IEA · International Association for the Evaluation of Education Achievement

Second Information Technology in Education Study 2006

Progress report & results highlights for IEA General Assembly 2007

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Content

I Short summary of progress report
Policy concerns on ICT in education

II Tentative findings

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I Short summary of progress report

Policy concerns on ICT in education

II Tentative findings

Progress & Schedule

- Questionnaires:
  1. School managers (principal questionnaire)
  2. ICT coordinators (coordinator questionnaire)
  3. Teachers of Mathematics an Science (teacher questionnaire)
- Data received
- Data cleaning and file building
- International report in the final stage of writing, almost completed

Data received

- 22 participating education systems
- Total of almost 9000 schools
- Total of ~35000 teachers

Main report - Chapters

Tentative release date: March 2008

1. **Introduction**
2. **Conceptual framework and study design**
3. **National context**
4. **School conditions**
5. **Pedagogical orientations and the use of ICT**
6. **Factors affecting pedagogical use of ICT**
7. **Satisfying pedagogical practices with ICT**
8. **In search of explanations**
9. **Summary and recommendations**

Background of the Study

I Short summary of progress report

Policy concerns on ICT in education

II Tentative findings

IEA studies on ICT and education

1. Informatization of societies ↔ education
2. Policy initiatives: access, teacher training, support, curricula, pedagogical approaches
3. IEA monitors this development since 1989:
   A. IEA-CompED (1989 and 1992)
   B. SITES Module 1 (1998)
   C. SITES Module 2 (2001)
   D. SITES2006

Changes in policy concerns

1980s

Primary

- Equipment and software for schools
- Computer literacy courses for students

Secondary

- Integration in existing subjects

1990s

Strong policy interest in pedagogical innovations to achieve new educational goals

Changes in policy concerns

1990s

Premise: need new approaches & methods of learning to cultivate 21st century skills

LESS		*MORE*
Traditional	▶	Life Long Learning (LLL)
Teacher centred	▶	Student centred
Reproduction	▶	Production
Same time/pace/place	▶	Anytime/anywhere

ICT as lever for change?

Emphasis in IEA ICT studies

CompEd:

Primary focus

- availability of equipment and software in schools
- testing students' IT competencies

Secondary focus

- integration of ICT in the curriculum (learning with ICT)

SITES:

Primary focus

- facilitation of teaching & learning
- educational change & pedagogical innovation.

Secondary focus

- conditions for ICT integration and educational change
  - * leadership
  - * infrastructure
  - * staff development
  - * support

Emphasis in IEA ICT studies

CompEd

Primary focus: availability of equipment and software in schools; testing students' competencies in Information Technology (FITT-test).

Secondary: integration of ICT in the curriculum (learning with ICT)

Emphasis in IEA ICT studies

SITES

Primary: ICT use to facilitate teaching & learning and as leverage for educational change & pedagogical innovation.

Secondary: conditions relevant for ICT integration and educational change:

- Leadership: vision & priorities
- Infrastructure
- Staff development
- Support

From policy orientation to core concepts in SITES

Policy orientation:

- Less traditional, more LLL and connectedness

SITES concepts:

- Traditional orientation
- Life long learning orientation
- Connectedness orientation

Pedagogical orientations

Traditional orientation:

- focus on content goals
- typically the teacher plays the main role as instructor and assessor in the learning process
- the students follow instructions and work on assigned close-ended tasks

Pedagogical orientations

Lifelong learning orientation:

- Typically require students to work in teams on open ended real world problems
- Emphasis on developing problem solving, collaborative and organizational skills
- Students play an active role in identifying the learning problem as well as how to tackle it
- The teacher plays a facilitative role in the learning process

Pedagogical orientations

Connectedness orientation:

- Provide opportunities for students to learn from local and/or international experts
- Provide opportunities for students to work and learn with peers in other schools, which may be located in the neighborhood or in distant locations
- Provide opportunities for students to develop global understanding & cultural sensitivity **through** collaborating with students from other countries

Overview of the Study

In this presentation:

I Short summary of progress report
Policy concerns on ICT in education

II Tentative findings

Tentative findings related to:

Status & change	What impacts have ICT-related policies and strategies made on the school conditions for ICT use & teachers' pedagogical use of ICT?
Impact	What impacts have ICT use made on students (as perceived by teachers) and are there tentative indications that these are related to how teachers make use of ICT?
Strategy	What strategies work best to foster ICT use to improve learning?

