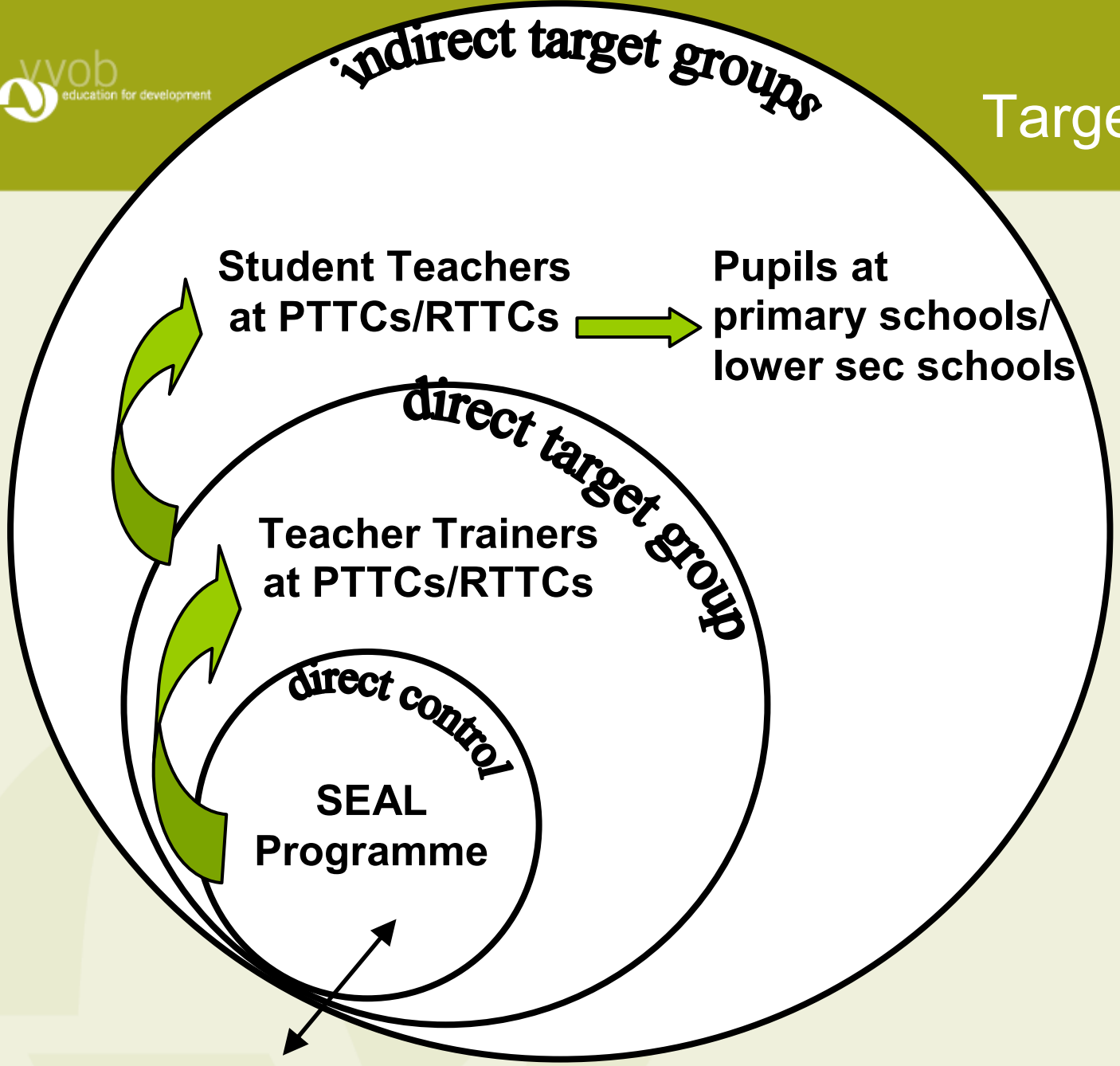
2008 – 2011: Pilot Phase at RTTC Kandal/ PTTC Siem Reap

- Capacity Development of Trainer-of-Trainer Team
- Development of resources
- Quality control

2011 – 2013: Scaling Up to all TTCs

- Capacity Development through workshops, study visits & follow-up activities
- Promoting peer learning
- Publication & dissemination of materials

Target groups



MoEYS central level (TTD), donors, …

Development of Educational Resources

- Instructors' manuals on student-centred approaches, experiments and agricultural/ environmental life skills
- Science & life skills posters with activity sheets
- Filmed instructions for 185 science experiments
- Interactive multimedia and activity sheets
- Equipment for RTTC science labs (both high and low cost) and low-cost experiment boxes for practice schools
- Logistical support for organic gardens, waste management & fish and chicken raising

