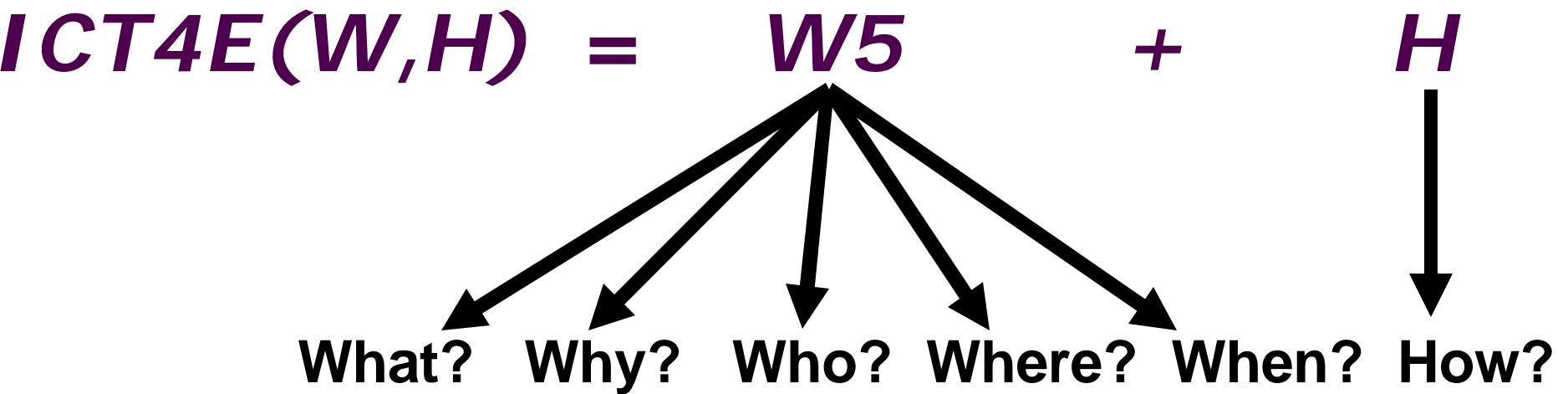


Information and Communication Technology in Education Statistics (ICT4E Stats)

UNESCO Institute for Statistics

ICT4E STATS DEMYSTIFIED



WHAT IS ICT IN EDUCATION (or ICT-assisted instruction)?

- From a statistical perspective:
 - **ICT-assisted instruction** refers to teaching methods or models of instruction delivery that employ ICT in supporting, enhancing and enabling course content delivery. It includes any, all or combinations of the following:
 - Radio-assisted instruction
 - Television-assisted instruction
 - Computer-assisted instruction
 - Internet-assisted instruction

WHY MEASURE ICT4E?

World Summit on the Information Society (WSIS)

Monitoring:

- Plan of Action of the first phase of WSIS (Geneva, 2003)- two targets relevant that fall within UNESCO's area of competence. They include:
 - » to connect universities, colleges, secondary schools and primary schools with ICT;
 - » to adapt all primary and secondary schools curricula to meet the challenges of the Information Society, taking into account national circumstances.
- UNESCO Sector demands, vision and mission;
- MDG Goals, EFA Goals (***Enhancing the quality of education***)

WHY MEASURE ICT4E? cntd

- Demands from Analytical community;
- Partnership on Measuring ICT for Development (ICT4D);



HOW DO WE MEASURE ICT IN EDUCATION ON A CROSS-NATIONAL BASIS?

Proportion of schools with internet access, by type (for ISCED levels 1-3)

- Any type of Internet access
- Fixed broadband internet access (DSL, Cable, other fixed subscriptions)
- Fixed broadband internet access (DSL, Cable, other fixed subscriptions)

Definition: Proportion of schools with access to the Internet, with fixed or any type of Internet access.

Data requirement: (EN) Number of educational institutions (public and private) with access to the Internet by type of school, by ISCED level 1-3.

Formula:

$$\frac{\sum_{i=1}^n EI_i}{\sum_{i=1}^n EI_i} * 100$$

Where: EI_i = Number of educational institutions with access to the Internet in country i or institution i .

Analysis and interpretation: A top percentage of value for this indicator shows a high degree of access to the Internet among the countries in the world. Lower values indicate that the countries in the world are not fully utilizing the Internet. The indicator has also been calculated for selected countries and regions.

UNESCO INSTITUTE FOR STATISTICS

TECHNICAL PAPER NO. 2

GUIDE TO MEASURING INFORMATION AND COMMUNICATION TECHNOLOGIES (ICT) IN EDUCATION

APPENDIX II

Definitions

Internet: A global network of computer networks and servers that are interconnected and can exchange data.

