

# UIS Survey on Statistics of Information and Communication Technology (ICT) in Education:

## Building capacity to establish an international statistical framework

Moscow, Russian Federation, 25-27 November 2015

UNESCO



INSTITUTE *for* STATISTICS

COMMUNICATION *and* INFORMATION  
STATISTICS

# OUTLINE - V

- ❖ Why measure - ICT in education statistics
- ❖ Regional questionnaire on ICT4ED
  - ❖ Policy and Curriculum
    - Indicator prioritization
  - ❖ ICT infrastructure
    - Indicator prioritization
  - ❖ **Enrolment**
    - Indicator prioritization
  - ❖ Computers
    - Indicator prioritization
  - ❖ Teachers
    - Indicator prioritization
- ❖ Sources of Information
- ❖ Data collection and Dissemination

# THE QUESTIONNAIRE - Data sources

## Section E4 (ISCED 1-3):

Section E1

Gen. information

Section E2

Policy

Curriculum

Section E3

ICT Infrastructure

Section E4

Enrolment

Section E5

Computers

Section E6

Teachers

### Questionnaire A

**2014 SURVEY OF FORMAL EDUCATION**  
Students and teachers (ISCED 0-4)

Data for the academic year ending in 2013  
Deadline for returning the completed questionnaire: 30 June 2014

This questionnaire is designed to collect internationally comparable data on formal education at the early childhood, primary, secondary and post-secondary non-tertiary levels, necessary for the evaluation and monitoring of education systems worldwide. The data form a central part of the database of education statistics maintained by the UNESCO Institute for Statistics (UIS). They are disseminated widely to the user community and help to inform policymakers at both national and international levels. The data are required for the calculation of many education indicators used in the monitoring of progress towards regional and global goals, including the Education for All Millennium Development Goals.

**Instructions for completing the questionnaire**

Please refer to the Instruction Manual: Survey of Formal Education for detailed concepts and definitions used in this survey.

All UIS questionnaires and manuals are available on the Questionnaire Website: <http://www.uis.unesco.org/UISQuestionnaires/Pages/country.aspx>

Completed questionnaires should be sent by email attachment to: [uis\\_survey@unesco.org](mailto:uis_survey@unesco.org)

Data from previous surveys are available at: <http://www.uis.unesco.org/datacentre>

**Coverage**

This questionnaire covers the entire formal education system in both public and private institutions within the borders of your country. The data provided should include both formal initial education programmes and formal adult education programmes. If data are not available for some part of the education system, please make estimates to ensure full data coverage.

Before completing this questionnaire, education programmes should first be classified by level according to the 2011 revision of the International Standard Classification of Education (ISCED 2011). The UIS will use the ISCED 2011 mapping of your country to validate your data submission. If your country does not have a recent ISCED mapping or if there have been subsequent changes to your national education system, please download and complete or update the questionnaire on National Education Systems (UIS/ED/ISC11) which is available on our Questionnaire Website.

**Academic year/reference period for the data collected in this questionnaire**

This questionnaire collects data on the academic year ending in 2013 or a more recent year. If data are not available for 2013, please report the latest year for which data are available.

Using the Excel questionnaire

<http://www.uis.unesco.org/UISQuestionnaires/Pages/default.aspx>

### Enrolment

#### E4: ENROLMENT

#### All programmes (general and vocational)

Enrolment in educational institutions by sex and level of education - public and private institutions (excluding Adult Education program)

Based on the number of institutions in E3, please include below the related enrolments in these educational institutions with the following ICTs.