Tentative findings related to:

Status & change

Impact

Strategy

ICT infrastructure

In all participating systems (except 1), almost 100% of schools have access to ICT. Substantial changes between 1998 and 2006 in 6 countries

Access to Internet almost completed in all systems except two. Substantial changes since 1998 in nearly all systems

Number of computers in schools increased substantially between 1998 and 2006.

Inequities: some schools much better equipped than others

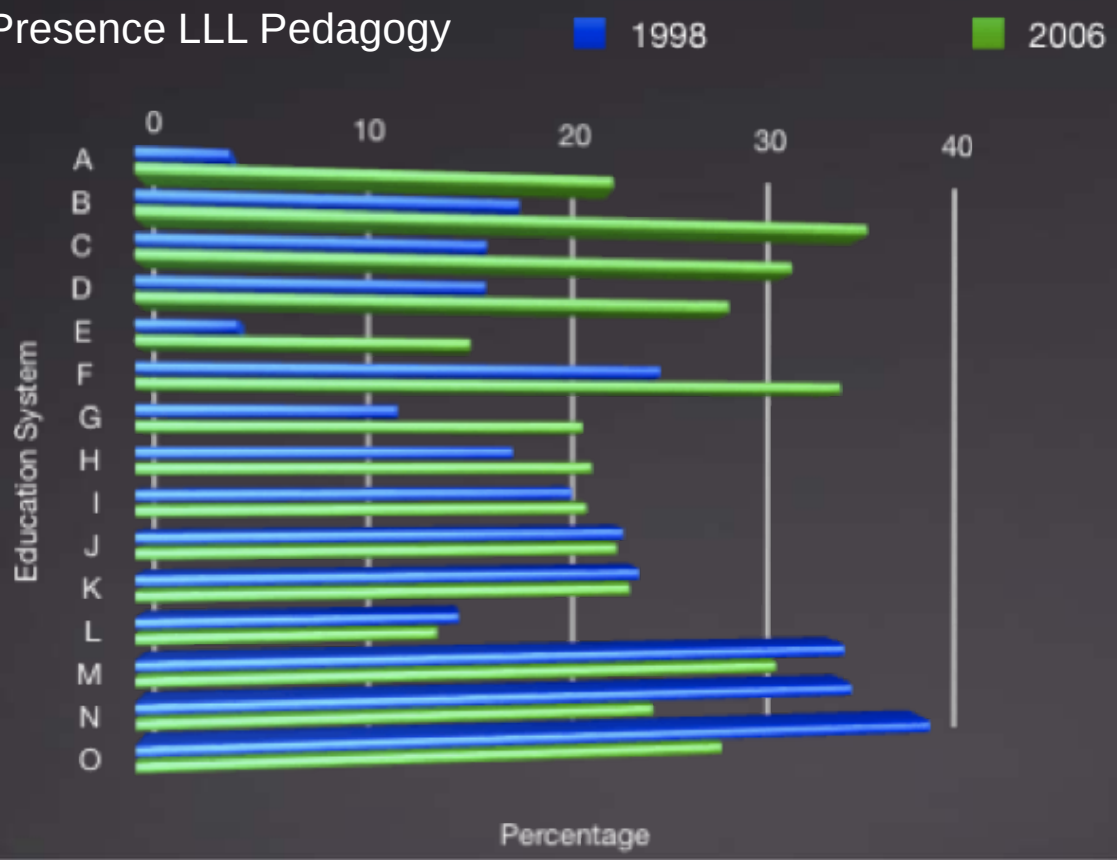
Tentative findings related to:

Status & change

Impact

Strategy

Lifelong learning orientation

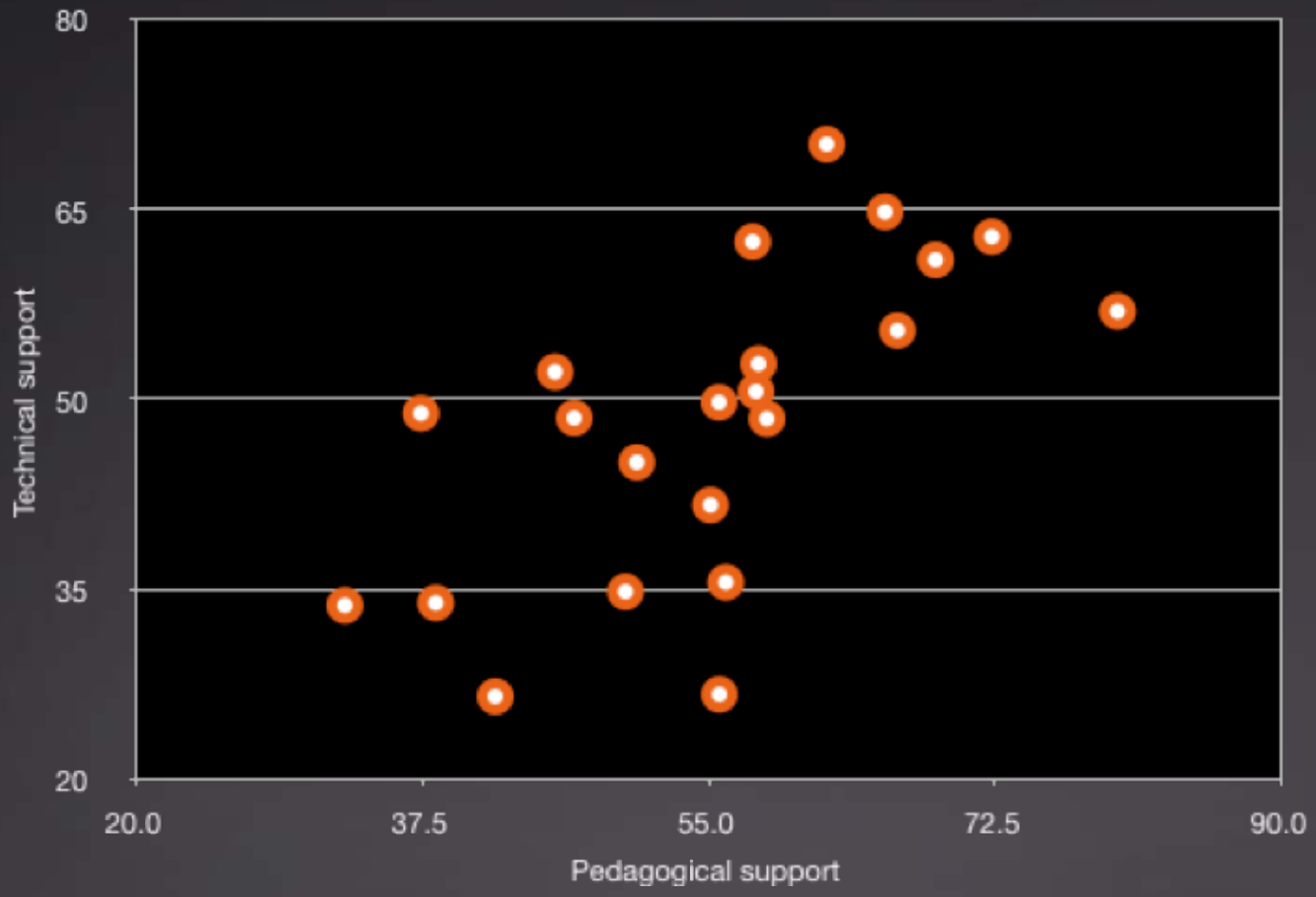


Tentative findings related to:

Status & change

Impact

Strategy

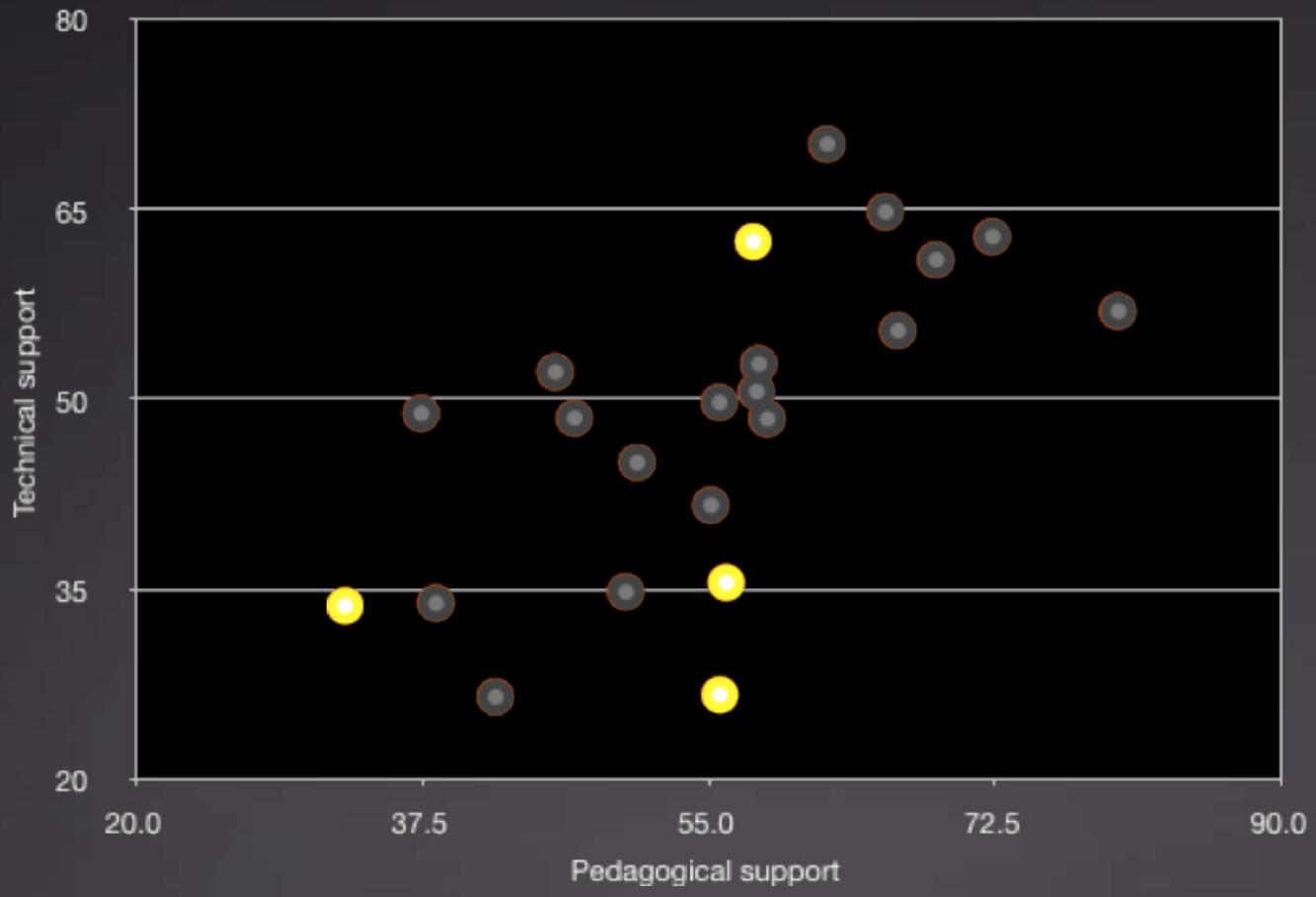


Tentative findings related to:

Status & change

Impact

Strategy



Tentative findings related to:

Status & change

Impact

Strategy

What happens in classrooms

Teaching predominantly traditional

Lifelong learning & connectedness practices adopted to different extents in different countries

Students tend to be more actively engaged when ICT is used

Students' learning activities tend to be more inclined towards lifelong learning and connectedness orientations when ICT is used