Fixed broadband internet access: A type of Internet access that provides a constant, high-speed connection to the Internet.

Fixed broadband internet access (DSL, Cable, other fixed subscriptions): A type of fixed broadband internet access that uses Digital Subscriber Line (DSL) or Cable Modem technology.

Mobile broadband internet access: A type of Internet access that provides a constant, high-speed connection to the Internet using mobile devices.

Mobile broadband internet access (3G, 4G, LTE, etc.): A type of mobile broadband internet access that uses 3G, 4G, or LTE technology.

Mobile broadband internet access (3G, 4G, LTE, etc.): A type of mobile broadband internet access that uses 3G, 4G, or LTE technology.

www.uis.unesco.org/template/pdf/cscl/ICT/ICT_Guide_EN.pdf

GUIDE TO MEASURING ICT4E

Detailed specifications for 54 indicators:

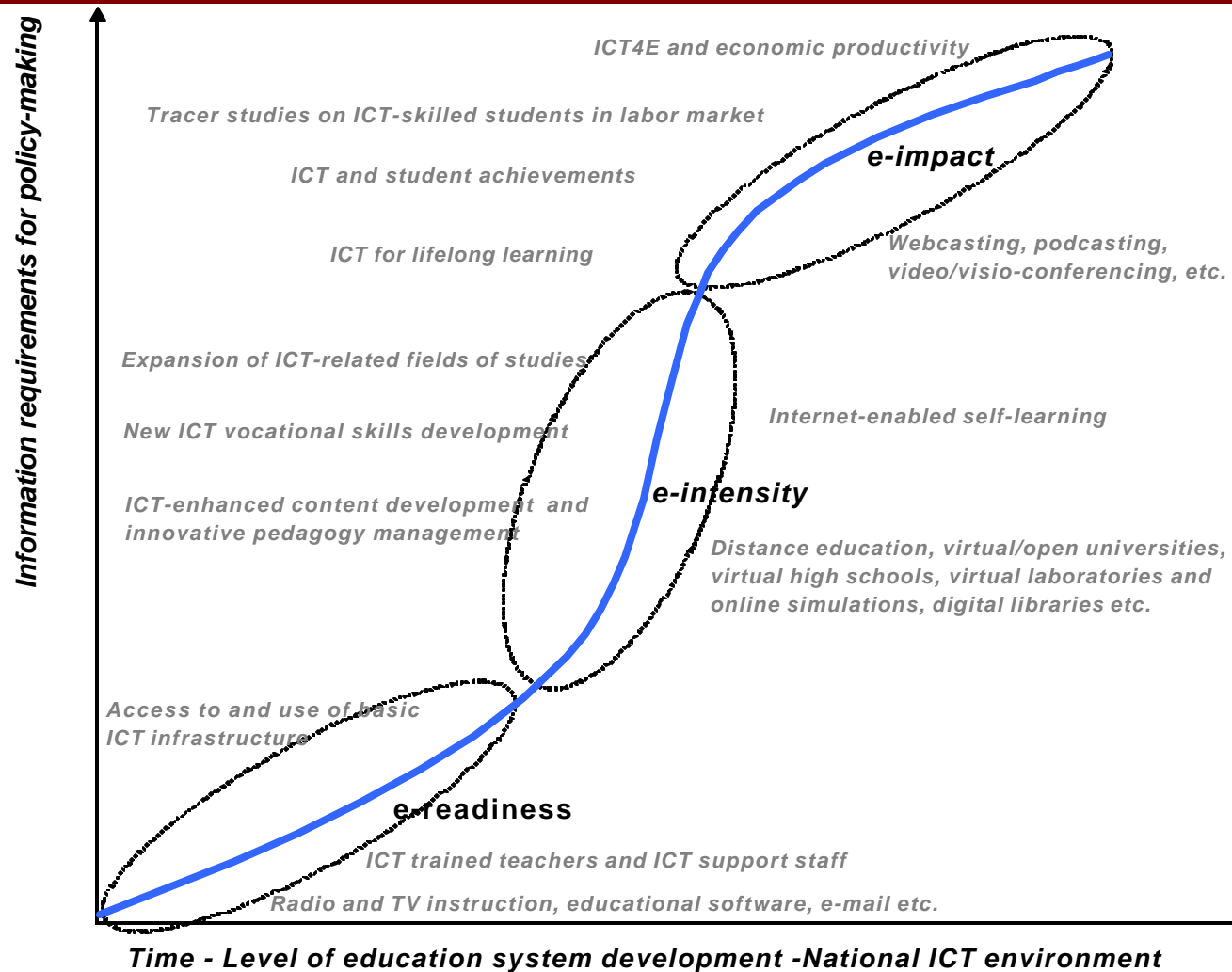
- Statistical definitions;
- Purpose;
- Data requirement;
- Interpretation;
- Methodological issues and limitations.

