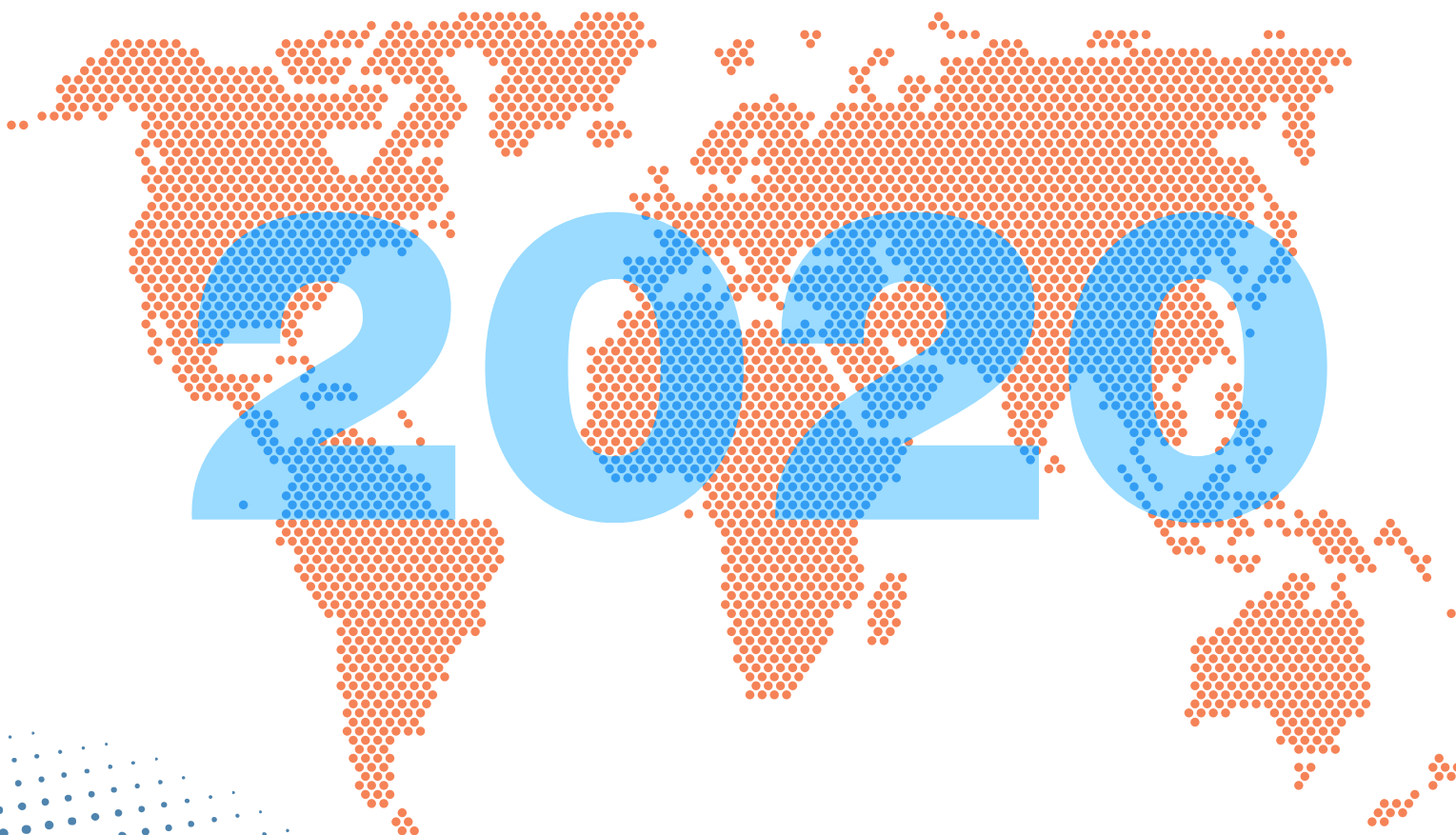


SDG 4 Data Digest

Using Household Survey Data to Monitor SDG 4



SDG 4 Data Digest 2020

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UNESCO

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Table of contents

| | |
|--|-----------|
| LIST OF FIGURES | 4 |
| LIST OF TABLES. | 4 |
| FOREWORD | 5 |
| ACRONYMS AND ABBREVIATIONS | 7 |
| 1. SDG MONITORING | 9 |
| 1.1 The purpose of the SDGs and the importance of monitoring SDG indicators | 9 |
| 1.2 How can countries close critical data gaps and move beyond them? | 12 |
| 2. USE OF HOUSEHOLD SURVEYS FOR SDG MONITORING | 15 |
| 2.1 How can household surveys help countries achieve SDG 4?. | 15 |
| 2.2 What sort of household survey data can be used for monitoring SDG 4? | 19 |
| 2.3 What are the sources of SDG 4 data?. | 19 |
| 2.4 Which SDG 4 indicators can be monitored with household survey data? | 22 |
| 2.4.1 Primary and secondary education | 23 |
| 2.4.2 Early childhood | 30 |
| 2.4.3 TVET and higher education | 33 |
| 2.4.4 Skills for work | 36 |
| 2.4.5 Equity | 37 |
| 2.4.6 Literacy and numeracy | 40 |
| 2.4.7 School environment | 42 |
| 2.5 How can household survey data be integrated with and complement other data?. | 43 |
| 3. IMPLEMENTING HOUSEHOLD SURVEYS TO MONITOR SDG 4 | 47 |
| 3.1 Introduction | 47 |
| 3.2 Resources: What does it take to conduct a household survey? | 48 |
| 3.3 Preparing the questionnaire | 53 |
| 3.4 Getting ready to field the survey. | 60 |
| 3.5 Conducting the survey and monitoring progress | 67 |
| 3.6 Preparing and analysing the data | 69 |
| 3.7 Communicating findings. | 72 |
| 3.8 Implementing household surveys during COVID-19 | 75 |

| | |
|--|----|
| 4. CONCLUSION | 79 |
| BIBLIOGRAPHY | 81 |
| ANNEX 1: GLOBAL AND THEMATIC SDG INDICATORS RELATED TO EDUCATION | 85 |
| ANNEX 2: HOUSEHOLD SURVEY QUESTIONS FOR COLLECTION OF SDG 4 DATA | 87 |
| ANNEX 3: RESOURCES AND RECOMMENDED READING FOR IMPLEMENTATION OF HOUSEHOLD SURVEYS. | 99 |

LIST OF FIGURES

| | |
|--|----|
| Figure 1.1. Availability of SDG 4 indicators by region and level of monitoring: proportion of indicators with data (%) | 11 |
| Figure 1.2. Example of limited data availability for an SDG 4 indicator: Indicator 4.2.1: Proportion of children aged 24 to 59 months who are developmentally on track in health, learning and psychosocial well-being; most recent year available | 12 |
| Figure 3.1. Sample project organization chart. | 49 |
| Figure 3.2. Example of infographic: Palestine MICS, 2014 | 73 |

LIST OF TABLES

| | |
|---|----|
| Table 2.1. Multi-national household surveys | 20 |
| Table 2.2. SDG 4 indicators that may be derived using household survey data | 24 |
| Table 3.1. Average cost per survey in US dollars | 53 |
| Table 3.2. Basic ground rules for the interviewer | 59 |
| Table 3.3. Advantages and disadvantages of modes of survey administration | 63 |
| Table 3.4. Examples of daily performance metrics | 68 |
| Table 3.5. Target audiences for dissemination. | 74 |

Foreword

Accurate data are essential for monitoring progress towards the Sustainable Development Goals (SDGs) and for guiding policy and ensuring that resources are spent effectively. Due to concerted efforts by governments and other stakeholders, there is an increasingly clear picture of progress towards SDG 4: a quality education for all by 2030. Yet, with only ten years left to achieve this goal, there are still significant gaps in our knowledge.