Strengthened capacity in science & life skills education

- Teacher trainers of RTTCs and PTTCs
- Management staff of RTTCs and PTTCs
- Science & life skills teachers of 39 lower-secondary & 54 primary practice schools
- 93 directors of practice schools.
- 36 technical staff of provincial Offices of Education (inspection)

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Student Centred Approaches

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Zero and Low-Cost Experiments

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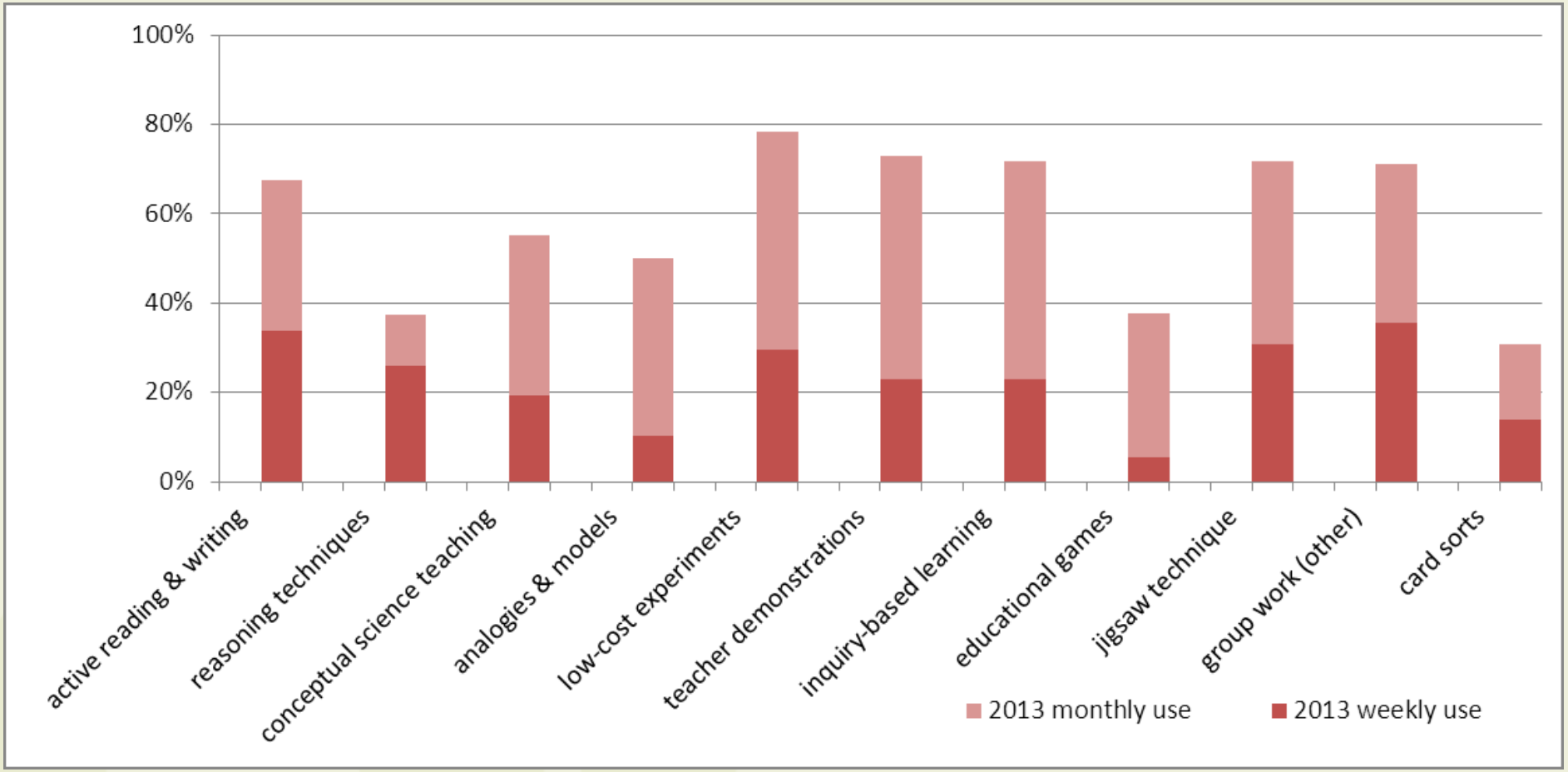
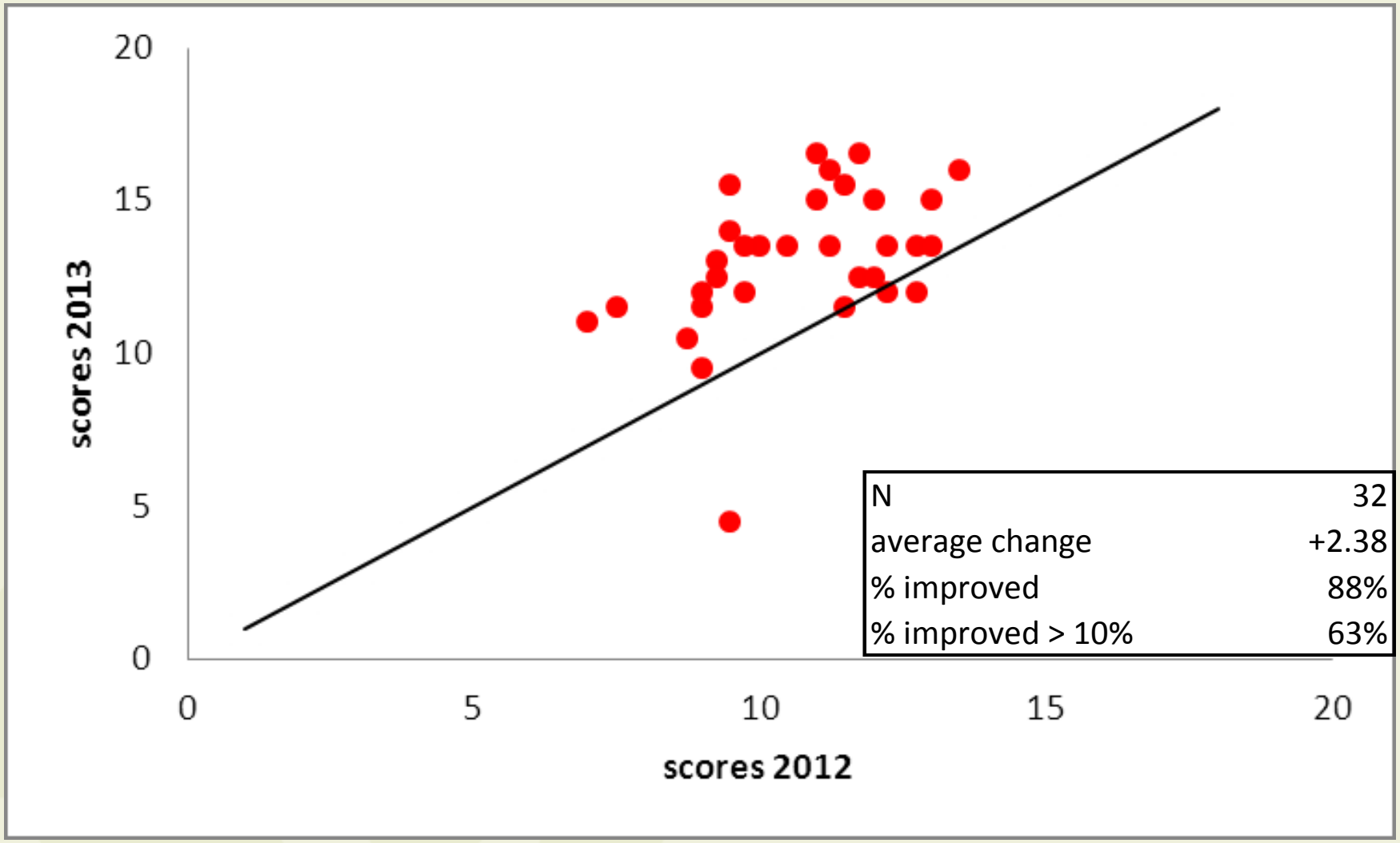
Supporting organic gardens