Serves as **methodological reference material** and facilitates **operational implementation** in school censuses

ED7 Proportion of learners enrolled by gender at the post-secondary non-tertiary and tertiary level in ICT-related fields (for ISCED level 4 and level 5-6)	
Definition: Number of learners currently admitted in ICT-related fields by gender as a percentage of all learners enrolled in educational institutions in a given country by gender for ISCED level 4 and level 5-6.	Purpose: To measure the share of learners in ICT-related fields of study in tertiary education institutions.
Data requirement: (LIT) Total number of learners (by gender) enrolled in ICT-related fields in tertiary education institutions for ISCED level 4 and level 5-6 (L) Total number of learners (by gender) enrolled in tertiary education institutions regardless of their fields of study for ISCED level 4 and level 5-6	Method of collection: Administrative data collection through annual school census (based on school registers).
Formula : $\frac{LIT_{h=4}^t}{L_{h=4}^t} * 100, \frac{\sum_{h=5}^6 LIT_h^t}{\sum_{h=5}^6 L_h^t} * 100$	Data source(s): Statistical units of ministries of education or, alternatively, national statistical offices.
Interpretation: A high percentage for this indicator may indicate an important demand for ICT-related studies by learners in relation to other fields of study. Compared to its value over time, a rapidly increasing percentage may suggest a fast adaptation to the new information age by a country in the provision of larger training opportunities in ICT-related fields. A computation of this indicator by key sub-categories may be useful to monitor more adequately some specific sub-fields of studies.	Where: LIT_h^t = Enrolment of learners (by gender) in ICT-related field at tertiary education level h in school-year t L_h^t = Enrolment of learners (by gender) at tertiary education level h in school-year t
	Methodological and definition issues or operational limitations: Further mapping and classificatory work will be required to re-code within the ISCED fields of study those fields that have emerged after 1997.

HOW? CONT.

S-CURVE:
Non-linear
relationship
between
information needs
at national level
and ICT dev. in
education system.



WHO? ICT4E PILOT


International Working Group on ICT Statistics in Education (WISE)

- Ministry of Education statisticians - 25 WISE members;

→ WISE group contributed to pilot questionnaire, methodology, definitions and analytical report

» foundation for new international standards





United Nations
Educational, Scientific and
Cultural Organization

UNESCO
INSTITUTE
for
STATISTICS

PilotUIS/CI/ICT/2009-PILOT
Montreal, May 2009

QUESTIONNAIRE ON STATISTICS OF INFORMATION AND
COMMUNICATION TECHNOLOGIES (ICT) IN EDUCATION

This pilot questionnaire is designed to collect recent statistics on information and communication technologies (ICTs) in education in order to produce an expanded set of data on key aspects of ICT integration in education.

As a member of the International Working Group on ICT Statistics in Education (WISE), your participation in the pilot phase will contribute to examining the feasibility of a worldwide rollout of the current questionnaire.

Please use the following symbols in the tables if you do not have the data requested:

- a = category is not applicable
- m = data missing (or not available)
- n = quantity nil
- x = data included in another category (to be indicated with a footnote)

Please indicate any provisional or estimated figures with an asterisk (*).

NB: Please refer to the Instruction Manual before completing the tables.

- Please return the completed questionnaire before **15 July 2009** to:
UNESCO Institute for Statistics
(Ref.: Communication Statistics)
P.O. Box 6128, Succursale Centre-Ville
Montreal, Quebec H3C 3J7
CANADA
E-mail: p.lucas@uis.unesco.org
Fax: (1 514) 343-6872
- If you have any queries concerning the questionnaire, please contact the UIS by e-mail, fax (indicated above) or by telephone: (1 514) 343-6880.