Alongside new investments to increase the availability of reliable and internationally comparable data, filling gaps also calls for more effective use of existing data sources. This 2020 edition of the *SDG 4 Data Digest* – aimed at government officials, national planners, donors and others with a stake in education policy – focuses on household surveys as an important complement to the administrative data collected in schools and demonstrates how they can help countries remain firmly on the path toward achieving SDG 4 by 2030.

A new generation of household surveys has focused more specifically on education and the measurement of child development and skills. As a result, household surveys can serve as a data source for half of the global and thematic indicators used to monitor global progress towards SDG 4. In addition to being the preferred source for certain indicators, surveys offer an unparalleled account of education inequalities. By collecting information on individual and household characteristics, it becomes possible to track and understand

disparities in educational access and outcomes. In the context of the disproportionate effects of the COVID-19 pandemic and other crises on the most marginalized populations, monitoring such disparities will be increasingly important in the coming months and years.

The potential of household surveys to monitor education progress is nonetheless underexploited. This issue of the *SDG 4 Data Digest* seeks to promote more effective use of existing survey data by highlighting the advantages of household surveys and describing how SDG 4 indicators can be calculated. Comprehensive monitoring also requires the design of new modules and survey programmes. The *Digest* provides guidance on survey development and implementation with an overview of important considerations, from securing political support for a survey and assembling a programme team, to designing survey questions and communicating survey results.

The collection of accurate, timely and comparable data is as urgent as ever. Investment in household surveys is indispensable to understand current realities, set objectives and remain on course to meet our shared educational aspirations. The UNESCO Institute for Statistics stands ready to work with governments and the international education community to generate the data that are imperatively needed to ensure that no one is left behind in the drive to achieve the SDGs by 2030.

This *Digest* was written by Friedrich Huebler, Emily Kochetkova, Ellen L. Marks, Alasdair McWilliam and Amy Mulcahy-Dunn. Valuable inputs were

provided by Akuffo Amankwah, Diogo Amaro, Karen Avanesyan, João Pedro Azevedo, Claudia Cappa, Laura Gregory, Attila Hancioglu, Kevin Robert McGee, Sakshi Mitra, Suguru Mizunoya, Gbemisola Oseni, Amparo Palacios-López, Hyunju Park, Nicole Petrowski, Eva Quintana and Turgay Unalan. Shereen Joseph, Tanya Guyatt, and Richard Warren provided editorial support and coordinated the production of the report.

A handwritten signature in black ink, appearing to be 'S. Montoya', with a horizontal line crossing the middle of the letters.

Silvia Montoya
Director
UNESCO Institute for Statistics

Acronyms and abbreviations

| | |
|------------------|---|
| 3MC | Multinational, multicultural, or multiregional |
| ACASI | Audio computer-assisted self-interviewing |
| AES | Adult Education Survey |
| ASER | Annual Status of Education Report |
| CAPI | Computer-assisted personal interviewing |
| CATI | Computer-assisted telephone interviewing |
| CAWI | Computer-assisted web interviewing |
| DFID | Department for International Development |
| DHS | Demographic and Health Survey |
| DLGF | Digital Literacy Global Framework |
| EA | Enumeration area |
| ECD | Early childhood development |
| ECDI | Early Childhood Development Index |
| ECDI2030 | Early Childhood Development Index 2030 |
| EMIS | Education Management Information System |
| EU | European Union |
| GAML | Global Alliance to Monitor Learning |
| GDP | Gross Domestic Product |
| GIS | Geographic information system |
| GPS | Global Positioning System |
| GRI | Global Reporting Initiative |
| GSHS | Global School-based Student Health Survey |
| HBSC | Health Behaviour in School-aged Children |
| HFPS | High-frequency phone survey |
| HHM | Household member |
| IAEG-SDGs | Inter-agency and Expert Group on SDG Indicators |
| ICT | Information and communication technology |
| ISCED | International Standard Classification of Education |
| ISWGHS | Intersecretariat Working Group on Household Surveys |
| ITU | International Telecommunication Union |
| LAMP | Literacy Assessment Monitoring Programme |
| LFS | Labour Force Survey |
| LSMS | Living Standards Measurement Study |
| MDG | Millennium Development Goal |
| MELQO | Measuring Early Learning Quality and Outcomes |
| MICS | Multiple Indicator Cluster Survey |

| | |
|---------------|--|
| MOE | Ministry of education |
| MRP | Multilevel regression with poststratification |
| NLAC | National labour advisory council |
| NSO | National statistics office |
| OECD | Organisation for Economic Co-operation and Development |
| PAL | People's Action for Learning (Network) |
| PIAAC | Programme for the International Assessment of Adult Competencies |
| PISA | Programme for International Student Assessment |
| PPP | Purchasing power parity |
| SDG | Sustainable Development Goal |
| SES | Socio-economic status |
| SMS | Short message service |
| STEP | Skills Towards Employment and Productivity |
| SWTS | School-to-Work Transition Survey |
| TCG | Technical Cooperation Group on the Indicators for SDG 4 - Education 2030 |
| TIMSS | Trends in International Mathematics and Science Study |
| TVET | Technical and vocational education and training |
| UIS | UNESCO Institute for Statistics |
| UN | United Nations |
| UNESCO | United Nations Educational, Scientific and Cultural Organization |
| UNICEF | United Nations Children's Fund |
| UOE | UIS, OECD and Eurostat |
| USAID | United States Agency for International Development |

1. SDG monitoring

1.1 The purpose of the SDGs and the importance of monitoring SDG indicators

At the United Nations (UN) General Assembly meeting of 25 September 2015, 193 UN Member States unanimously adopted a new development agenda “Transforming our World: the 2030 Agenda for Sustainable Development” (United Nations, 2015). This agenda builds upon the Millennium Development Goals (MDGs) and represents the work of contributors from around the world. It is “a call to action to end poverty, protect the planet and ensure that all people enjoy peace and prosperity” (UNDP, 2019). The agenda incorporates 17 broad and interrelated Sustainable Development Goals (SDGs), which address “economic development, social inclusion, environmental sustainability, and good governance” (de la Mothe et al., 2015).

To monitor progress towards the SDGs, the Inter-agency and Expert Group on SDG Indicators (IAEG-SDGs)¹ developed a global indicator framework that was adopted by the UN General Assembly in July 2017 (United Nations, 2017). The framework was most recently revised during the 2020 Comprehensive Review and contains now 231 **global indicators** (United Nations, 2020).² These indicators encourage accountability and collaboration, identify areas needing support and provide the information needed to advocate for continuing reform. Another comprehensive review

of the global indicator framework will take place in 2025.

In addition to the global indicators, there are **thematic indicators** grouped according to theme, such as energy, health and education, to foster more in-depth monitoring within individual sectors and to facilitate countries’ learning from the development lessons of others (de la Mothe et al., 2015).

The education goal

The fourth Sustainable Development Goal (SDG 4) reflects the tenet that access to quality education is a basic human right and is essential for sustainable development:

SDG 4: Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all

SDG 4 encompasses 10 targets and 43 indicators, of which 12 are global indicators.³ In addition, one global indicator for SDG 1 measures the proportion

1 IAEG-SDGs website: <https://unstats.un.org/sdgs/iaeg-sdgs/>.

2 The total number of indicators listed in the global framework of SDG indicators is 247 but 12 indicators are repeated under two or three different targets (United Nations, 2020).

3 As a result of the 2020 Comprehensive Review, one thematic indicator for SDG 4, the completion rate, was upgraded to a global indicator. Before the review, 11 global indicators were included under SDG 4. The numbering of indicators in SDG Target 4.1 was also revised. For example, the completion rate was previously Indicator 4.1.4 but is now Indicator 4.1.2. The current numbering of all global and thematic indicators is shown in Annex 1.

of total government spending on essential services, including education.

