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# Revising SDG4 Indicators in Anticipation of Post-COVID Changes in Education Systems<sup>1</sup>

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## 1. Introduction

This note outlines some ideas that would assist the TCG in the review of SDG4 indicators in the face of upcoming long-term trends in the delivery of education. There is a developing consensus among education observers suggesting that the COVID pandemic will induce long-term behavioural changes in the population, and that those changes will have an effect on the operation of education systems. Just like what happened to international travel after 9/11/2001, with drastic changes in security, travel restrictions, monitoring of travellers, and the use of massive amounts of monitoring data, education is likely to undergo significant changes in teaching and learning. Education through the internet, home schooling, education in very small groups, different modes of distance education, may increase their share in how students learn after the COVID pandemic quiets down.

Under Post-COVID conditions it is likely that there would be a new role for education data, with changes in what data to collect, how to collect it, with what frequency, and what modifications would be required of education indicators to report on the data. These trends should impact the nature and scope of SDG4 indicators.

## 2. Changes in Household Behaviours Will Affect Schooling

Below is a list of topics that are considered relevant for discussion by the TCG, with the purpose of guiding a discussion on the potential changes to SDG4 indicators.

Household behaviour, after the COVID pandemic subsides, is likely to change in regards to classroom attendance by students. This structural shift is likely to have strong impacts on education data. To help in this transition, it is important to discuss some key issues:

- a. Is there a need for a mitigation plan? Countries, and UIS, may need a guide that would help them adjust to prospective changes in household behaviour, and to prospective changes in the ecosystem of education data, especially in the SDG4 indicators,
- b. What data should take into account the seasonality differences between the Northern and Southern hemispheres? For example, in the Northern hemisphere children may lose only a portion of the school year, while in the Southern hemisphere students are likely to lose the entire year. Hence, UIS would need to identify which countries would lose the school year, and which countries will not, and what data would be affected.
- c. Is there a need to establish a new system for measuring learning? The current practice of testing at long intervals to determine student learning works well in a classroom environment, but it does not in a distance-education environment, where students may not connect to the internet regularly, or may not learn as much as in the classroom. Under these conditions—and given the context of online instruction—measuring student learning continuously may be a better policy. That way, teachers and schools may adjust instructional methods and approaches in order to avoid low learning outcomes too late in the school year.
- d. How should UIS help countries in the development of monitoring systems to ensure the continuing evaluation of teaching and learning? Defining the role of UIS, ministries of education, statistical institutes, and development agencies is important in order to develop a clear UIS strategy for data in a Post-COVID environment. As a general rule, measuring traditional input and process variables may become both more difficult and also less

important, and measuring outcomes (learning, and learner welfare) may become more important.

- e. What concepts and variables are likely to change in a Post-COVID environment? Some potential candidates are listed below.
  - i. *Who is a student?* Given that distance schooling may become more prominent, how do we measure enrolment? For example, if a student is enrolled but does not connect to online classes, does that student count as a student in educational statistics? If a student is home-schooled, does not connect, but learns the material, does s/he count as a student in SDG4 statistics? What is the difference between students and learners in education statistics? These distinctions may sound naïve, but in light of the proportion of school-age children that are now in distance schooling, home schooling, and neither in school nor working, these questions become very relevant for statistical reporting and for education policy.
  - ii. *Who is a teacher?* As countries embark on distance education initiatives, and this method of education becoming a significant component of new normal, how do we define a teacher? What is the difference between a teacher in a classroom and an online moderator? Are parents now teachers? These distinctions are important for defining teacher quality, teacher training, and for educational statistics.
  - iii. *Which SDG4 indicators are likely to be affected?* Educational changes are coming post-COVID, and even though there is great uncertainty on which aspects of education will change for the long term, it is important to examine the current SDG4 indicators within this context and figure out which ones are most likely to be affected, and which of those indicators need to be redefined.
    - a. Candidates for a redefinition and proposals for new indicators may include:
      1. Distance learning
      2. Student/teacher ratios
      3. Home schooling
      4. Special education
      5. Use of the internet as a teaching resourceA tentative listing of SDG4 indicators and their possible changes are discussed in the next section.
  - iv. *Which countries should be of priority?* UIS could help prepare implementation plans that take into account those countries that are most likely to be affected, to assist them in thinking about how to tackle data issues. Plans should address the potential modifications to processes of data collection, data reporting, the dissemination of indicators, and the presentation and interpretation of SDG4 indicators to policy makers. However, there is a great digital divide among countries, and a common approach to data collection may not be appropriate. Hence, a first approximation of the criteria for selecting countries needs to be discussed, to determine the scope of the task for UIS and for the modification of SDG4 indicators.
  - v. *What data collection methods are cost effective?* Data for some indicators may be collected using simple technology, such as 2G cell phones, and through panels of respondents. Groups such as a random sample of PTA leaders who may be playing some monitoring role in communities, could be key informants on some of the data feeding into some SDG4 indicators. Citizen-led reporting, something that had been growing in interest, may now acquire greater significance.