WHERE AND WHEN? ICT4E PILOT

- **Where?**

- 31 countries

- **When?**

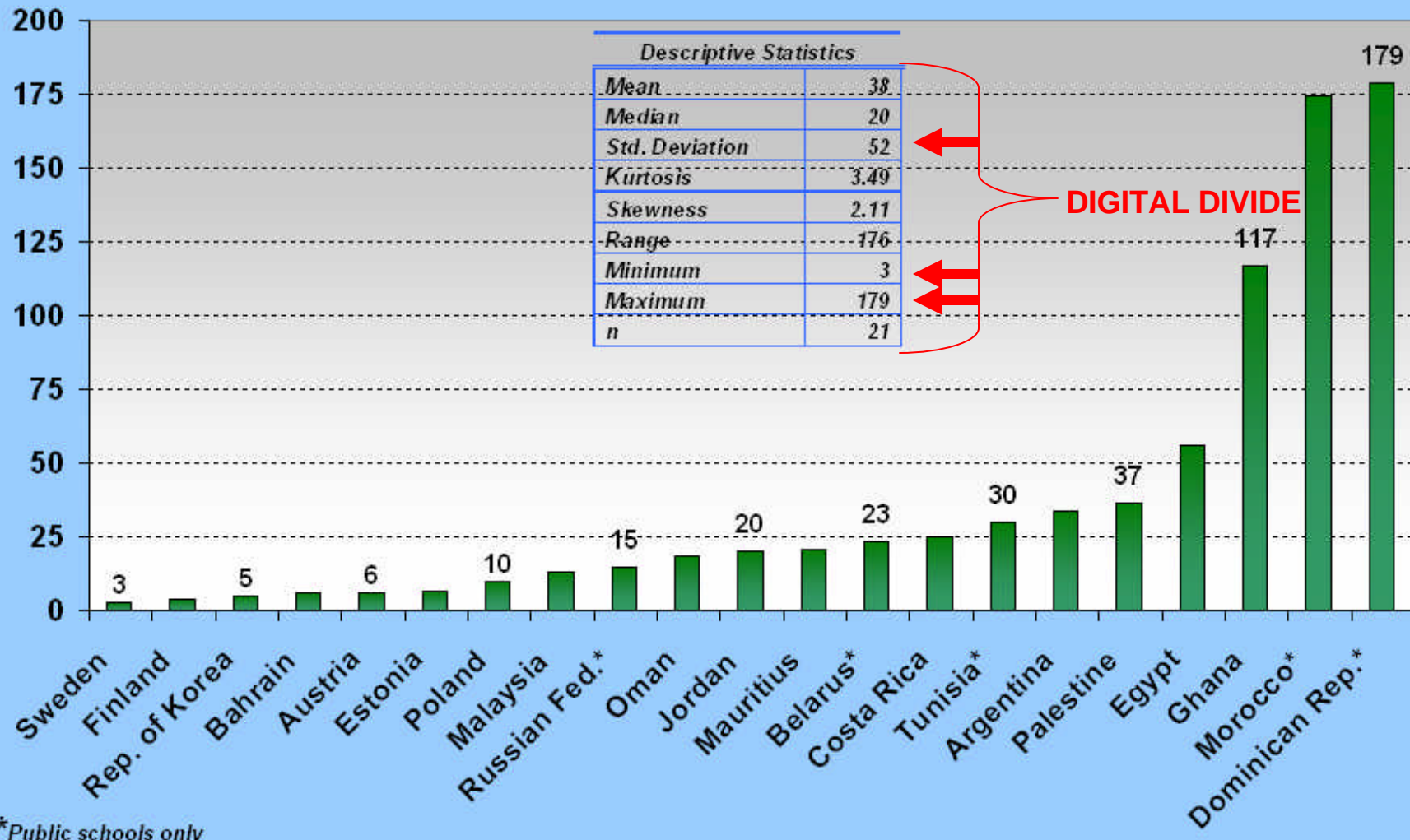
- Second half of 2009

ARGENTINA	MOROCCO
AUSTRIA	NORWAY
BAHRAIN	OMAN
BELARUS	PALESTINE
BOLIVIA	PARAGUAY
COSTA RICA	POLAND
DOMINICAN REP.	REP. OF KOREA
EGYPT	RUSSIAN FED.
ESTONIA	RWANDA
ETHIOPIA	SENEGAL
FINLAND	SWEDEN
GHANA	THAILAND
GUATEMALA	TUNISIA
JORDAN	UNITED STATES
MALAYSIA	URUGUAY
MAURITIUS	

RESULTS – Computer availability

Learners-to-computer ratio (2008)

Source: UIS Pilot Questionnaire on Statistics of ICT in Education (2009)