The 31 thematic indicators for SDG 4 were developed by the Technical Cooperation Group on the Indicators for SDG 4-Education 2030 (TCG) and are listed in the Education 2030 Framework for Action, adopted by the UNESCO General Conference in 2015 (UNESCO, 2016). The TCG is composed of representatives from 27 Member States from all UNESCO regions, as well as representatives of civil society organizations and international organizations, among them the OECD, UNESCO, UNICEF and the World Bank. Annex 1 lists all global and thematic indicators under the education SDG. Monitoring these indicators is essential to ensure continued progress in achieving inclusive and equitable quality education.

Five years after the adoption of the SDGs in 2015, there has been considerable progress in the area of methodological development and all global SDG

indicators are now classified as Tier 1 or Tier 2. However, there is a continuing lack of data needed to calculate all SDG 4 indicators. For many countries, it is therefore unknown how far they are from the goal and whether they have made any progress. This poses considerable challenges for policy makers, donors and other stakeholders, who have insufficient evidence to guide the design and implementation of interventions in the education sector.

Figure 1.1 presents the current availability of SDG 4 indicators by region as of September 2020. For each region, the proportion of country-indicator observations with data in the respective indicator group (global, thematic, global and thematic combined) is indicated. Only indicators currently disseminated by the UIS are included in the analysis. At the global level, the coverage rate is 54% for global SDG 4 indicators and 53% for thematic indicators; for all indicators combined, the coverage rate is 54%. There are some variations between SDG regions, but the pattern is similar: the coverage rate

Tier classification of global SDG indicators

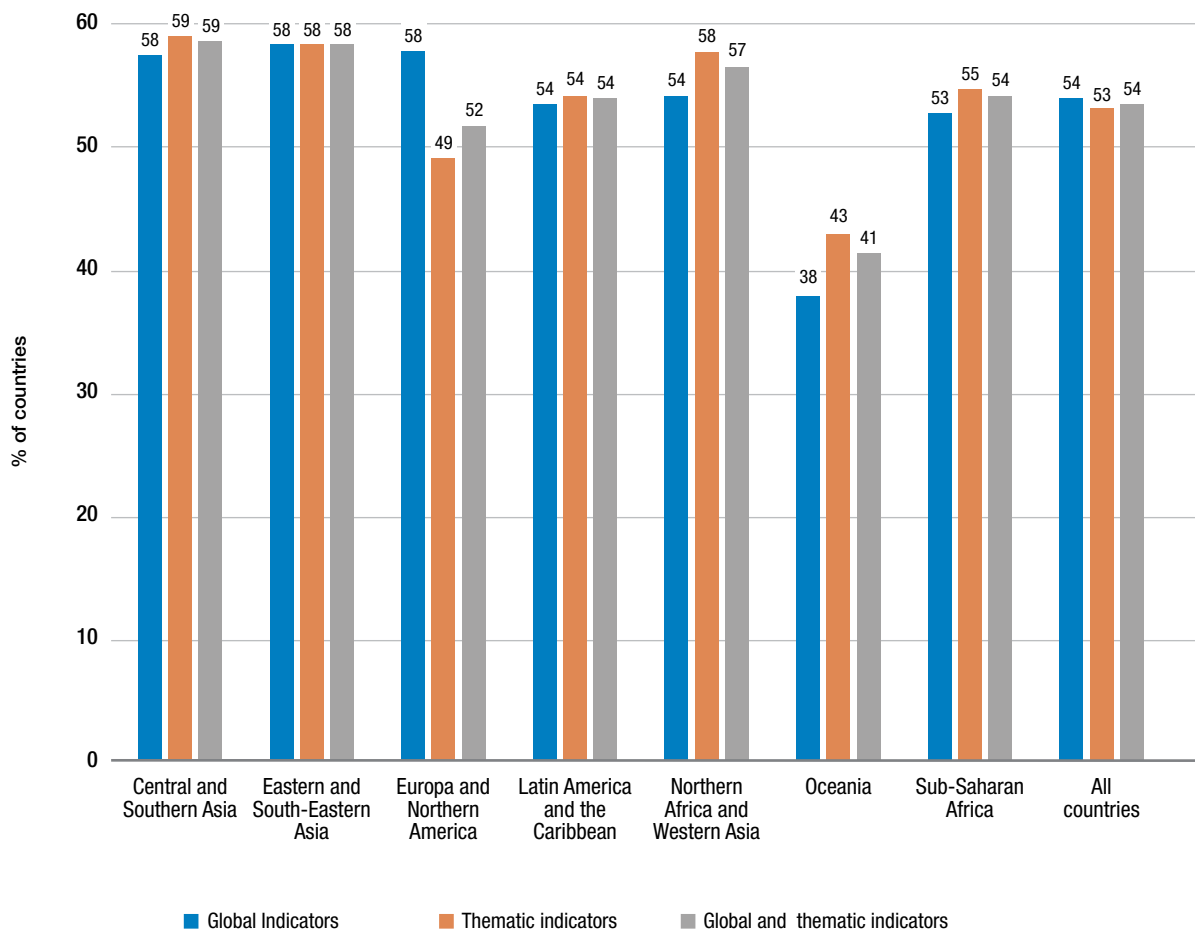
Tier 1: Indicator is conceptually clear, has an internationally established methodology and standards are available, and data are regularly produced by countries for at least 50 per cent of countries and of the population in every region where the indicator is relevant.

Tier 2: Indicator is conceptually clear, has an internationally established methodology and standards are available, but data are not regularly produced by countries.

Tier 3: No internationally established methodology or standards are yet available for the indicator, but methodology/standards are being (or will be) developed or tested. *(As of the 51st session of the UN Statistical Commission, the global indicator framework does not contain any Tier III indicators.)*

Source: IAEG-SDGs (2020)

Figure 1.1. Availability of SDG 4 indicators by region and level of monitoring: proportion of indicators with data (%)



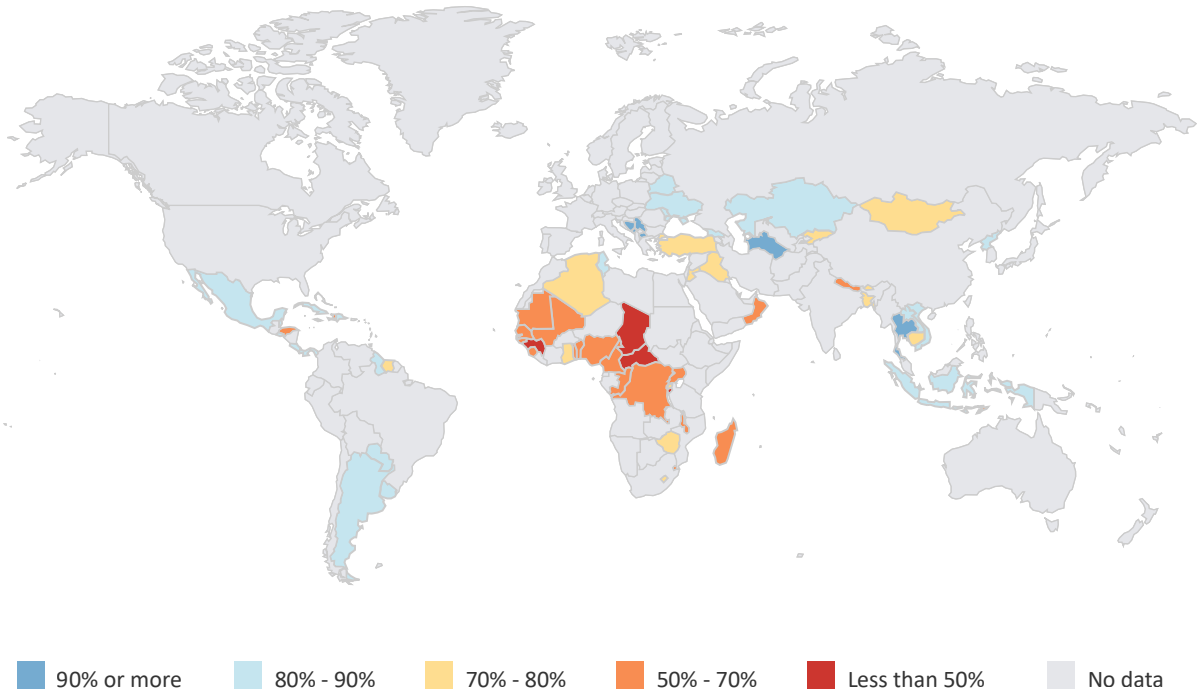
Source: UNESCO Institute for Statistics, September 2020
 Note: SDG 4 indicators are considered to be available at the national level if they are available for at least one year between 2010 and 2020. Regional values are the proportion of country-indicator observations by indicator group (global, thematic, global and thematic combined) with data for any year between 2010 and 2020.

ranges from 38% to 58% for global indicators and from 43% to 59% for thematic indicators.