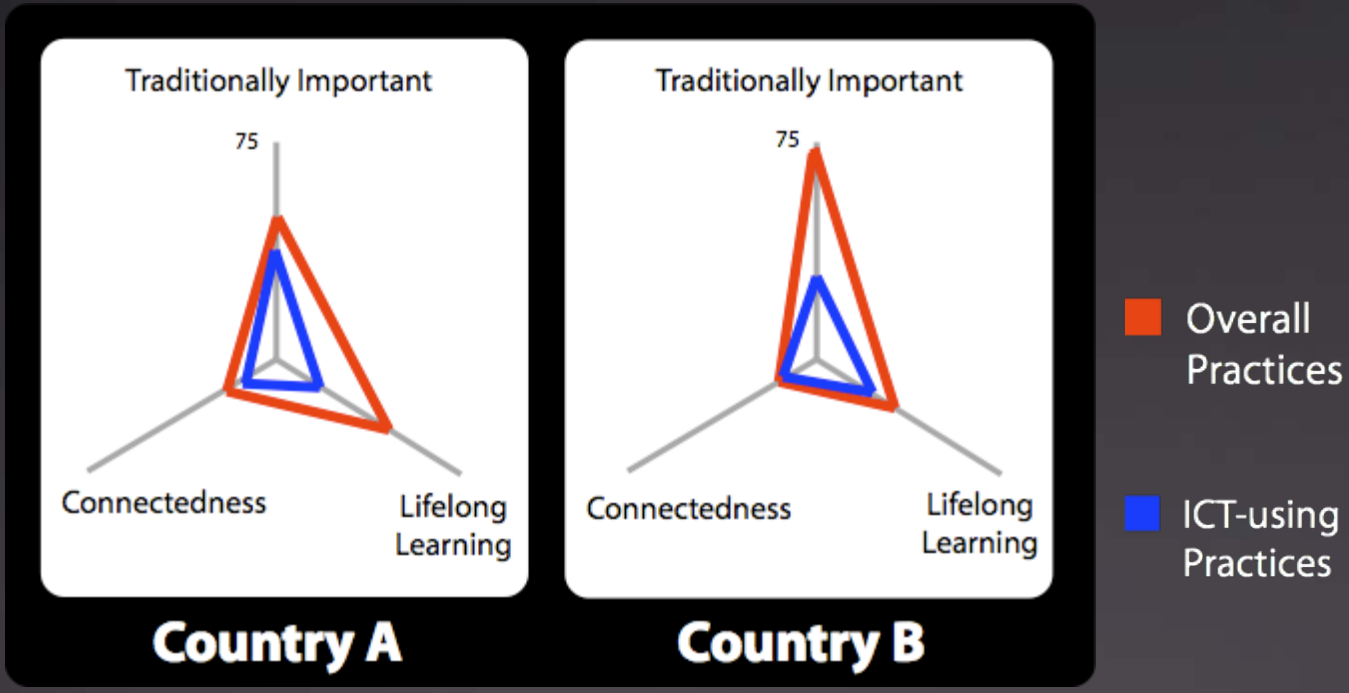
Tentative findings related to:

Status & change

Impact

Strategy

How teachers teach



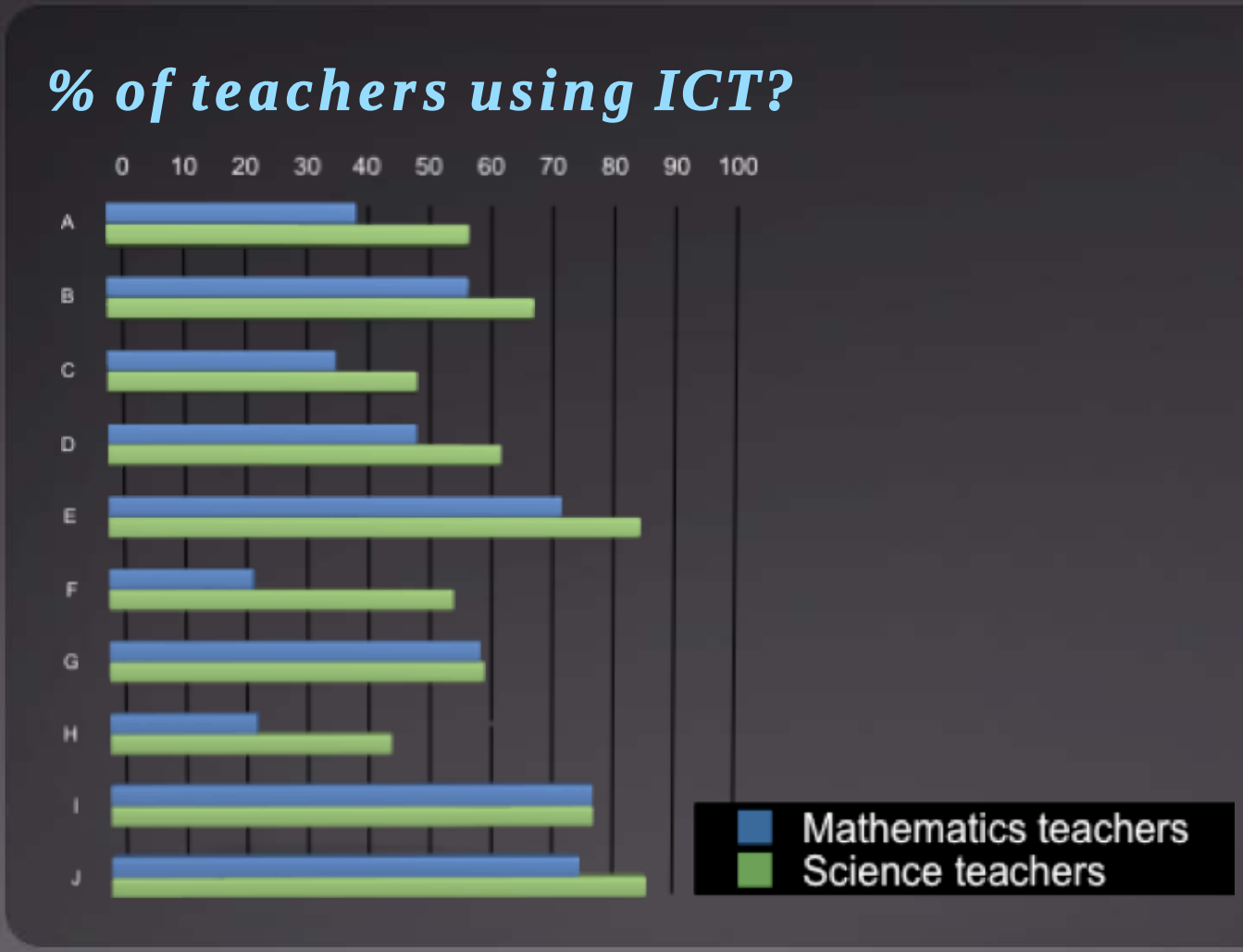
Implications: ICT can be used as a lever for pedagogical change, and some countries appear to exploit this potential more than others.

Tentative findings related to:

Status & change

Impact

Strategy



Tentative findings related to:

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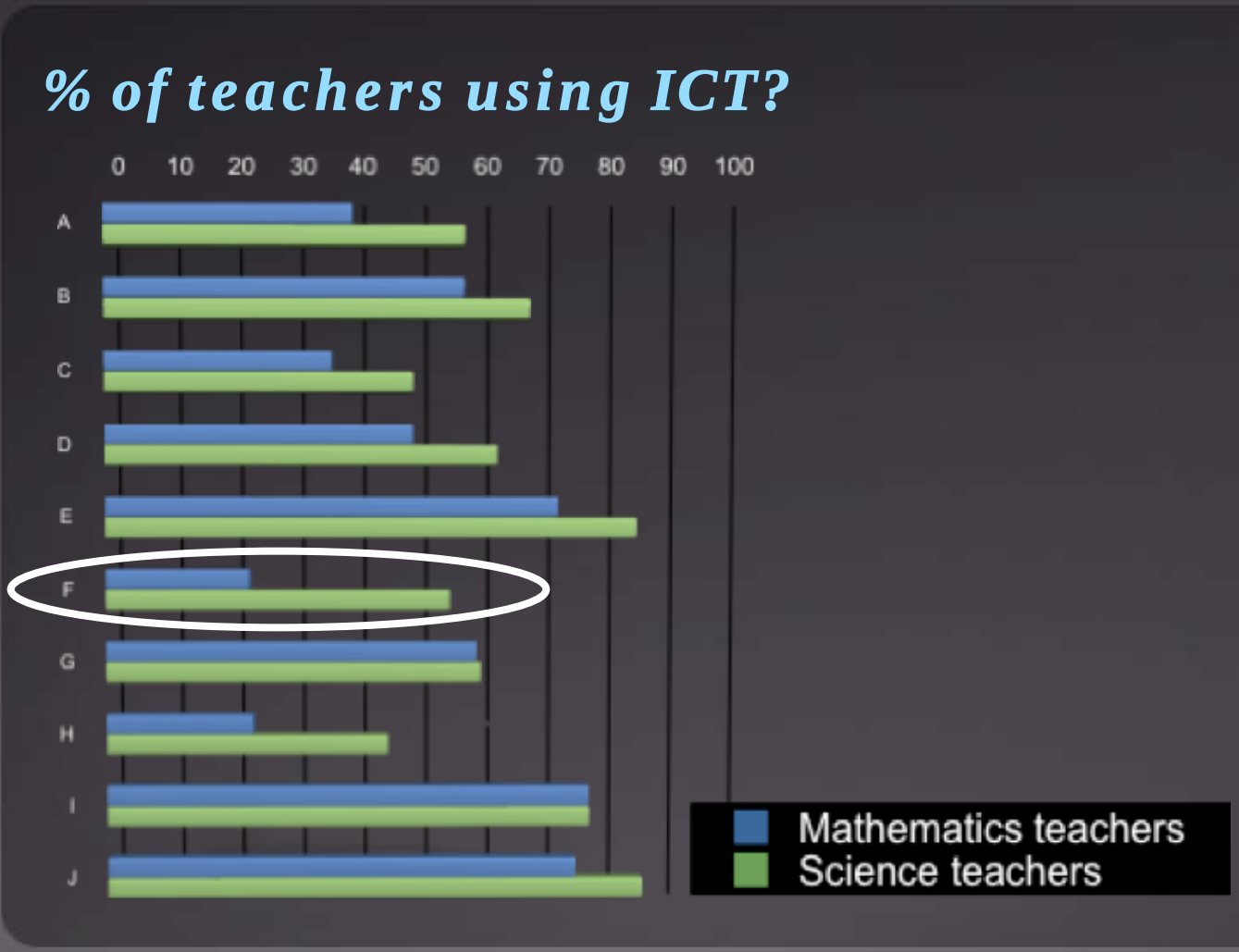
Strategy



Tentative findings related to:

Status & change

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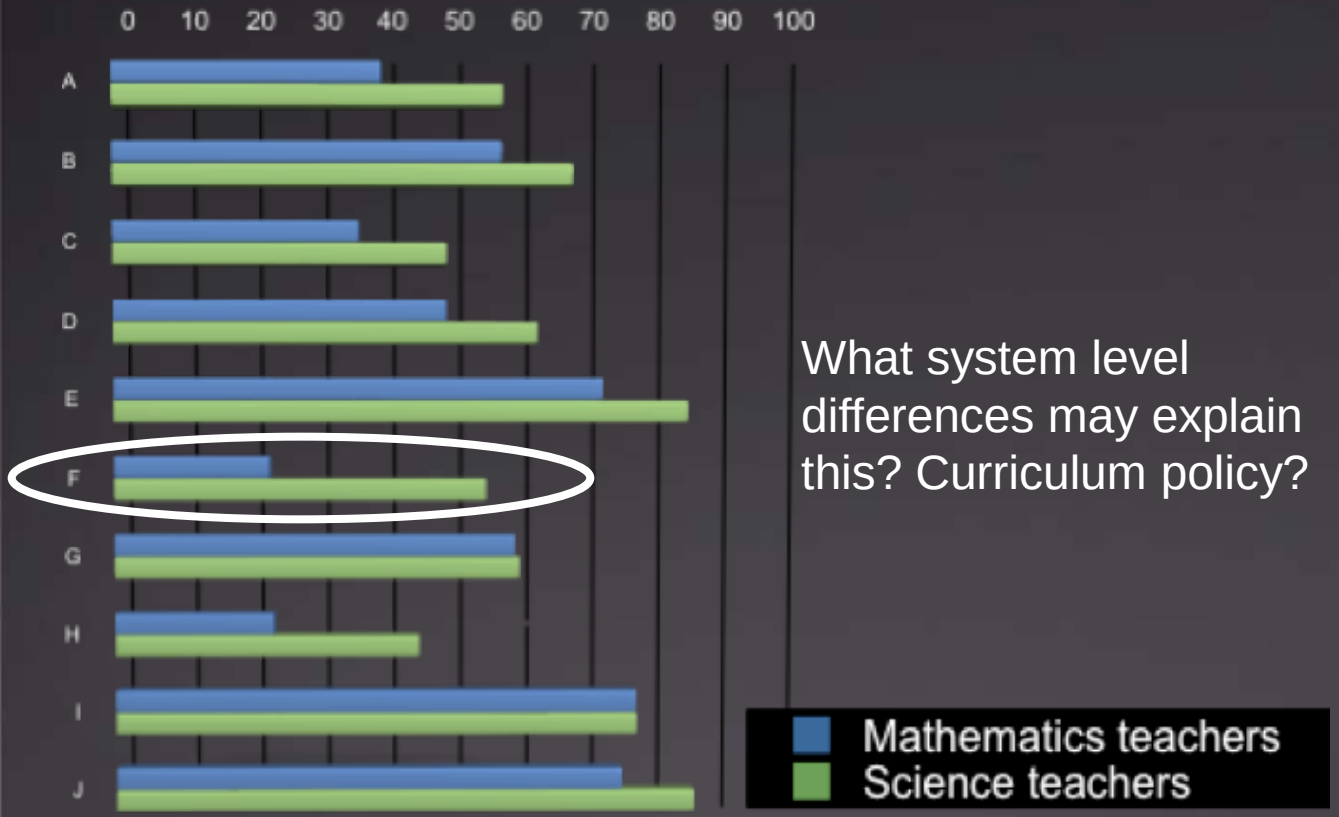
Strategy

% of teachers using ICT?



What system level differences may explain this? Curriculum policy?

Tentative findings related to:

Status & change

Impact

Strategy

Perceived impact of ICT use

Teachers' reported impact of ICT use on students:

- Greatest impact on gain in IT skills
- Positive impacts on traditional outcomes (subject matter & assessment scores)
- Positive impacts on inquiry & collaboration skills, self-paced learning and affective outcomes
- Some negative impacts (achievement gap & socioeconomic divide), but generally perceived to be smaller in magnitude than positive impacts

Tentative findings related to:

Status & change

Impact

Strategy

Does pedagogy matter?

Tentative findings:

- Traditional orientation: no significant correlation with extent of any impact on students' outcomes as perceived by the teacher, except ICT skills
- Lifelong learning & connectedness orientations: significant correlations with all positive learning outcomes as perceived by the teacher, with the highest correlation shown for collaboration & inquiry skills

Strategy to foster ICT use to support learning effectively:

What matters most?

Status & change

Impact

Strategy

Policies to promote teacher adoption of ICT use generally involve strategies on the following:

- Infrastructure & support staff time
- Technical & Pedagogical support for ICT use
- Professional development for teachers
- Leadership development in school

Strategy to foster ICT use to support learning effectively:

What matters most?

Status & change

Impact

Strategy

Preliminary relational analyses find:

- Infrastructure & support staff time availability to be very important
- Both technical & pedagogical support are important, with pedagogical support slightly more important
- Teacher's ICT competence very important, in particular pedagogical competence in ICT use
- Vision of school leadership for ICT use to support LLL is important

Strategy to foster ICT use to support learning effectively:

Policy implications

Status & change

Impact

Strategy

- Policies have impacts on perceptions, beliefs and practices
- Infrastructure, support, professional development & leadership development are all important conditions
- Pedagogy matters, and strategy in all of the above 4 areas need to maintain a strong pedagogy consideration in its provisions
- A balanced, holistic approach probably work best
- Rapid change of reforms: need for regular monitoring?

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THE END