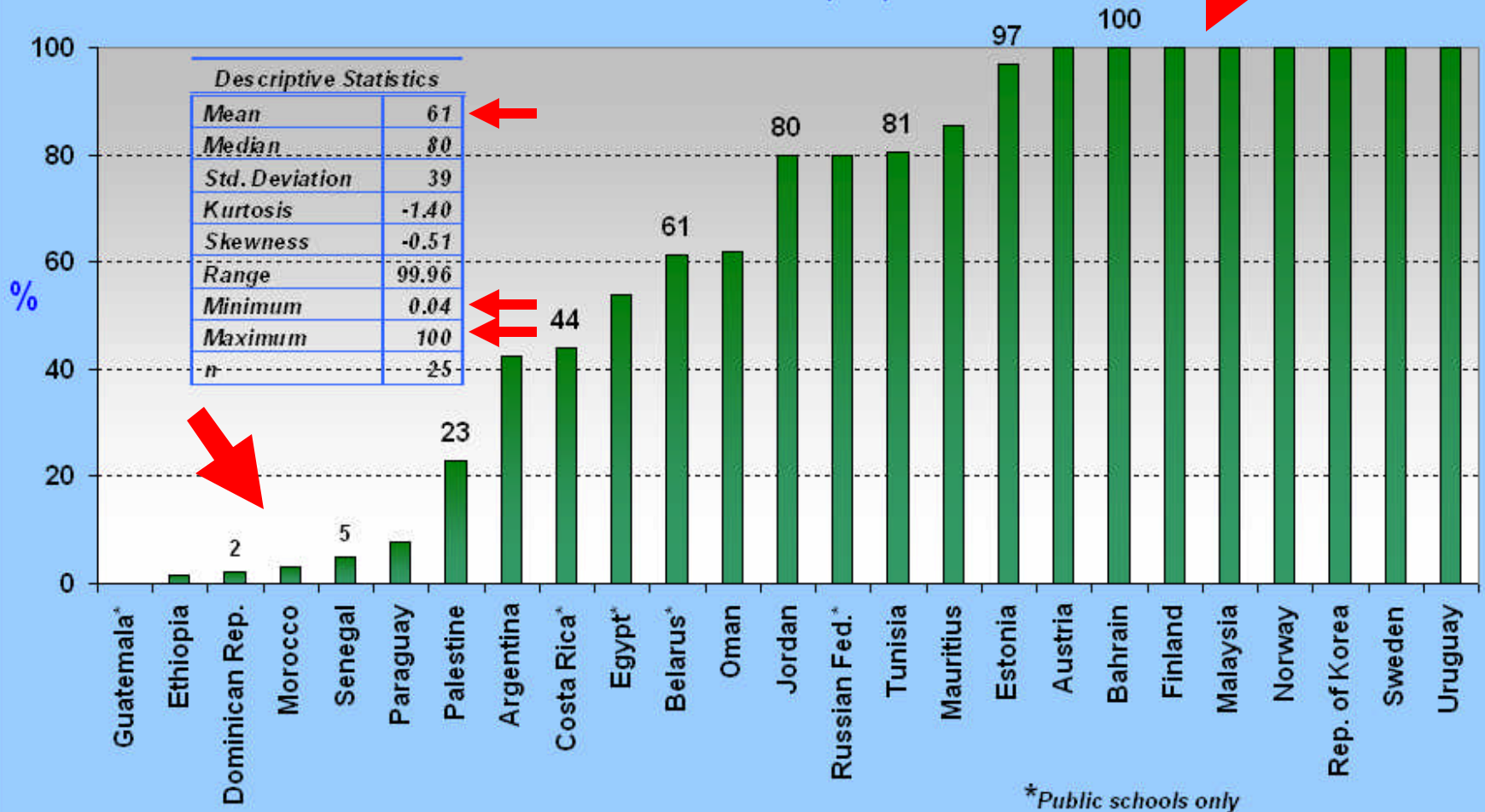


RESULTS - Connectivity

% of primary and secondary schools with Internet access (2008)

Source: UIS Pilot Questionnaire on Statistics of ICT in Education (2009)