Impact on Teacher Trainers



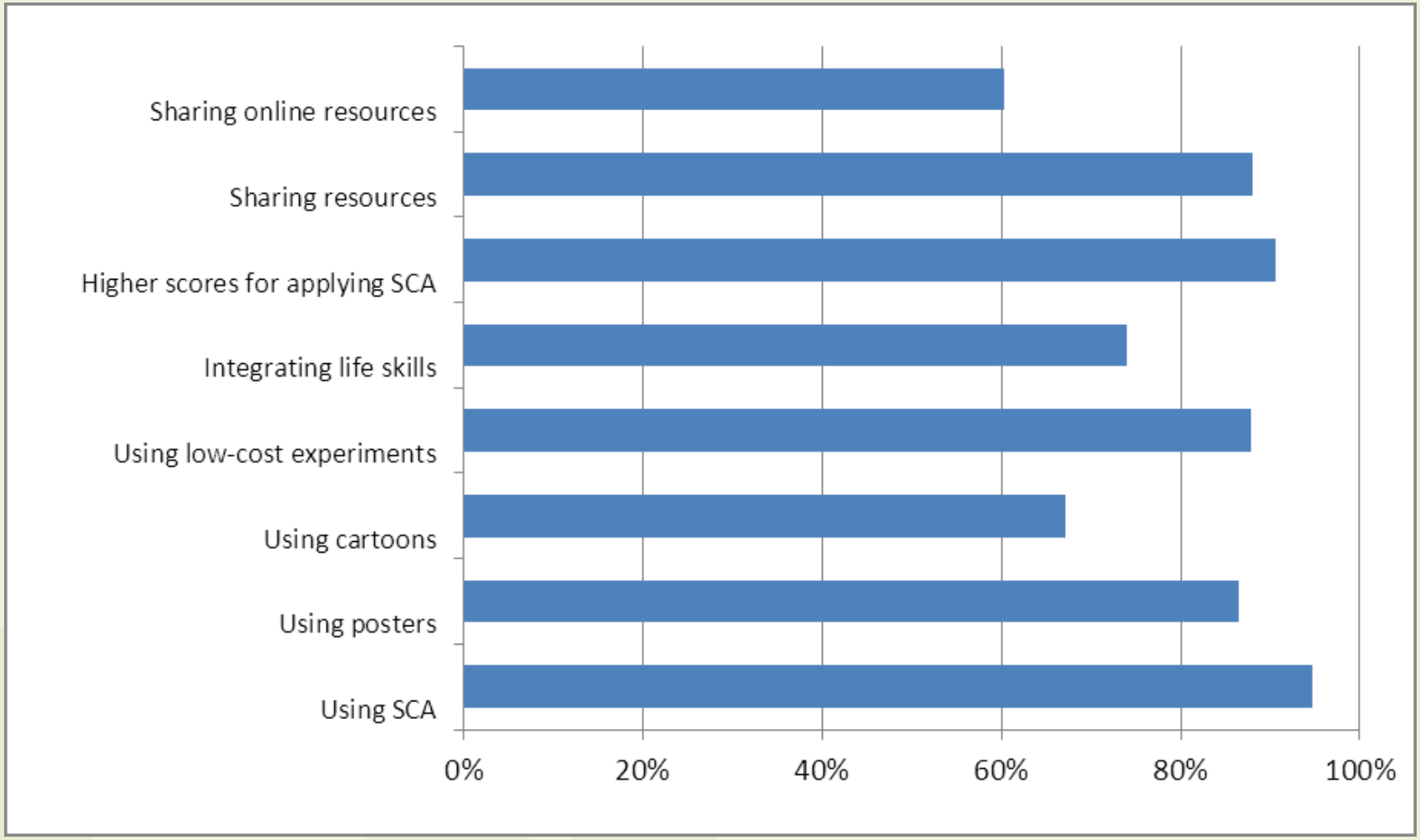
Use of SCA by science teacher trainers in 2013 (survey data)

