

Information and communication technology (ICT) in education statistics: A technical advisory panel (TAP) meeting to advance the global data collection in the post-2015 context

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Summary

Advancing the global collection of ICT in education statistics in the post-2015 context requires not only better quality data, but also keeping pace with countries' evolving policy needs. As a response, UIS has organized a Technical Advisory Panel (TAP) meeting to gather inputs from a diverse group of statisticians and subject matter experts in the area of ICT in education. During the meeting, representatives of international and regional organisations, UNESCO regional bureaux, and national governments, representing all regions, will discuss the current UIS ICT in education dataset, current gaps, as well as a number of thematic areas to inform a new set of core indicators along with corresponding methodology. This expert meeting is organized with a view to revising UIS methodology prior to the launch of the first global data collection on ICT in education in 2015.

Why ICT in education?

The advent of the knowledge economy and global economic competition compel governments to prioritise educational quality, lifelong learning and the provision of educational opportunity for all. Policymakers widely accept that information and communication technology (ICT) in education can help individuals to compete in a global economy by creating a skilled work force and facilitating social mobility. They emphasize that ICT in education has a multiplier effect throughout the education system, by:

- enhancing learning and providing students with new sets of skills;
- reaching students with poor or no access (especially those in rural and remote regions);
- facilitating and improving the training of teachers;
- minimising costs associated with the delivery of traditional instruction; and
- improving the administration of schools to enhance the quality and efficiency of service delivery.

International developmental frameworks

International development frameworks play an important role in attaining ICT in education targets. The role of ICT in development was first emphasized in the Millennium Development Goals (MDGs) in 2000; however the World Summit on the Information Society (WSIS), which convened in 2003 and 2005, was the first framework which resulted in a clear commitment by governments to foster the achievement of an 'inclusive information society'. To this end, the WSIS Geneva Plan of Action identified ten targets to be achieved by 2015 – two of which are related to education. Moreover, while not mentioned explicitly in the Education for All (EFA) goals, it is arguable that ICT plays a pivotal role in their achievement, including broadening access, eliminating exclusion, and improving quality.

UIS and ICT in education statistical frameworks

The UNESCO Institute for Statistics (UIS), which is the United Nation's repository for statistics on education, science and technology, culture and communication, is mandated to administer a global data collection on ICT in education. Fundamental for policymakers to select priorities and develop policies, the UIS contributes towards benchmarking and monitoring of the integration, access, use and impact of ICT

in education through the establishment of internationally-comparable policy-relevant indicators. In order to measure progress against the WSIS targets, UIS, under the auspices of the multi-agency “Partnership on Measuring ICT for Development”, identified indicators to track progress in ICT in education. The WSIS targets related to ICT in education and the indicators identified to track them include:

Target 2. Connect all secondary schools and primary schools with ICTs

- Indicator 2.1: Proportion of schools with a radio used for educational purposes.
- Indicator 2.2: Proportion of schools with a television used for educational purposes.
- Indicator 2.3: Learners-to-computer ratio.
- Indicator 2.4: Proportion of schools with Internet access, by type of access.

Target 7. Adapt all primary and secondary school curricula to meet the challenges of the information society, taking into account national circumstances

- Indicator 7.1: Proportion of ICT-qualified teachers in schools.
- Indicator 7.2: Proportion of teachers trained to teach subjects using ICT.
- Indicator 7.3: Proportion of schools with computer-assisted instruction.
- Indicator 7.4: Proportion of schools with Internet-assisted instruction.
<http://www.uis.unesco.org/Communication/Documents/measuring-wsis-targets-statistical-framework.pdf>

Beyond the WSIS framework and somewhat overlapping, UIS has also identified a set of core ICT in education indicators to further support countries’ policy development. These indicators also form the education component of the *Partnership on Measuring ICT for Development’s* list of core indicators.
<http://www.uis.unesco.org/Communication/Documents/Core ICT Indicators 2010.pdf>

UIS/ *Partnership* core indicators include the following:

- ED1: Proportion of schools with a radio used for educational purposes
- ED2: Proportion of schools with a television used for educational purposes
- ED3: Proportion of schools with a telephone communication facility
- ED4: Learners-to-computer ratio in schools with computer-assisted instruction
- ED4bis: Learners-to-computer ratio
- ED5: Proportion of schools with Internet access by type of access
- ED6: Proportion of learners who have access to the Internet at school
- ED7: Proportion of learners enrolled at the post-secondary level in ICT-related fields
- ED8: Proportion of ICT-qualified teachers in schools
- EDR1: Proportion of schools with electricity

Previous UIS data collections

Subsequent to a pilot data collection among 25 developed and developing countries in 2009, UIS has conducted regional data collections in Latin America and the Caribbean (2010), Arab States (2011), Asia (2012), and sub-Saharan Africa (2013/ 2014). UIS currently collects data in the following broad areas: a) ICT policy and curriculum; b) expenditures on ICT in education; c) schools level ICT infrastructure; d) enrolment in programmes using ICT; and e) teachers and ICT.