		Primary (ISCED 1)	Lower secondary (ISCED 2)	Upper secondary (ISCED 3)	Not specified	TOTAL
Total enrolment	Both sexes					
	Females					
<i>Of which in educational institutions with the following for teaching and learning</i>						
Radio(s)	Both sexes					
	Females					
Television(s)	Both sexes					
	Females					
Computer(s)	Both sexes					
	Females					
Internet	Both sexes					
	Females					
Fixed broadband Internet	Both sexes					
	Females					
Open educational resources (OER)	Both sexes					
	Females					
Courses on basic computer skills (computing)	Both sexes					
	Females					

Enrolment in educational institutions by sex and level of education - public institutions only

		Primary (ISCED 1)	Lower secondary (ISCED 2)	Upper secondary (ISCED 3)	Not specified	TOTAL
Total enrolment	Both sexes					
	Females					
<i>Of which in educational institutions with:</i>						
Radio(s)	Both sexes					
	Females					
Television(s)	Both sexes					
	Females					
Computer(s)	Both sexes					
	Females					
Internet	Both sexes					
	Females					
Fixed broadband Internet	Both sexes					
	Females					
Open educational resources (OER)	Both sexes					
	Females					
Courses on basic computer skills (computing)	Both sexes					
	Females					

<http://www.uis.unesco.org/UISQuestionnaires/Pages/default.aspx>

# THE QUESTIONNAIRE - Coverage

## ❖ **Includes the following:**

- ❖ Primary programmes (ISCED 1)
- ❖ Secondary programmes (ISCED 2 and 3)
  - ❖ **General and technical/ vocational education and training (TVET)**
  - ❖ **Public & private (Total)**

## ❖ **Excludes the following:**

- ❖ Adult education programmes

# INSTRUCTIONS

## ❖ Instructions

- ❖ In the past, enrolment data has been more difficult to collect
- ❖ Enrolment should correspond to instructional educational institution data
- ❖ To provide enrolments, map the instructional educational institution (school) data from SECTION E3 to Tables in E4
- ❖ Enrolment should include the grades that make up each educational level (i.e. primary, lower secondary, upper secondary, etc..) according to ISCED 2011.

# SECTION E4: PRIMARY AND SECONDARY ENROLMENT (ISCED LEVELS 1-3)

**Table 7 : Enrolment in programmes with ICT by gender and level of education - public and private institutions**

		Primary (ISCED 1)	Lower secondary (ISCED 2)	Upper secondary (ISCED 3)	Not specified	TOTAL	
<b>Total enrolment</b>	<b>Both sexes</b>	52000	25000	20000	1000	98000	
	<b>Females</b>	27000	14000	11000	600	52600	
<i>Of which in educational institutions with the following for teaching and learning</i>							
<b>Radio(s)</b>	<b>Both sexes</b>	2000	4000	6000	500	12500	
	<b>Females</b>	1200	2200	4000	300	7700	
<b>Television(s)</b>	<b>Both sexes</b>	4000	6000	8000	400	18400	
	<b>Females</b>	2200	3600	5000	300	11100	
<b>Computer(s)</b>	<b>Both sexes</b>	4000	6000	8000	400	18400	
	<b>Females</b>	2200	3600	5000	300	11100	
<b>Internet</b>	<b>Both sexes</b>	3000	5000	7000	100	15100	
	<b>Females</b>	1500	3000	4000	60	8560	
	<b>Fixed broadband Internet</b>	<b>Both sexes</b>	3000	5000	7000	100	15100
		<b>Females</b>	1500	3000	4000	60	8560
<b>Open educational resources (OER)</b>	<b>Both sexes</b>	250	300	500	10	1060	
	<b>Females</b>	200	150	250	5	605	
<b>Courses on basic computer skills (computing)</b>	<b>Both sexes</b>	2000	5000	7000	100	14100	
	<b>Females</b>	1000	3000	4000	50	8050	