Data gaps are particularly evident and problematic for certain indicators, including early childhood development (Indicator 4.2.1), information and communications technology (ICT) skills (Indicator 4.4.1), and functional literacy and numeracy

(Indicator 4.6.1). As one example, [Figure 1.2](#) shows striking gaps in data on early childhood development. For seven of the 43 SDG 4 indicators, no data were available in the UIS database in September 2020. Even for countries with data, international comparability is often not assured because of differences in national data collection and indicator calculation methods.

Figure 1.2. Example of limited data availability for an SDG 4 indicator: Indicator 4.2.1: Proportion of children aged 24-59 months who are developmentally on track in health, learning and psychosocial well-being; most recent year available



Source: UNESCO Institute for Statistics, September 2020

Note: Refinement of the indicator name approved by the Inter-agency and Expert Group on SDG Indicators (IAEG-SDGs) on 13 March and 2 April 2020. Final approval pending the 52nd session of the Statistical Commission in March 2021.

1.2 How can countries close critical data gaps and move beyond them?

The UIS is working to address these data gaps by providing guidance on how to generate data and calculate SDG 4 indicators, in collaboration with the IAEG-SDGs, the TCG and other international organizations. Many indicators can be monitored with administrative data, such as those collected by the UIS from UNESCO Member States with its annual Survey of Formal Education. Learning

assessments are another important source of data for SDG 4 indicators.

The present *Digest*, aimed at national education policy planners and other stakeholders, focuses on household surveys as an important and underutilized way to collect the data needed for monitoring progress toward SDG 4. Household surveys can also be disaggregated to a greater extent than administrative data to facilitate the monitoring of exclusion in education.

Nationally representative household surveys have become increasingly common. International surveys such as the Multiple Indicator Cluster Survey (MICS), Demographic and Health Survey (DHS) and the Living Standards Measurement Study (LSMS) are continually expanding in coverage, and a growing number of countries are carrying out their own national household surveys. In addition, a new generation of household surveys focused more specifically on education, child-development and skills measurement is gaining geographic spread. Examples of these surveys include the Programme for International Student Assessment (PISA) for Development; the Programme for the International Assessment of Adult Competencies (PIAAC); the Skills Towards Employment and Productivity Measurement Program (STEP); and citizen-led assessments, such as the Annual Status of Education Report (ASER) and the Uwezo learning assessment.

Combined, these and other household surveys cover most of the world and collect a substantial amount of the data needed to calculate the SDG 4 indicators, although there is a need for harmonization to ensure the data are comparable across countries and of sufficiently high quality. The Intersecretariat Working Group on Household Surveys reported that “a total of 77 of the [global] Sustainable Development Goal indicators can be sourced (either currently or on the basis of a proposal) from household surveys.” The report goes on to note that, “close to two-thirds of indicators could be produced at the desired frequency through a cycle of Demographic and Health Surveys, Multiple Indicator Cluster Surveys, Living Standards

Measurement Surveys, Household Income Expenditure Surveys and Labour Force Surveys” (United Nations Statistical Commission, 2018).

This publication not only seeks to promote more effective use of existing survey data for SDG monitoring, but to guide the development of new surveys and survey items for SDG monitoring.

It is structured as follows:

Chapter 2 describes in greater detail how household surveys can be used for SDG monitoring. It identifies a number of advantages to using household survey data, as well as the categories of indicators best suited for monitoring with such data. Chapter 2 also offers the definitions and calculation methods of selected indicators, and it explains how household survey data can be combined with data from other sources.

Chapter 3 is aimed at government officials and others who would make decisions about implementing nationally representative household surveys. It describes the requirements for conducting a household survey and the steps that must be followed from questionnaire design to data collection and analysis. The chapter concludes with advice on presentation of the findings and a discussion of data collection in the context of the current COVID-19 pandemic.

Chapter 4 concludes the *Digest*, followed by an Annex with additional resources, including suggested survey questions for collection of education data.

2. Use of household surveys for SDG monitoring

2.1 How can household surveys help countries achieve SDG 4?

Measuring equity in education

Though tremendous strides have been made in increasing access to schooling, marginalized populations such as the extreme poor, children with disabilities, disabled, and displaced or nomadic populations are frequently under-represented in school. Similarly, even when marginalized or disadvantaged populations are able to attend school, they often attend under-resourced and poor-quality schools with lower student proficiency rates. Continued efforts are needed to ensure that all children are receiving quality schooling. SDG 4 is designed specifically to highlight the need to support all children's access to and success in school. Household survey data can play a pivotal role in informing efforts to achieve this goal. The

advantages of household survey data related to equity include:

- Household-based data capture information on children both in and out of school. Unlike school-based or administrative data, household survey data can comprehensively estimate equity in access to education and attainment.
- Household surveys that measure any education indicators can be used to analyse equity. Household survey data capture information on household characteristics associated with out-of-school populations (Porta et al., 2011). For example, these surveys can capture information on parent education levels, health, nutrition, disability and family support of schooling, including attitudes about school and expectations for the family's children. Household survey data can be collected to

Advantages of using household survey data

- Measuring equity in education
- Capturing information on non-formal and private education
- Capturing sensitive school information in a neutral setting
- More accurate estimate of school participation and attainment rates
- Important source of data on literacy rates, school efficiency (e.g. dropout and repetition)
- More reliable information on child and household characteristics
- Cross-sectoral linkages

estimate demand for and barriers to school attendance.

Information about these factors, obtained through household surveys, can then inform policies and strategies designed to increase equity in education (Porta et al., 2011).

A more accurate estimate of school participation and completion

Calculating indicators related to the proportion of the population may be more accurate when derived from household survey data than estimates derived from a combination of administrative data and population census data, especially in countries with weak statistical systems and inconsistencies between data from different sources.

Net enrolment rate calculations provide a case in point. School or administrative records are used to estimate the number of children enrolled. This number is then divided by the total number of children in the country within the official age range for either primary or secondary school. There can,

however, be challenges with the numerator (number of enrolled children) or the denominator (children in the appropriate age range). At times, school records may be missing or population estimates may simply not be available. The number of children used in the numerator comes from administrative or school data and can have two sources of inaccuracy. First, because administrative records do not always include data on enrolment from private or non-formal schools, enrolment may be underestimated. Second, while only children in the appropriate age range should be counted, schools may not have children's correct age. In addition, school personnel may be inclined to align the child's age with the official age range, even when it does not match. Finally, when school funding is tied to enrolment levels, schools may be motivated to over-report student enrolment (UIS, 2004). As a result, net enrolment can exceed 100% (UIS, 2016). The number of children used in the denominator typically comes from census-based population projections. Population projections, however, can be inaccurate. Occasionally, the census data can be several decades old. Similarly, population projections may not accurately account for war, migration, or natural disasters or they may not provide accurate regional estimates (UIS, 2004).

DID YOU KNOW?