Impact on Teacher Trainers: Lesson Quality



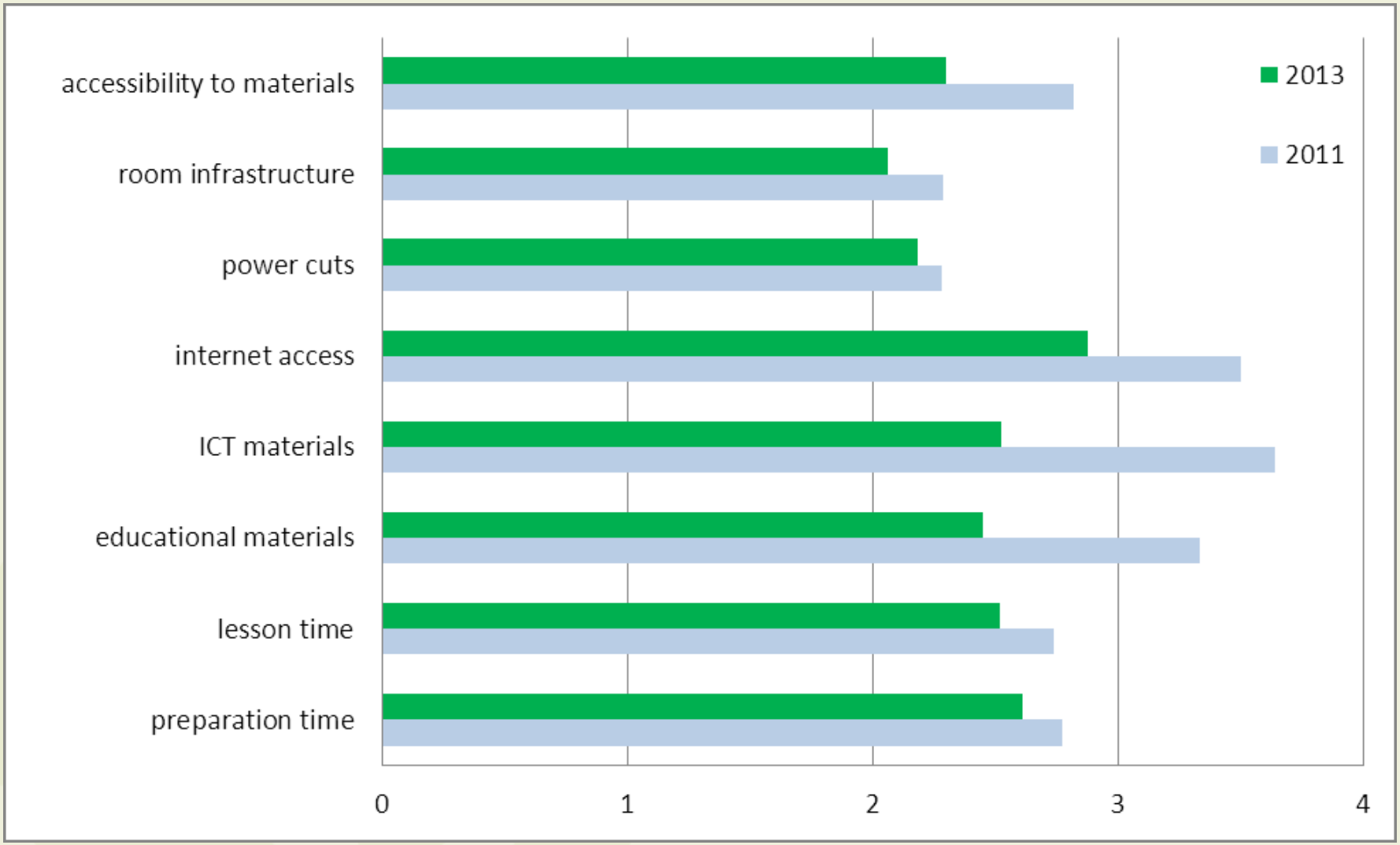
Comparison total lesson observation scores 2012-2013

Impact on student teachers



Percentage of science teacher trainers providing support on SCA to students during 2012-2013 practicum (n=75)

Challenges & Solutions



Challenges for applying SCA by RTTC science teacher trainers (2011-2013, N=75)

Challenges & Solutions

- Switch to SCA = Paradigm shift
  - Nature of knowledge
  - Role of teacher and students
  - Complexity of policy language (Schweisfurth, 2011)
  - Culture (high power distance; collectivist) (Berkvens, 2012; Kanu, 2005)

- Solutions
  - Set realistic expectations
  - Opportunities to contextualize generic solutions
  - Dialogue which respects target group as active agents
  - Allow sufficient time & opportunities for practice
  - Make compromises: 'learning centred' (O'Sullivan, 2004)

Challenges & Solutions

- Power & Agency
  - Many factors affect learning outcomes & drop-out rates (assessment, curriculum, inspection)
  - Assumptions of causality

- Solutions
  - Using 'windows of opportunity' (e.g. curriculum revision)
  - Fail-safe experiments
  - Prevent premature convergence
    'Complex spaces need experts to disagree to increase diversity, rather than a consensus based approach.' (Snowden and Boone, 2007)

Challenges & Solutions

- Participant bias
  - Response & cultural bias (Berkvens, 2012)
  - ‘Strategic’ responding
  - High-context culture (Hofstede, 2010)
  - Both with quantitative & qualitative data collection methods

- Suggestions
  - Mutual trust reduces response bias (Berkvens, 2012)
  - Focus on obtaining factual information
  - Triangulation to validate data

Challenges & Solutions

- Delayed & Diffuse impact on final beneficiaries
  - Effect on pupils to whom student teachers will teach after graduation
  - Effect on pupils (drop-out rates, learning outcomes) only after few years (beyond programme lifetime)
  - How can we attribute any effects on pupils to the programme?

- Suggestions & Questions
  - Indirect evidence & research literature
  - Quasi-Experiments, ethnographic studies
  - Impact measurement beyond the duration of the programme
  - Integration M&E procedures in partners' policies

More Information

- Links
  - http://vvob.be/cambodia/
  - http://www.slideshare.net/StefaanVandeWalle/

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