**Figures in "Total" column are the sums of ISCED levels 1-3**

# SECTION E4: PRIMARY AND SECONDARY ENROLMENT (ISCED LEVELS 1-3)

**Table 7 : Enrolment in programmes with ICT by gender and level of education - public and private institutions**

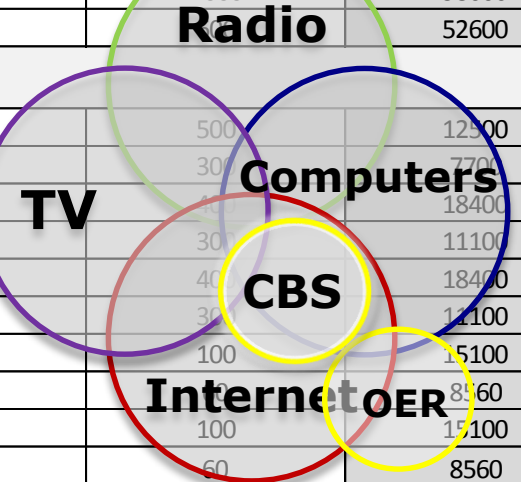
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	<b>Females</b>	2200	3600	5000	300	11100
<b>Internet</b>	<b>Both sexes</b>	3000	5000	7000	100	15100
	<b>Females</b>	1500	3000	4000	60	8560
<b>Fixed broadband Internet</b>	<b>Both sexes</b>	3000	5000	7000	100	15100
	<b>Females</b>	1500	3000	4000	60	8560
<b>Open educational resources (OER)</b>	<b>Both sexes</b>	250	300	500	10	1060
	<b>Females</b>	200	150	250	5	605
<b>Courses on basic computer skills (computing)</b>	<b>Both sexes</b>	2000	5000	7000	100	14100
	<b>Females</b>	1000	3000	4000	50	8050

**!** *Figures in Total enrolment (MF & F) are NOT equal to the sum of : radio, TV, computers, Internet, etc...*

# SECTION E4: PRIMARY AND SECONDARY ENROLMENT (ISCED LEVELS 1-3)

**Table 7 : Enrolment in programmes with ICT by gender and level of education - public and private institutions**

		Primary (ISCED 1)	Lower secondary (ISCED 2)	Upper secondary (ISCED 3)	Not specified	TOTAL
<b>Total enrolment</b>	<b>Both sexes</b>	52000	25000	20000	1000	98000
	<b>Females</b>	27000	14000	11000		52600
<i>Of which in educational institutions with the following for teaching and learning</i>						
<b>Radio(s)</b>	<b>Both sexes</b>	2000	4000	6000	500	12500
	<b>Females</b>	1200	2200	4000	300	7700
<b>Television(s)</b>	<b>Both sexes</b>	4000	6000	8000	100	18400
	<b>Females</b>	2200	3600	5000	300	11100
<b>Computer(s)</b>	<b>Both sexes</b>	4000	6000	8000	400	18400
	<b>Females</b>	2200	3600	5000	300	11100
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	<b>Females</b>	1500	3000	4000	60	8560
<b>Fixed broadband Internet</b>	<b>Both sexes</b>	3000	5000	7000	100	15100
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<b>Open educational resources (OER)</b>	<b>Both sexes</b>	250	300	500	10	1060
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	<b>Females</b>	1000	3000	4000	50	8050



**!** *Categories are not mutually exclusive; schools have more than one type of ICT*



# SECTION E4: PRIMARY AND SECONDARY ENROLMENT (ISCED LEVELS 1-3)



**ENROLMENT** Individuals officially registered in a given educational programme, or stage or module thereof, regardless of age.

## **GENDER**

Gender refers to the roles and responsibilities of men and women that are created in our families, our societies and our cultures. Gender roles and expectations are learned. They can change over time and they vary within and between cultures. Systems of social differentiation such as political status, class, ethnicity, physical and mental disability, age and more, modify gender roles. The concept of gender is vital because, applied to social analysis it reveals how women's subordination (or men's domination) is socially constructed. As such, the subordination can be changed or ended. It is not biologically predetermined nor is it fixed forever.

# SECTION E4: PRIMARY AND SECONDARY ENROLMENT (ISCED LEVELS 1-3)



## RADIO

A device (in working condition) capable of receiving broadcast radio signals, using popular frequencies (such as FM, AM, LW and SW). A radio may be a stand-alone device, or it may be integrated with another device, such as an alarm clock or an audio CD player.

Computers and mobile telephones used to stream radio broadcasts using popular frequencies such as FM, AM, LM and SW should be **excluded** since they also provide many more forms of communication.

# SECTION E4: PRIMARY AND SECONDARY ENROLMENT (ISCED LEVELS 1-3)



## TELEVISION (TV) SET

A stand-alone device (in working condition) capable of receiving broadcast television signals, using popular access means such as over-the-air, cable and satellite.