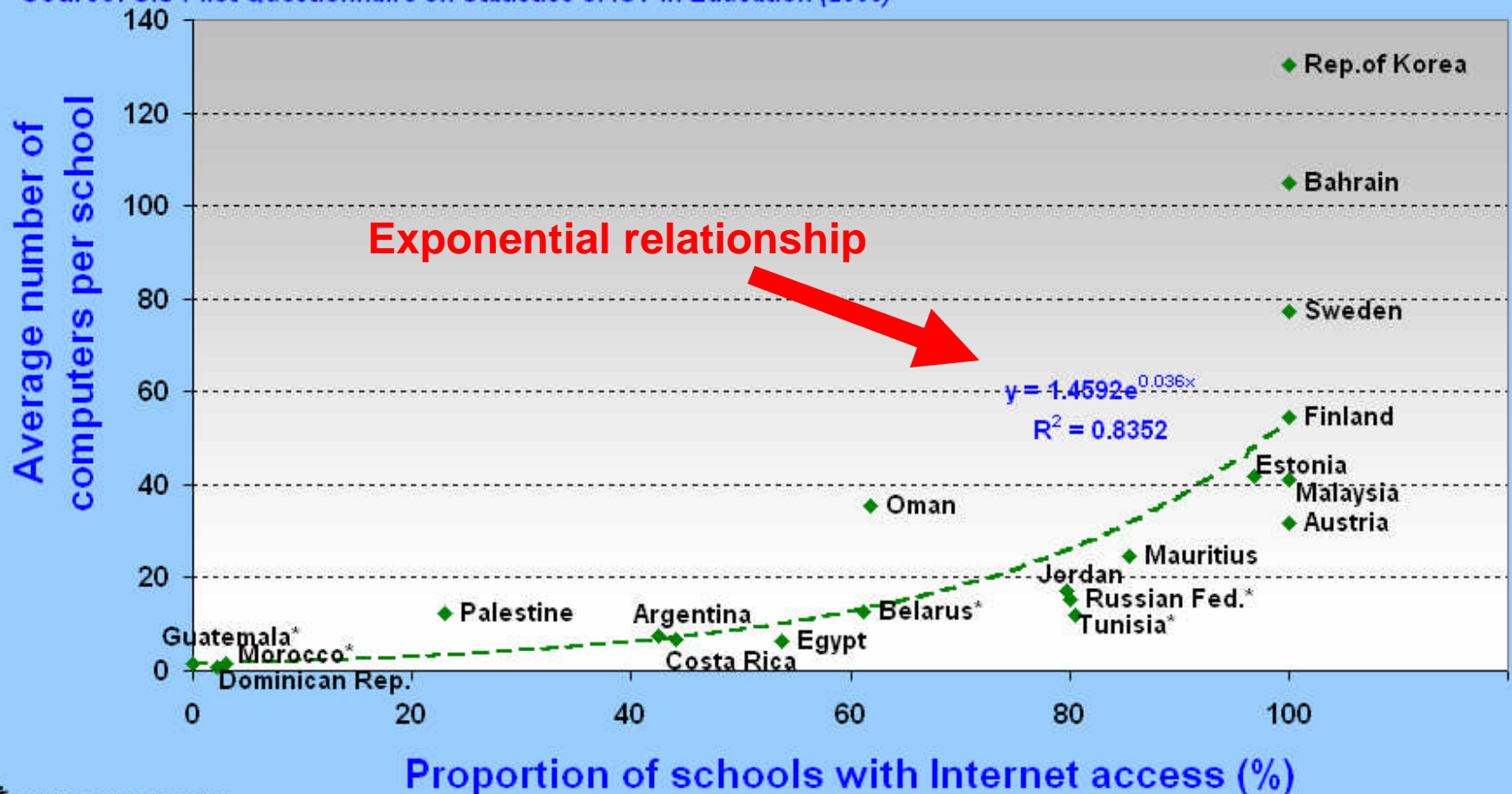
100% Internet penetration



RESULTS

Relationship between Internet access and computer availability in primary and secondary schools (2008)

Source: UIS Pilot Questionnaire on Statistics of ICT in Education (2009)