According to the World Bank publication *Assessing Sector Performance and Inequality in Education* (Porta et al., 2011), “empirical analyses on children out of school indicate that factors such as extreme poverty, the cost of school uniforms, the lack of relevance of the school curriculum, the distance to school, and personal insecurity on the way to school can be strong barriers to school attendance.”

For more information and guidance, see the *Handbook on Measuring Equity in Education* (UIS, 2018).

The ability to collect information on children both in and out of school is one of the key advantages of household surveys. With household-based data, which typically collect information on attendance instead of enrolment, both the numerator and denominator come from the same source, data are up-to-date, and are collected during the same period. However, it should be noted that accurate national population estimates are still needed for weighting of household survey data to calculate figures at the national level.

Information on completion and dropout rates as well as the reasons for drop-out are more effectively

captured through household surveys. Data on repetition can also be captured effectively at home. Repetition and dropout rates are important indicators of the overall efficiency of an education system.

Capturing information on non-formal and private education

Household surveys can collect data on private and non-formal schooling that are often absent from school-based or administrative records (UIS, 2016). This is particularly relevant for accurate out-of-school figures or data on participation in non-formal early childhood education programmes or in adult literacy, numeracy or other training programmes.

Capturing sensitive school information in a neutral setting

Household surveys can provide a safer place for individuals to report on potentially sensitive issues such as bullying, corporal punishment or violence that may have occurred at school. Respondents may be more comfortable answering these types of questions outside the school environment.

Important source of data on literacy and numeracy

Household surveys are uniquely positioned to capture literacy and numeracy among children and youth (both those attending and not attending school), as well as adults, helping governments to effectively measure the impact of their efforts to increase literacy and numeracy skills.

More reliable information on child and household characteristics

Basic student demographic information, such as age and sex, and household characteristics, such as asset ownership and availability of reading materials at home, are often collected in school-

based surveys and assessments. However, when surveying children, and in particular younger children, such data collected at the school level may be unreliable. With household surveys, most child demographic data and household characteristic data are more accurate because they are collected directly from caregivers or (better yet) direct observation.

More reliable data on education of children with disabilities

In some parts of the world, a relatively large proportion of children with disabilities do not attend school. Children who are in school but have less visible or detectable impairments, such as mild to moderate visual or hearing impairments, frequently go unnoticed or are misunderstood. School or administrative records cannot be relied upon to provide accurate estimates of enrolment, attainment or learning proficiency rates for children with disabilities without a proper screening system. Caregiver

DID YOU KNOW?

“Universal Design is the design and composition of an environment so that it can be accessed, understood and used to the greatest extent possible by all people regardless of their age, size, ability or disability. An environment (or any building, product, or service in that environment) should be designed to meet the needs of all people who wish to use it.... universal design creates products, services and environments that meet peoples’ needs.” For student assessments this means designing assessments that can be used by all children.

Source: National Disability Authority (2014).

questions based on functioning, such as those developed by UNICEF and the [Washington Group](#) on Disability Statistics, can be used to identify children with disabilities and this information can then be used to report on attendance and attainment among these children (Washington Group on Disability Statistics, 2020).

With the inclusion of a foundational learning module, household surveys can also be used to assess reading and numeracy skills of children with functioning difficulties. It should be noted however, that few household surveys currently include assessments designed to accommodate children who have visual or hearing impairments or learning disabilities. However, in accordance

with the Universal Design principle of equitable use, MICS has included two features in its standard administration of the MICS to accommodate children with disabilities (National Disability Authority, 2014). First, learning assessments are not timed, making it unnecessary to provide extra time for children with reading or learning disabilities to complete the task. Second, large-print text is used for all materials that children are asked to read. This ensures that the standard version is accessible to more children, including those with mild or moderate visual impairments. Similarly, a version of the Annual Status of Education Report survey (ASER) designed to accommodate blind children has been piloted.

DID YOU KNOW?

The Intersecretariat Working Group on Household Surveys (ISWGHS) was created in 2015 “to foster improvement in the scope and quality of social and economic statistics as delivered through national, regional and international household survey programmes, including through increased coordination and cooperation across at all levels” (ISWGHS, 2020).

The Technical Cooperation Group on the Indicators for SDG 4 - Education 2030 (TCG) created a working group on household survey data in 2019 to “support the development of household survey-based indicators, maintain definitions of indicators calculated from survey data, contribute to the harmonization of survey data used by different organizations, and prepare guidelines for producers and users of survey data” (TCG, n.d.).

Cross-sectoral information and linkages

Unlike most school-based surveys and assessments or administrative data, most of the household surveys reviewed for this report go beyond education and collect cross-sectoral information. This cross-sectoral information allows researchers to link SDG 4 to the other SDGs, thus reinforcing the holistic approach to development that underlies the 17 SDGs. For example, many household surveys collect information on child health, including nutrition, anthropometry, water and sanitation, and disease prevention. Because child health is linked to student school performance, having this cross-sectoral information can help to identify health issues that are creating barriers towards achieving SDG 4. Other examples of relevant cross-sectoral information collected in household surveys include child labour, child discipline, exposure to violence and alcohol consumption of adults in the household. All this information is useful in guiding the development of policies and approaches designed to achieve the SDGs in a timely manner.

2.2 What sort of household survey data can be used for monitoring SDG 4?

As noted above, using household survey data for SDG indicator calculation has distinct advantages. However, not all household survey data are created in a similar manner. Surveys must meet some basic requirements for their data to be used in indicator calculations. First and foremost, the survey must produce high quality, reliable data. This means that questionnaires and assessments should have been reviewed, adapted and tested in each country before the survey is launched. Data collection teams must be thoroughly trained. Quality control measures must be established and implemented during the data collection, data entry and analysis phases of the survey. The sample, or the list of households selected to participate in the survey, must be selected randomly and together, the selected households must provide an accurate representation of the country as a whole. In order to measure whether all children are benefiting from a quality education, SDG 4 indicators require reporting for different groupings of people within the country. Therefore, household surveys must be designed to permit researchers to look at and compare different sub-groups of people (e.g., boys vs girls, wealthier vs poorer households, urban vs rural locations). More detailed information on conducting household surveys is provided in Chapter 3.

Table 2.1 lists major household surveys and household-based instruments that collect much of the information needed for SDG monitoring, although not always aligned with the age ranges specified in indicators for SDG 4. These surveys are examples of established programmes that can provide data for calculation of SDG indicators. For MICS, UNICEF has published a comprehensive manual that can be consulted to identify key SDG 4

and other indicators that can be monitored with MICS data (UNICEF, 2020a).

2.3 What are the sources of SDG 4 data?

There are four primary data sources used in calculating the SDG 4 indicators. These include household-based surveys and assessment data; census data; school-based surveys and assessment data; and the Education Management Information System (EMIS) or administrative data. Depending on the indicator, there are some distinct advantages to utilizing household-based survey data. The following paragraphs describe the broad data categories and indicate the preferable data source.

Proportion of the general population

For indicators related to the proportion of the population that is in school, has completed school, has dropped out of school, has met child development goals, or is experiencing bullying or violence at school, etc., **household survey** data often provide the most accurate measure or estimate. Because marginalized populations tend to have lower school enrolment rates, they tend to be under-represented in school-based data compared to household and census data.

Calculating these proportion indicators using household survey or census data ensures that all sub-populations, including the disabled, poor and displaced or nomadic populations, are reflected in these indicators. Going one step further, if survey samples are designed appropriately, the resulting data can be representative of each of the sub-populations of interest. This means not only that the national indicators will take these sub-populations into consideration, but that the indicators can be reported separately for each group. This is particularly important for monitoring equity in education over time.