Challenges and remaining gaps

Despite the growing demand for ICT in education data, the best-known international sources of statistics on developed countries have struggled in developing a comprehensive set of indicators that include all three components of inputs, processes and outcomes related to ICT in education. In developing countries, where capacity is often limited, the challenges are even greater. While UIS has made positive steps towards building an international framework on ICT in education statistics, significant work remains to be done. The current state of affairs is particularly germane since the UIS is moving towards disseminating its first global data collection in 2015. Among current challenges the meeting will address the following specific items:

- **Survey scope:** ICT in education statistics currently cover a wide array of dimensions including policy curriculum, financial implications, infrastructure, issues related to pupils (e.g. access, participation, progression and completion), and teachers (e.g. training, usage of ICT). Taking into account this range of relevant dimensions of ICT in education, and the need to not overburden countries' finite resources, surveys must strategically focus on collecting a number of high priority policy relevant indicators, while also being succinct in both approach and breadth.
- **International and subnational variability:** Due to existing international and subnational differences in infrastructure (electrification, tele-density and Internet availability), financial resources, and policy orientations, the nature of ICT in education and digital technologies selected by countries may also vary significantly. The UIS survey must therefore be designed to take into account a wide array of realities existing both between and within countries.
- **Evolving technologies:** ICT is evolving at an increasingly rapid pace. For example new platforms such as mobile technologies, cloud computing, social media, as well as the hardware used, are transforming education and schools so quickly that Ministries are challenged to remain current in their measurement efforts. Balancing the need for policy relevant indicators that reflect the rapidly evolving ICT in education landscape versus the need for consistency over time to collect internationally comparable time series data, the ICT in education survey instrument must be designed to have a shelf life that permits long-term comparability as well as being flexible in terms of adding new concepts.
- **Inclusion of gender and ICT:** There is a growing recognition of the need for data related to gender and ICT. In other words, indicators shedding light on the situation of girls and women such as those which can be disaggregated by sex are increasingly in demand. While the UIS currently collects sex-disaggregated data measuring both pupils' participation rates in programmes offering different types of ICT-assisted instruction, as well as for teachers and their training or use of ICT, additional means to measure gender and ICT should be considered.
- **Evolving data requirements towards usage and outcomes:** There is a lack of available data on ICT in education in many developing countries, and this is especially true amongst least developed countries (LDCs). Data scarcity is typically related to the lack of a systematic collection of ICT in education statistics where national capacity is either in its infancy or does not exist. While basic data related to infrastructure and access are more readily available in developed countries, policymakers in both developed and developing countries increasingly demand data to measure ICT usage and student outcomes including pupil retention and learning achievement. National level data are however difficult to obtain and in the case of certain dimensions, measurement may have to rely on proxy indicators, which are also difficult to identify.

Potential papers to commission: The UIS will commission three papers to support the work of the Technical Advisory Panel (TAP). These papers will elaborate on thematic or methodological areas of exploration to advance a) the scope and efficiency of the new UIS survey, b) the new proposed list of UIS core ICT in education indicators, and c) the new proposed list of indicators selected to track WSIS targets 2 and 7 in the post-2015 environment. The papers will include:

- ICT infrastructure in schools and evolving technologies
- Teacher training and usage of ICT in education
- ICT in education and new methods for measuring usage and outcomes

Expected results:

- Discussion on the UIS ICT in education dataset and current data gaps
- Identification of newly required policy-relevant indicators to advance the ICT in education data collection globally into the post 2015 context
- Feedback on the current ICT in education survey and UIS definitions.
- Feedback on the proposed revised list of core ICT in education indicators to be released in 2015.
- Feedback on UIS commissioned papers that aim to contribute to the aforementioned expected results as well as support the work of the TAP in general.