Computers and mobile telephones used to stream TV broadcasts should be **excluded** since they also provide many more forms of communication.

# SECTION E4: PRIMARY AND SECONDARY ENROLMENT (ISCED LEVELS 1-3)



**COMPUTER:** Programmable electronic device that can store, retrieve and process data, as well as share information in a highly-structured manner. It performs high-speed mathematical or logical operations according to a set of instructions. Computers include desktops, laptops (portable) computers, and tablets (or similar handheld computers). Dumb terminals connected to mainframes or mobile labs should also be included.

# SECTION E4: PRIMARY AND SECONDARY ENROLMENT (ISCED LEVELS 1-3)



## INTERNET

The Internet is a worldwide interconnected computer network. It provides access to a number of communication services including the World Wide Web and carries e-mail, news, entertainment and data files, irrespective of the device used (i.e. not assumed to be only via a computer) and thus can also be accessed by mobile telephone, tablet, PDA, games machine, digital TV etc.).

**FIXED (WIRED) BROADBAND INTERNET** refers to high-speed connectivity for public use of at least 256 Kbit/s (kilobits per second) or faster in one or both directions (downloading and uploading). It includes cable modem, DSL, fibre-optic, or other fixed (wired)-broadband.

# SECTION E4: PRIMARY AND SECONDARY ENROLMENT (ISCED LEVELS 1-3)



**OPEN EDUCATIONAL RESOURCES (OER)** refers to electronic resources and tools for learning in open document format and released under an intellectual property licence allowing free use, adaptation and distribution. From a statistical perspective, institutions must have a specific policy to devote resources for the coordination and maintenance of an electronic repository for pedagogical use.

# SECTION E4: PRIMARY AND SECONDARY ENROLMENT (ISCED LEVELS 1-3)



**BASIC COMPUTER SKILLS** is a curriculum module that covers the most common usages of a computer, including a majority or all of the following: understanding the basic notions of computer manipulation; managing computer files, word processing, using spreadsheets and databases; creating presentations; finding information and communicating using computers; and being aware of social and ethical implications of Internet use. From a statistical perspective, nationally-defined content of such modules should be considered. In the absence of a national standard, please consider curriculum modules that have a majority or all of the above content units as equivalent to a basic computer skills course. Basic computer skills may be taught as a separate subject or integrated into other subjects. A common standard applied by a growing number of countries is the International Computer Driving Licence (ICDL) assessment system, which is derived from the European Computer Driving Licence (ECDL).

# SECTION E4: PRIMARY AND SECONDARY ENROLMENT (ISCED LEVELS 1-3)



## COMPUTING

Course programme usually taught at ISCED 4, 5 or 6 levels. Some schools may also teach computing (mainly computer programming) at ISCED 3. Typical computing course content may include: system design, computer programming, data processing, networks, operating systems and software development. Computing does not include computer hardware design, construction and production.



# SECTION E4: PRIMARY AND SECONDARY ENROLMENT (ISCED LEVELS 1-3)

		Primary (ISCED 1)		Lower secondary (ISCED 2)			Upper secondary (ISCED 3)		Not specified		TOTAL	
Total enrolment	Both sexes	52000		25000	W	ISC3	X	ISC2	1000		78000	
	Females	27000		14000	W	ISC3	X	ISC2	600		41600	
<i>Of which in educational institutions with the following for teaching and learning</i>												
Radio(s)	Both sexes		M		M		M		M		0	M
	Females		M		M		M		M		0	M
Television(s)	Both sexes	4000		6000	W	ISC3	X	ISC2	400		10400	
	Females	2200		3600	W	ISC3	X	ISC2	300		6100	
Computer(s)	Both sexes	4000		6000	W	ISC3	X	ISC2	400		10400	
	Females	2200		3600	W	ISC3	X	ISC2	300		6100	
Internet	Both sexes	3000		5000	W	ISC3	X	ISC2	100		8100	
	Females	1500		3000	W	ISC3	X	ISC2	60		4560	
Fixed broadband Internet	Both sexes		Z		Z		Z		Z		0	Z
	Females		Z		Z		Z		Z		0	Z
Open educational resources (OER)	Both sexes	250		300	W	ISC3	X	ISC2	10		560	
	Females	200		150	W	ISC3	X	ISC2	5		355	
Courses on basic computer skills (computing)	Both sexes	2000		5000	W	ISC3	X	ISC2	100		7100	
	Females	1000		3000	W	ISC3	X	ISC2	50		4050	