Table 2.1. Multi-national household surveys

| Household survey | Full name | Description |
|------------------------------------|--|---|
| AES | Adult Education Survey | Measures adult participation in formal, non-formal and informal education in European countries. |
| ASER | Annual Status of Education Report | Annual household survey of "children's schooling status and basic learning levels". Children aged 5-16 are tested in basic reading and mathematics, advancing in task difficulty based on ability. Use for SDG monitoring depends on alignment with the global proficiency framework. |
| ITU | International Telecommunication Union's Measuring ICT Access and Use by Households and Individuals | Collects data on access to and use of ICTs by households and individuals through two questionnaires (one short and one long). |
| LSMS | Living Standards Measurement Study | A "household survey program housed within the Survey Unit of the World Bank's Development Data Group that provides technical assistance to national statistical offices in the design and implementation of multi-topic household surveys". |
| MICS | Multiple Indicator Cluster Survey | Survey that produces "internationally comparable data on women and children". |
| Mini-LAMP | Literacy Assessment Monitoring Programme | Measures the full range of adult literacy. |
| PIAAC | Programme for the International Assessment of Adult Competencies | Assesses adult proficiency levels in literacy, numeracy, problem solving in technology-rich environments. It also assesses core ICT skills. Participants are rated against a 5-point proficiency scale for literacy and numeracy and a 3-point scale for problem solving. |
| PISA-D⁴ | PISA (Programme for International Student Assessment) for Development | Assesses acquisition of key knowledge near the end of compulsory education. Offers definition at lower end of PISA scale. Includes assessment of out-of-school rates of 14- to 16-year-olds. |
| STEP | Skills Towards Employment and Productivity Measurement Program | Household and employer-based survey. Household survey measures literacy using the same literacy proficiency scale as PIAAC. In addition, asks respondents to self-rate socio-emotional skills and other work-related skills, including literacy and use of mathematics. |
| SWTS | School-to-Work Transition Survey | Household and employer-based survey designed to measure information on the transition from school to work. |
| Uwezo | Uwezo | Modelled after ASER to measure basic literacy and numeracy, this survey has been administered in sub-Saharan Africa. |
| Young Lives | Young Lives Survey | An international longitudinal study of childhood poverty over 15 years. |

4 PISA for Development. The instruments are in ongoing technical development. Currently 9 countries participate in the field trials and in-country data collection process. PISA-D should be incorporated into PISA starting in 2021.

| Organization | No. of countries | Frequency | Age of target population |
|---|------------------|--|---|
| Eurostat | 35 | Every 5 years (2007, 2011, 2016, 2022) | 25-64 years |
| ASER Centre | 14 | Annual since 2008 | 3-16 years |
| United Nations | 193 | Annual since 2004 | 3 or 5 years + (depending on country) |
| World Bank | 37 | Varies by country | All ages |
| UNICEF | 117 | Round 1 in 1993-98; Round 2 in 1999-2003; Round 3 in 2005-10; Round 4 in 2010-13; Round 5 in 2013-17; Round 6 in 2017-2020 | Household, Children 0-4 years (administered to caretaker), Children 5-17 years (administered to caretaker), Individual man or woman 15-49 years |
| UNESCO | Planned | Will vary by country | 15 years + |
| Organisation for Economic Co-operation and Development (OECD) | 40 | First cycle: Round 1 in 2011-12; Round 2 in 2014-15; Round 3 in 2017. Second cycle: Round 1 in 2021-2022. | 16-65 years |
| OECD | 9 | Every 3 years. First national reports released in December 2020. | 15 years |
| World Bank | 17 | Varies | 15-64 years |
| International Labour Organization (ILO) | 34 | Varies | 15-29 years |
| ASER Centre Twaweza | 3 | Annual | 5-16 years |
| Oxford Department of International Development (ODID) | 4 | Every 3-4 years | 1 year + (longitudinal/ cohort-based) |

Proportion of enrolled students

When governments wish to measure the proportion of currently enrolled students achieving minimum proficiency standards (as in Indicator 4.1.1), students' general understanding of certain subjects, or students receiving instruction in their mother tongue, **school-based student assessments** are typically used.⁵ Some household-based assessments, such as the learning modules in MICS, ASER, and Uwezo, provide measures of proficiency in literacy and numeracy for both students and children not attending school. Household-based assessment data, therefore, have the added benefit of providing proficiency estimates for out-of-school children. However, for SDG monitoring the assessments have to be aligned with the global definition of minimum proficiency level.⁶

National education policy

For indicators related to education policy, such as the number of years of free and compulsory pre-primary education (Indicator 4.2.5), **national policy and administrative data** should be used.

Education system statistics or costs

For indicators related to education statistics, such as the pupil-trained teacher ratio (Indicator 4.c.2), **national EMIS data** should be used. Teacher salaries (Indicator 4.c.5) are available from national labour statistics and per-student expenditures (Indicator 4.5.4) are available from countries' financial data.

5 In addition to nationally developed student assessments, SACMEQ, PISA, PIRLS, and TIMSS are examples of international student assessments.

6 For more information, refer to the website of the Global Alliance to Monitor Learning (gaml.uis.unesco.org).

2.4 Which SDG 4 indicators can be monitored with household survey data?

Table 2.2 lists the SDG 4 indicators that may be calculated using international household survey data. A complete list of SDG 4 indicators is provided in **Annex 1**. Table 2.2 indicates the domain, targets, indicator number and description, global vs thematic indicators, and recommended disaggregation of indicators. The table also lists examples of major international household surveys which currently include questions related to each indicator.

It should be noted that this is an illustrative and not an exhaustive list of available surveys. In addition, while there is agreement on the indicator list, some indicator definitions require further development or standardization (for example, Indicator 4.5.4). In some cases, such as Indicators 4.3.1 or 4.4.1, even when the indicators have been fully defined, data are not always readily available.

In order to easily identify the indicators that require additional development, global indicators have been classified according to their tier of development and availability of data. As no tier rating exists for the thematic indicators, the indicator table notes when additional indicator development is needed. All indicators are listed with their official names. Because household surveys typically collect information on school attendance instead of enrolment, indicators that refer to enrolment measure in fact attendance when calculated from household survey data.

This section provides abbreviated versions of the definition, purpose and calculation method for selected global and thematic indicators. Similar descriptions for all SDG 4 indicators can be

found in the *SDG 4 Data Digest: How to Produce and Use the Global and Thematic Education Indicators* (UIS, 2019). While the 2019 *Digest* included all SDG 4 indicators and data sources, the present report focuses on household survey data. The indicator-specific summaries in this section are therefore amended, where necessary, for example by referring to attendance instead of enrolment. Annex 2 provides selected example questions drawn from major international household surveys that can be used to collect data for the calculation of the indicators mentioned in this section.

DID YOU KNOW?

UNICEF (2019) developed the Foundational Learning Module, a new data collection tool that captures basic literacy and numeracy skills at grades 2 and 3 in order to monitor learning and quality of education. The module was developed for use in household surveys and is well suited to standardized instruments such as DHS and MICS that already focus on the well-being of children.

2.4.1 Primary and secondary education

Target 4.1

By 2030, ensure that all girls and boys complete free, equitable and quality primary and secondary education leading to relevant and effective learning outcomes

Indicator 4.1.1

Proportion of children and young people (a) in grades 2/3; (b) at the end of primary; and (c) at the end of lower secondary achieving at least a minimum proficiency level in (i) reading and (ii) mathematics, by sex

Definition

Percentage of children and young people in Grade 2 or 3 of primary education, at the end of primary education, and the end of lower secondary education achieving at least a minimum proficiency level in reading and mathematics.

Purpose

Governments, teachers and parents want to know whether their children are adequately prepared to be productive members of society, particularly in today's globalized labour market. Indicator 4.1.1 provides a way to compare student performance in subject matters necessary for lifelong learning. Proficiency data also shed light on where education policies, learning strategies or types of teaching may yield better results, providing a starting point for policy reforms.