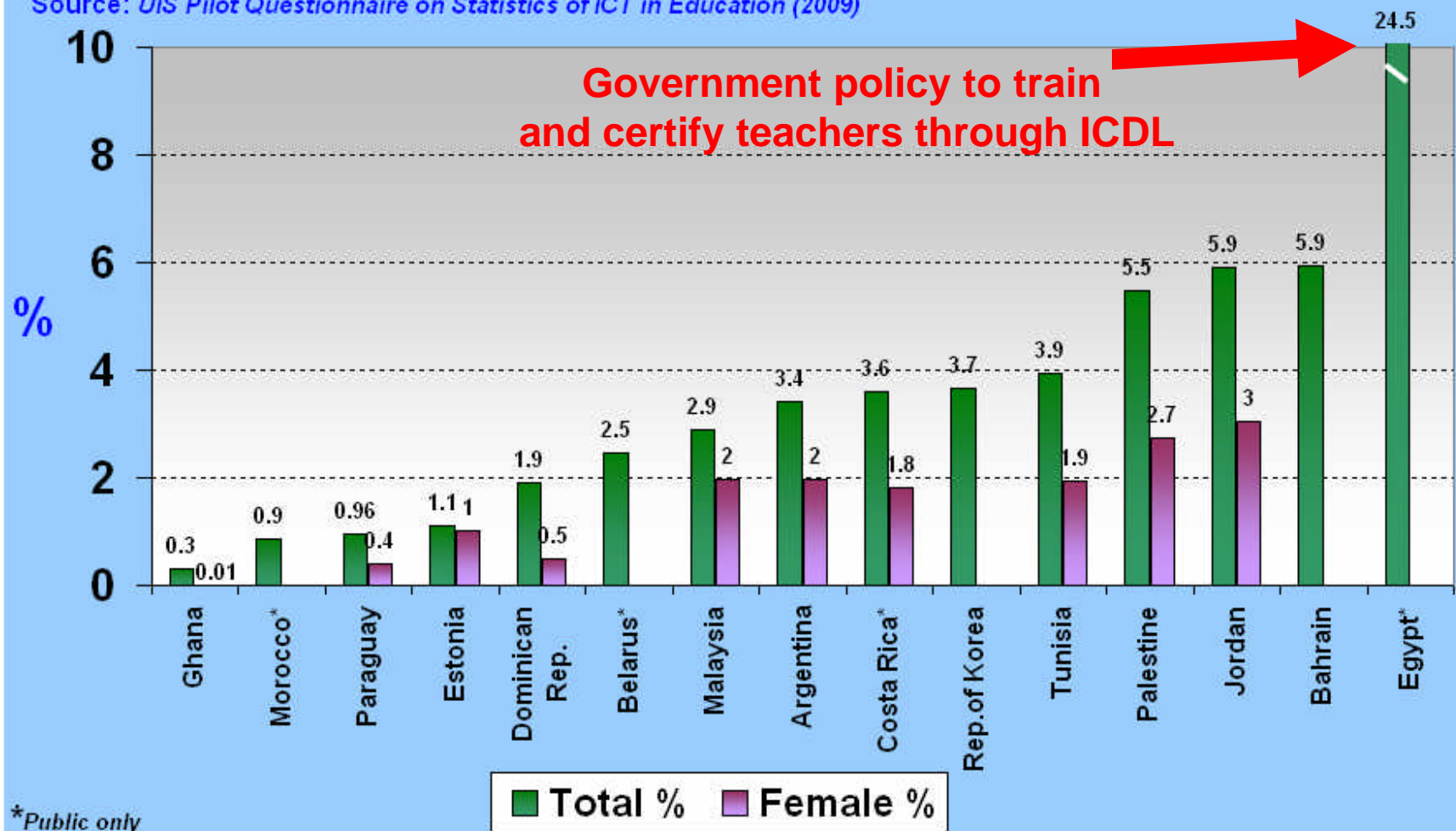


*Public schools only

RESULTS – Trained teachers

% of ICT-qualified teachers - trained to teach basic computer skills (2008)

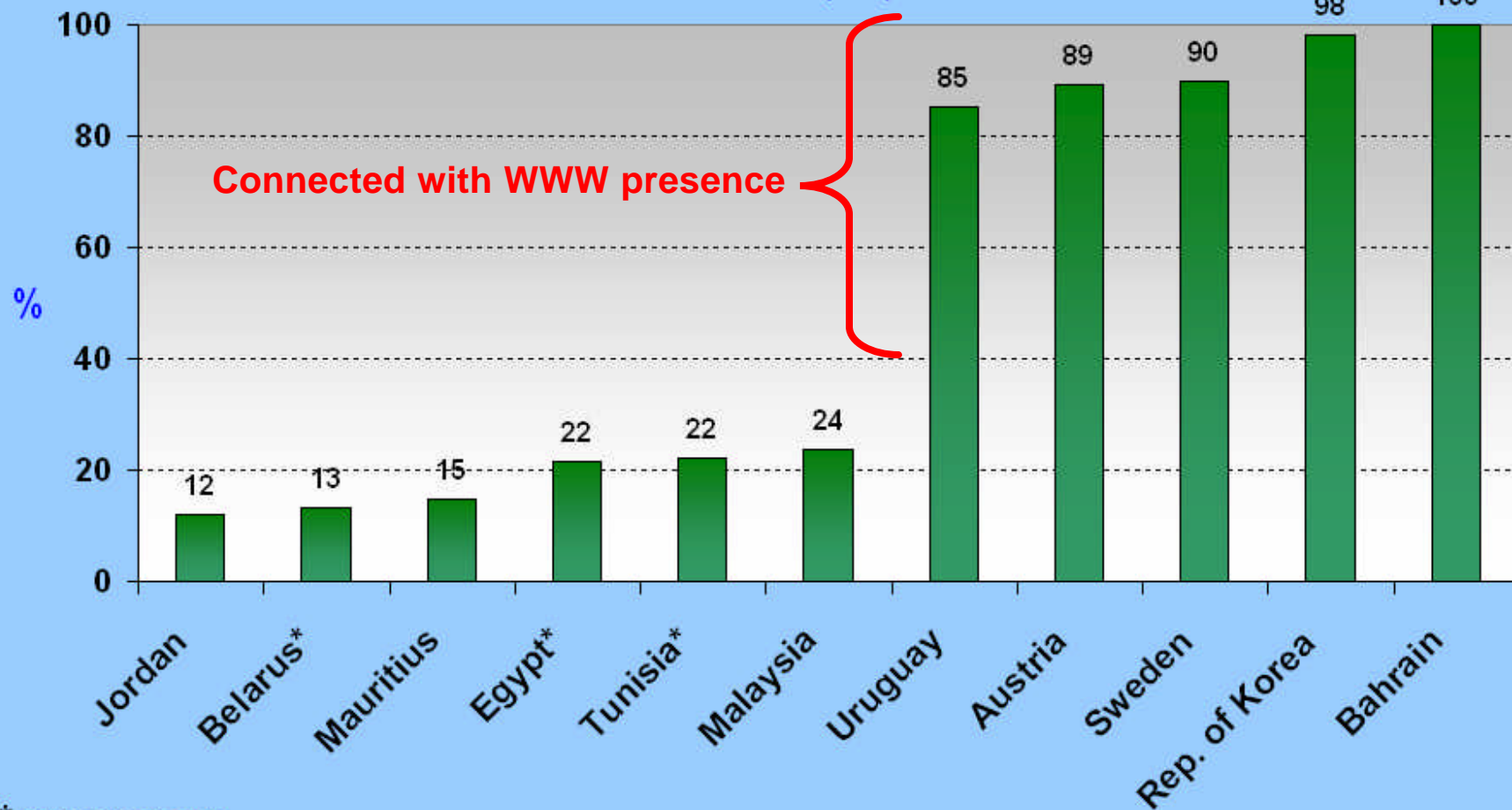
Source: UIS Pilot Questionnaire on Statistics of ICT in Education (2009)