**M:** Data for enrolment in instructional educational institutions with radio are not available

**Z:** Data for enrolment in instructional educational institutions with fixed broadband are not applicable since no schools have high speed

**W:** Data for lower secondary (ISCED 2) include upper secondary (ISCED 3)

**X:** Data for upper secondary (ISCED 3) is available in another category and cannot be disaggregated from lower secondary (ISCED 2)

# SECTION E4: PRIMARY AND SECONDARY ENROLMENT (ISCED LEVELS 1-3)

		Primary (ISCED 1)		Lower secondary (ISCED 2)			Upper secondary (ISCED 3)			Not specified		TOTAL	
Total enrolment	Both sexes	52000		25000	W	ISC3		X	ISC2	1000		78000	
	Females	27000		14000	W	ISC3		X	ISC2	600		41600	
<i>Of which in educational institutions with the following for teaching and learning</i>													
Radio(s)	Both sexes		M		M			M			M	0	M
	Females		M		M			M			M	0	M
Television(s)	Both sexes	4000		6000	W	ISC3		X	ISC2	400		10400	
	Females	2200		3600	W	ISC3		X	ISC2	300		6100	
Computer(s)	Both sexes	4000		6000	W	ISC3		X	ISC2	400		10400	
	Females	2200		3600	W	ISC3		X	ISC2	300		6100	
Internet	Both sexes	3000		5000	W	ISC3		X	ISC2	100		8100	
	Females	1500		3000	W	ISC3		X	ISC2	60		4560	
Fixed broadband Internet	Both sexes		Z		Z			Z			Z	0	Z
	Females		Z		Z			Z			Z	0	Z
Open educational resources (OER)	Both sexes	250		300	W	ISC3		X	ISC2	10		560	
	Females	200		150	W	ISC3		X	ISC2	5		355	
Courses on basic computer skills (computing)	Both sexes	2000		5000	W	ISC3		X	ISC2	100		7100	
	Females		X BS		X BS			X BS				0	

\* Courses on basic computer skills or computing; country cannot disaggregate enrolment by sex

# WHAT IS MEASURED ?

## Indicators that may be calculated:

- ❖ **Proportion of learners who have access to programmes offering ICT-assisted instruction**
  - All programmes (General education & technical vocational education and training)
  - Total = Public + Private; and public only
  - Both sexes (MF) = Male (M) + Female (F)
- ❖ **Gross enrolment ratio in programmes with ICTs for teaching and learning** (to be developed)

Data below should correspond to data provided in UIS Questionnaire: Statistics of Education Questionnaire A, if different, please provide details.

The image shows the cover page of the UIS Questionnaire A. It features the UNESCO logo on the left, the UNESCO Institute for Statistics logo in the center, and the reference code UIS/E/2013A and date/location (Montreal, January 2013) on the right. A 'Country:' field is present. The title of the questionnaire is 'QUESTIONNAIRE ON STATISTICS OF EDUCATION' with a subtitle 'Pre-primary, primary, secondary and post-secondary non-tertiary education'. Below this, it specifies 'Academic year ending 2012'. At the bottom, there is a note: '1. Please return the completed questionnaire before 29 April 2013. To submit the electronic questionnaire directly to the UNESCO Institute for Statistics (UIS), please click on the [Submit] button at the end of the questionnaire or email it to: [uis.survey@unesco.org](mailto:uis.survey@unesco.org)'.