Indicator calculation

The indicator is calculated as the percentage of children or young people at the relevant stage of education achieving or exceeding the pre-defined proficiency level in a given subject.

$$MPL_{n,s} = \frac{MP_{n,s}}{P_n}$$

Where:

$MPL_{n,s}$ = Proportion of children and young people at stage of education n achieving or exceeding the minimum proficiency level in subject s

Table 2.2. SDG 4 indicators that may be derived using household survey data

| Domain | Indicator number | Indicator description | Indicator type |
|--|------------------|--|----------------|
| Primary and secondary education Target 4.1: By 2030, ensure that all girls and boys complete free, equitable and quality primary and secondary education leading to relevant and effective learning outcomes | | | |
| Learning | 4.1.1 | Proportion of children and young people (a) in grades 2/3; (b) at the end of primary; and (c) at the end of lower secondary achieving at least a minimum proficiency level in (i) reading and (ii) mathematics, by sex | Global |
| Completion | 4.1.2 | Completion rate (primary education, lower secondary education, upper secondary education) | Global |
| Participation | 4.1.4 | Out-of-school rate (1 year before primary, primary education, lower secondary education, upper secondary education) | Thematic |
| | 4.1.5 | Percentage of children over-age for grade (primary education, lower secondary education) | Thematic |
| Early childhood Target 4.2: By 2030, ensure that all girls and boys have access to quality early childhood development, care and pre-primary education so that they are ready for primary education | | | |
| Readiness for primary school | 4.2.1 | Proportion of children aged 24 to 59 months who are developmentally on track in health, learning and psychosocial well-being, by sex | Global |
| Participation | 4.2.2 | Participation rate in organized learning (one year before the official primary entry age), by sex | Global |
| Readiness for primary school | 4.2.3 | Percentage of children under 5 years experiencing positive and stimulating home learning environments | Thematic |
| Participation | 4.2.4 | Gross early childhood education enrolment ratio in (a) pre-primary education and (b) early childhood educational development | Thematic |
| TVET and higher education Target 4.3: By 2030, ensure equal access for all women and men to affordable quality technical, vocational and tertiary education, including university | | | |
| Participation | 4.3.1 | Participation rate of youth and adults in formal and non-formal education and training in the previous 12 months, by sex | Global |
| | 4.3.2 | Gross enrolment ratio for tertiary education by sex | Thematic |
| | 4.3.3 | Participation rate in technical-vocational programmes (15- to 24-year-olds) by sex | Thematic |

| Tier | Requires further development | Major household surveys collecting needed data | Age | Sex | SES | Migrant status | Ethnicity | Disability | Location | Other |
|----------------------|------------------------------|--|-----|-----|-----|----------------|-----------|------------|----------|-------------------------|
| Tier I | | 4.1.1(a) ASER, MICS, Uwezo | ● | ● | ● | ● | ● | ● | ● | |
| Tier I (provisional) | | DHS, LSMS, MICS, PIAAC, STEP | ● | ● | ● | ● | ● | ● | ● | |
| | | ASER, DHS, LSMS, MICS, Uwezo | ● | ● | ● | ● | ● | ● | ● | E.g., child labour |
| | | ASER, DHS, LSMS, MICS, Uwezo | ● | ● | ● | ● | ● | ● | ● | |
| Tier II | | DHS, MICS | ● | ● | ● | ● | ● | ● | ● | By participation in ECE |
| Tier I | | ASER, DHS, LSMS, MICS, Uwezo, Young Lives | ● | ● | ● | ● | ● | ● | ● | |
| | | DHS, MICS | ● | ● | ● | ● | ● | ● | ● | By participation in ECE |
| | | ASER, DHS, MICS, Uwezo, Young Lives | ● | ● | ● | ● | ● | ● | ● | |
| Tier II | | AES, MICS, PIAAC, STEP, Young Lives | ● | ● | ● | ● | ● | ● | ● | |
| | | AES, DHS, MICS, PIAAC, STEP, Young Lives | ● | ● | ● | ● | ● | ● | ● | |
| | | AES, MICS, PIAAC, STEP, Young Lives | ● | ● | ● | ● | ● | ● | ● | |

| Domain | Indicator number | Indicator description | Indicator type |
|------------------------------|--|--|----------------|
| Skills for work | Target 4.4: By 2030, substantially increase the number of youth and adults who have relevant skills, including technical and vocational skills, for employment, decent jobs and entrepreneurship | | |
| Skills | 4.4.1 | Proportion of youth and adults with information and communications technology (ICT) skills, by type of skill | Global |
| | 4.4.3 | Youth/adult educational attainment rates by age group and level of education | Thematic |
| Equity | Target 4.5: By 2030, eliminate gender disparities in education and ensure equal access to all levels of education and vocational training for the vulnerable, including persons with disabilities, indigenous peoples and children in vulnerable situations | | |
| Policy | 4.5.1 | Parity indices (female/male, rural/urban, bottom/top wealth quintile and others such as disability status, indigenous peoples and conflict-affected, as data become available) for all education indicators on this list that can be disaggregated | Global |
| | 4.5.2 | Percentage of students in primary education who have their first or home language as language of instruction | Thematic |
| | 4.5.4 | Education expenditure per student by level of education and source of funding | Thematic |
| Literacy and numeracy | Target 4.6: By 2030, ensure that all youth and a substantial proportion of adults, both men and women, achieve literacy and numeracy | | |
| Skills | 4.6.1 | Proportion of population in a given age group achieving at least a fixed level of proficiency in functional (a) literacy and (b) numeracy skills, by sex | Global |
| | 4.6.2 | Youth/adult literacy rate | Thematic |
| Participation | 4.6.3 | Participation rate of illiterate youth/adults in literacy programmes | Thematic |
| School Environment | Target 4.a: Build and upgrade education facilities that are child, disability and gender sensitive and provide safe, non-violent, inclusive and effective learning environments for all | | |
| Environment | 4.a.2 | Percentage of students experiencing bullying in the last 12 months | Thematic |

Notes: (1) Tier classification as of August 2020. (2) SES = socio-economic status.

¹ Refinement of the indicator name approved by the Inter-agency and Expert Group on SDG Indicators (IAEG-SDGs) on 13 March and 2 April 2020. Final approval pending the 52nd session of the Statistical Commission in March 2021.

| Tier | Requires further development | Major household surveys collecting needed data | Age | Sex | SES | Migrant Status | Ethnicity | Disability | Location | Other |
|------------------------------|------------------------------|---|-----|-----|-----|----------------|-----------|------------|----------|---|
| Tier II | | National surveys | • | • | • | • | • | • | • | |
| | | DHS, Labour Force Surveys, LSMS, MICS, PIAAC, STEP, SWTS, Young Lives | • | • | • | • | • | • | • | Level of education |
| Tier I/II depending on index | | AES, ASER, DHS, LSMS, MICS, PIAAC, STEP, SWTS, Uwezo, Young Lives | • | • | • | • | • | • | • | |
| | | MICS | • | • | • | • | • | • | • | |
| | yes | LSMS | • | • | • | | | | • | |
| Tier II | | PIAAC, STEP | • | • | • | • | | | • | Type of skill |
| | | ASER, DHS, LSMS, MICS, STEP, Uwezo | • | • | • | • | • | • | • | Variety of other demographic characteristics |
| | | STEP, Young Lives | • | • | • | | | | • | |
| | | Young Lives Children Questionnaire | | • | | | | | | Level of education. Disaggregation by age and disability to be defined. |

P_n = the number of children and young people at stage of education n at any proficiency level in subject s

n = the stage of education that was assessed

s = the subject that was assessed (reading or mathematics)

Data considerations

Indicator 4.1.1 is calculated using school-based student assessments, either national government assessments or international and regional assessments such as PISA, TIMSS, PASEC, and SACMEQ. Learning assessment data from some household surveys can also be used to calculate the indicator if they are aligned with the global proficiency framework.

Indicator 4.1.2

Completion rate (primary education, lower secondary education, upper secondary education)

Definition

Percentage of a cohort of children or young people aged 3 to 5 years above the intended age for the last grade of each level of education who have completed that grade.