- vi. *What are the implications for statistical institutions?* Post-COVID changes in education systems would inevitably result in changes in the operation of statistical institutes. Changes in methods of data collection, data processing, definition of old and new indicators, new types of reports to be generated, and continuous monitoring of input data and of student learning, are significant challenges that need to be planned now. In addition, these changes would imply new types of personnel skills at these institutions, and a restructuring of their budgets.
- vii. *What are the implications for education system accountability?* Post-COVID adaptations to education may result in a fragmented governance of the education system. For example, free education may have to coexist with online payments for access to the internet, for software applications, and for online tutoring. In a context of fragmented governance, who should be accountable for student learning? If some of the actors in the learning process are not employees of the public education system, accountability would have to be redefined. Possible approaches could include rating systems for content providers, and for modes of knowledge provisions. Also, testing would have to be redefined, where in some cases, tests may be applied immediately after a learning module is concluded, in order to monitor learning on a continuous basis. Under such conditions, the concept of passing and failing needs to be examined carefully.

### 3. Selected SDG4 Indicators and Potential Issues

The SDG4 indicators listed below have been examined within the context of the above discussion. For each indicator there is a need to identify what type of new complementary data needs to be collected—keeping in mind the country context and level of income and development—and the modifications that each SDG4 indicator would undergo as a result. Identifying new data also implies addressing the sources of information, which may be non-traditional, such as group panels, metadata from software providers, and automatically generated data from online interactions.

#### ***Indicator 4.1.1 Proportion of children and young people (a) in Grade 2 or 3; (b) at the end of primary education; and (c) at the end of lower secondary education achieving at least a minimum proficiency level in (i) reading and (ii) mathematics, by sex***

The main issues relate to the online monitoring of participants in distance learning (online classes; home schooling). Practical issues to resolve include:

- a. How to manage data on the instructional time spent online
- b. How to test for content knowledge at short intervals
- c. How to ensure access to online educational services
- d. Random sample verification of students' online access and instructional time
- e. Standardization of protocols for monitoring and testing
- f. Classification of countries by average online access levels and within-country equity in access

#### ***Indicator 4.3.1 Participation rate of youth and adults in formal and non-formal education and training in the previous 12 months, by sex***



### ***Indicator 4.4.1 Proportion of youth/adults with information and communications technology (ICT) skills, by type of skill***

In an Issues with these two indicators include:

- a. The redefinition of standards for measuring participation in non-formal education, online education, and home schooling.
- b. The redefinition of the time period that counts as a school year, as online education allows for individual pacing of content access. As a result, the participation rate has to take into account the chronology of access to educational content by students.
- c. The certification of teachers, trainers, and online moderators to address the content knowledge needs of youth in a distance education context and in light of the restructuring of life skills needed by youth and adults when facing the labour market.
- d. The rates of participation that should include the proportion of students participating in distance education relative to their age group and to the total number of students in their grade level.
- e. The development of certification standards for online content providers.
- f. The certification of content provision and content providers to make the service provision equal to that one might find in a school.

### ***Indicator 4.5.1 Parity indices for all education indicators that can be disaggregated***

Digital equity is an issue that has not been developed fully in basic education, but poverty and gender seem to be key issues that would have to be addressed in a Post-COVID world. Under the traditional programs for alleviating poverty, now access to online education would have to take priority. Also, there may be many locations relying on online education where girls could be diverted to do household chores because they are at home and not in school. Tracking digital equity among the poor and by gender should take priority.

### ***Indicator 4.6.1 Proportion of a population in a given age group achieving at least a fixed level of proficiency in functional (a) literacy and (b) numeracy skills, by sex***

The main issue here is the collection and reporting of data on proficiency level by mode of education. Proficiency levels for students in online classrooms, home schooling, and ordinary schooling, should be measured and reported separately, so countries can take corrective action as needed.

### ***Indicator 4.a.1 Proportion of schools with access to: (a) electricity; (b) the Internet for pedagogical purposes; (c) computers for pedagogical purposes; (d) adapted infrastructure and materials for students with disabilities; (e) basic drinking water; (f) single-sex basic sanitation facilities; and (g) basic handwashing facilities (as per the WASH indicator definitions)***

The main issue for this indicator is the presumption that the school is the only place for receiving instruction. With the use of online classes and home schooling, this indicator needs to be significantly changed or redefined.

***Indicator 4.c.1 Proportion of teachers in: (a) pre-primary education; (b) primary education; (c) lower secondary education; and (d) upper secondary education who have received at least the minimum organized teacher training (e.g. pedagogical training) pre-service or in-service required for teaching at the relevant level in a given country, by sex***

The most basic question about this indicator in a Post-COVID environment is: who is a teacher? The inevitable acquisition of different skills for an online and home education world indicates that for this indicator to make sense, it has to include those people coordinating, moderating, and/or directly participation in the transfer of knowledge to students. As a result, this indicator needs to redefine:

- a. Teacher pedagogical training, to include the skills needed for online schooling.
- b. In-service training that would include hardware and software knowledge.
- c. Multitasking and multimedia use for pedagogical purposes.
- d. Continuous monitoring and evaluation of students.
- e. Ability of teachers to help parents mediate their role at home.