# WHAT IS MEASURED ?

## ❖ Indicator prioritization :

Conceptual domains	Indicator label	Indicator
Participation, skills and output	ED6	Proportion of pupils enrolled in programmes offering Internet-assisted instruction (by gender, by type of institution for ISCED levels 1-3)
	ED41bis	Proportion of pupils enrolled in programmes offering <b>computer-assisted instruction</b> (by gender, by type of institution for ISCED levels 1-3)
	ED44bis	Proportion of pupils enrolled in programmes offering <b>radio-assisted instruction</b> (by gender, by type of institution for ISCED levels 1-3)
	ED44bis 2	Proportion of pupils enrolled in programmes offering <b>television-assisted instruction</b> (by gender, by type of institution for ISCED levels 1-3)
	ED45	Proportion of pupils enrolled in programmes offering courses on <b>basic computer skills (or computing)</b> (by gender, by type of institution for ISCED levels 1-3)

- Core indicator
- WSIS target
- WSIS target and Core Indicator
- Additional Indicators

# Indicator prioritization

**ED6** – Proportion of pupils enrolled in programmes offering Internet-assisted instruction or Internet for teaching and learning (by gender, by type of institution for ISCED levels 1-3)

ED6 Proportion of learners who have access to the Internet at school (for ISCED levels 1-3)	
<b>Definition:</b> Number of learners with access to the Internet in school expressed as a percentage of the total number of learners in school for ISCED levels 1-3.	<b>Purpose:</b> To measure Internet accessibility among learners for educational purposes.
<b>Data requirement:</b> <i>(LI)</i> Number of learners entitled to use Internet laboratories at school as a pedagogical aid for ISCED levels 1-3. <i>(refer to questionnaire item E.1.2)</i> <i>(L)</i> Number of learners for ISCED levels 1- 3. <i>(refer to questionnaire item E.1)</i>	<b>Method of collection:</b> <ul style="list-style-type: none"><li>• Administrative data collection through annual school census (or extract data from school records); or alternatively</li><li>• Sample school survey or household survey (self-reported responses by household members attending school at ISCED levels 1 to 3).</li></ul>
	<b>Data source(s):</b> Statistical unit of the Ministry of Education or, alternatively, the national statistical office.

# Indicator prioritization

**ED6** – Proportion of pupils enrolled in programmes offering Internet-assisted instruction (by gender, by type of institution for ISCED levels 1-3)

Formula :

$$\frac{\sum_{h=1}^3 LI_h^t}{\sum_{h=1}^3 L_h^t} * 100$$

Where:

$LI_h^t$  = Number of learners entitled to use Internet at school as pedagogical aid at education level **h** in school-year **t**

$L_h^t$  = Number of learners enrolled at education level **h** in school-year **t**

# Indicator prioritization

## ED6 – Proportion of pupils enrolled in programmes offering Internet-assisted instruction (by gender, by type of institution for ISCED levels 1-3)

### Analysis and interpretation:

A high percentage or value for this indicator suggests a high degree of access to the Internet in school for learners. By matching the number of learners with Internet access entitlement with the number of computers for pedagogical purposes connected to the Internet in schools, one can have a better sense of the potential effectiveness of Internet-assisted instruction.

Depending on the pedagogical need, 100% access to the Internet for all learners may not be a crucial educational target for all grades at ISCED levels 1-3. For the time being, even in developed countries, Internet access for learners at the early grades of ISCED level 1 tend not to be a systematic or mandatory pedagogical requirement, although few exceptions exist.

Besides its use for international comparison, this indicator can also be calculated and analysed by ISCED levels and grades, geographical regions, urban/rural areas, and by public/private schools.