RESULTS – World Wide Web presence

% of primary and secondary schools with a website (2008)

Source: UIS Pilot Questionnaire on Statistics of ICT in Education (2009)

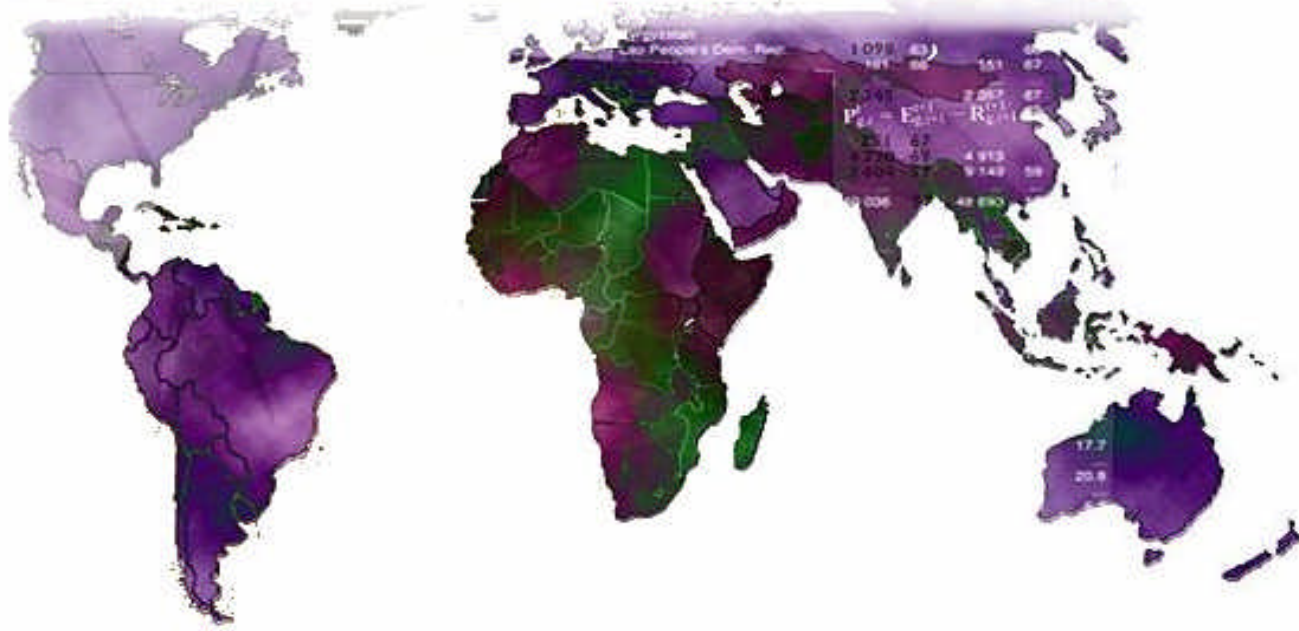


*Public schools only

Summary

- ICT4E Stats methodology
 - *W5 + H*
- Pilot statistical results:
 - High variation in ICT access across countries (i.e. digital divide)
 - Developing countries still at e-readiness stage whereas developed countries are at e-impact stage
 - » Pubs:
 - UNESCO: Towards Inclusive Knowledge Societies
 - Joint ITU-UNESCO-WHO-UNDESA: World Telecommunication Development Report – Monitoring the WSIS Targets





Thank you!

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www.uis.unesco.org