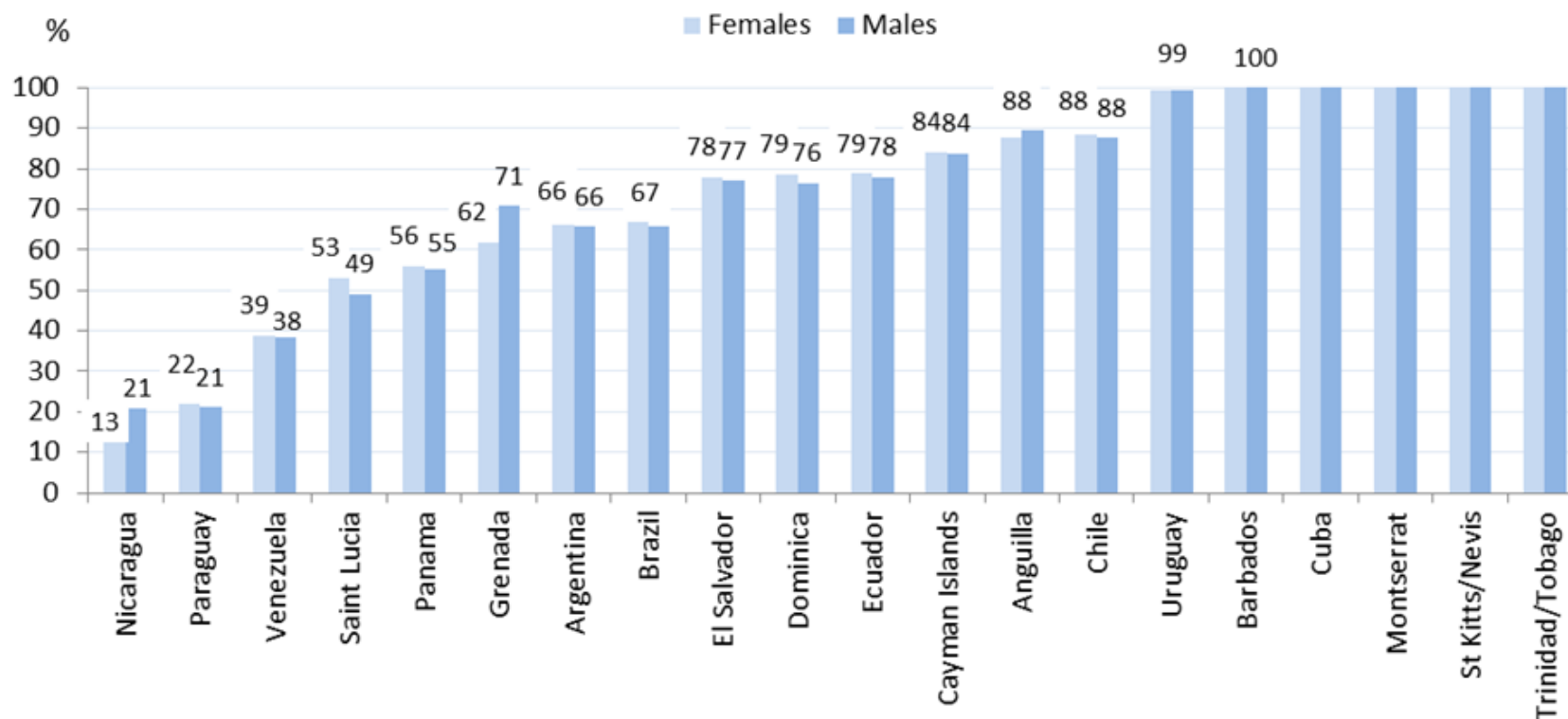
### Methodological and definition issues or operational limitations:

- Distortion may be possible with some private (or even public) or specialised institutions offering Internet access at a grade or age different from a nationally defined grade or age of learners.
- The type of bandwidth for Internet connectivity in schools as well as the number of simultaneous users can constrain the amount of Internet resources accessible within a given time span.
- The number of computers connected to the Internet available for pedagogical use will largely determine the ability of learners to access the Internet.
- This indicator does not account for the actual use or frequency of use of the Internet by learners.

# WHAT IS MEASURED ?

## ❖ Indicator prioritization :

Proportion of primary-level pupils enrolled in programmes offering computer-assisted instruction (CAI) (computers for teaching and learning), by sex, 2010 – Latin America and the Caribbean





# SUMMARY

## You have learned ...

- Completing the questionnaire
- Enrolment and educational institutions – Section on enrolments
- Concepts & definitions
- What is measured ?

# QUESTIONS ?



**Thank you**

<http://www.uis.unesco.org>