Purpose

The completion rate indicates how many persons in a given age group have completed the relevant level of education. By choosing an age group that is slightly older than the theoretical age for completing each level of education, the indicator measures how many children and adolescents enter school more or less on time and progress

through the education system without excessive delays.

Indicator calculation

The number of persons in the relevant age group who have completed the last grade of the given level of education is expressed as a percentage of the total population of the same age group.

$$CR_n = \frac{EAP_{n,AG(a+3t5)}}{P_{n,AG(a+3t5)}}$$

Where:

CR_n = completion rate for level of education n

$EAP_{n,AG(a+3t5)}$ = population aged 3 to 5 years above the official entrance age a into the last grade of level of education n who completed level n

$P_{n,AG(a+3t5)}$ = population aged 3 to 5 years above the official entrance age a into the last grade of level of education n

Data considerations

Almost all the household surveys reviewed for this report include questions about educational attainment (highest level and grade completed) by age. It is important to use data from surveys that cover the full age range considered for this indicator. If in a country the official age at which children complete primary school is 11 and the official age at which children complete upper secondary is 19, then data on attainment are needed for the age range 14 (3 years above the age of completion of primary graduation) to 24 years (5 years above the age of completion of upper secondary education). Surveys such as DHS and LSMS represent good examples as they include school attainment information for all

individuals in the household, and they cover the age range of interest for the relevant levels of education. Although some surveys have restricted age ranges – such as PIAAC (16 to 65 years), STEP (15 to 29 years) and SWTS (15 to 29 years) – they may be used if the relevant age group for an indicator is fully captured.

Indicator 4.1.4

Out-of-school rate (1 year before primary, primary education, lower secondary education, upper secondary education)

Definition

Proportion of children and young people in the official age range for the given level of education who are not enrolled in pre-primary, primary, secondary or higher levels of education.

Purpose

To identify the size of the population in the official age range for the given level of education who are not enrolled in (or attending) school, so that they can be better targeted and appropriate policies can be put in place to ensure they have access to education.

Indicator calculation

The number of students of the official age for the given level of education enrolled in (or attending) pre-primary, primary, secondary or higher levels of education is subtracted from the total population of the same age. The result is then expressed as a percentage of the total population in the corresponding age range.

$$OSR_n = \frac{P_n - \sum_{i=0}^8 E_{i,AGn}}{P_n}$$

Where:

OSR_n = out-of-school rate for children and young people of the official age for level of education n

P_n = population of the official age for level of education n

$E_{i,AGn}$ = enrolment or attendance in ISCED level i of children and young people of the official age for level of education n

Data considerations

Virtually all the household surveys reviewed ask about current participation in school. The disaggregation of this indicator by sex, location, socio-economic status and other characteristics is essential to identify the population groups that are excluded from schooling. After its August 2019 meeting, the TCG approved calculation of Indicator 4.1.4 also for children aged one year before the official age of entry into primary education.

Indicator 4.1.5

Percentage of children over-age for grade (primary education, lower secondary education)

Definition

Percentage of pupils in each level of education (primary and lower secondary general education) who are at least 2 years above the intended age for their grade.

Purpose

The indicator measures progress towards ensuring that all girls and boys complete a full cycle of quality primary and secondary education and achieve at least minimum levels of proficiency in reading and mathematics. Children may be over-age for a grade

because they started school late or because they repeated one or more grades.

Indicator calculation

The number of students across all grades in the given level of education who are two or more years older than the intended age for the given grade is expressed as a percentage of the total number of students in the given level of education. The intended age for a given grade is the age at which pupils would enter the grade if they had started school at the official primary entrance age, had studied full time and had progressed without repeating or skipping a grade.

$$POAG_n = \frac{\sum_{g=1}^{d_n} E_{n,g,AG,2+}}{E_n}$$

Where:

$POAG_n$ = percentage of children over-age for grade in level of education n

$E_{n,g,AG,2+}$ = number of children enrolled in or attending grade g of level of education n who are at least 2 years older than the intended age for that grade

E_n = total enrolment or attendance in level of education n (all grades combined)

d_n = duration (in years) of level of education n

n = 1 (primary) or 2 (lower secondary)

Data considerations

All surveys ask for the age of all household members in the sample, but do not always collect the date of birth. Most surveys also ask what grade students are attending, although data on current school attendance

are often limited to a certain age range, e.g. 5 to 24 years. Data from household surveys conducted late in the school year where ages are recorded at the enumeration date may result in overestimates for the indicator if the birth month is not known.

2.4.2 Early childhood

Target 4.2

By 2030, ensure that all girls and boys have access to quality early childhood development, care and pre-primary education so that they are ready for primary education

Indicator 4.2.1

Proportion of children aged 24-59 months who are developmentally on track in health, learning and psychosocial well-being, by sex⁷

Definition

The proportion of children aged 24-59 months who are developmentally on track in health, learning and psychosocial well-being.

Purpose

Early childhood development (ECD) sets the stage for life-long thriving. Investing in ECD is one of the most critical and cost-effective investments a country can make to improve adult health, education and productivity in order to build human capital and promote sustainable development. ECD is equity from the start and provides a good indication of national

⁷ Refinement of the indicator name approved by the Inter-agency and Expert Group on SDG Indicators (IAEG-SDGs) on 13 March and 2 April 2020. Final approval pending the 52nd session of the Statistical Commission in March 2021.

development. Efforts to improve ECD can bring about human, social and economic improvements for both individuals and societies. Indicator 4.2.1 is a broad measure of children's development and their preparedness to begin school.

Indicator calculation

The number of children aged 24 to 59 months who are developmentally on track in health, learning and psychosocial well-being is divided by the total number of children aged 24 to 59 months in the population and expressed as a percentage.

$$PCDT_{24t59} = \frac{CDT_{24t59}}{P_{24t59}}$$

Where:

$PCDT_{24t59}$ = percentage of children aged 24 to 59 months who are developmentally on track in health, learning and psychosocial well-being

CDT_{24t59} = number of children aged 24 to 59 months who are developmentally on track in health, learning and psychosocial well-being

P_{24t59} = population aged 24 to 59 months

Data considerations

The recommended measure for Indicator 4.2.1 is the Early Childhood Development Index 2030 (ECDI2030), a 20-item instrument to measure developmental outcomes among children aged 24 to 59 months that can be integrated into existing population-based surveys such as MICS.⁸ The methodology for the ECDI2030 was approved by the IAEG-SDGs in March 2019.

⁸ The ECDI2030 is described at <https://data.unicef.org/resources/early-childhood-development-index-2030-ecdi2030/>.

Until data collected with the ECDI2030 become available for enough countries for SDG reporting, a proxy indicator (the proportion of children aged 36-59 months who are developmentally on track in at least three of the following four domains: literacy-numeracy, physical, social-emotional and learning) is used for SDG reporting, when relevant. This proxy indicator, the MICS ECDI, a 10-item index of children's overall development status, has been used for global SDG reporting since 2015 but is not fully aligned with the definition and age group covered by the SDG indicator formulation.

Indicator 4.2.2

Participation rate in organized learning (one year before the official primary entry age), by sex

Definition

Percentage of children aged one year before the official primary entry age who participate in one or more organized learning programmes, including programmes which offer a combination of education and care. Participation in early childhood education and in primary education are both included.

Purpose

The indicator measures children's exposure to organized learning activities when they are aged one year before the official starting age of primary school.

Indicator calculation

The number of children in the relevant age group who participate in an organized learning programme is expressed as a percentage of the total population in the same age range.

$$PROL_{0t1,AG(a-1)} = \frac{E_{0t1,AG(a-1)}}{P_{AG(a-1)}}$$

Where:

$PROL_{0t1,AG(a-1)}$ = participation rate in organized learning one year before the official entry age a to primary education

$E_{0t1,AG(a-1)}$ = number of children enrolled in or attending early childhood or primary education (ISCED levels 0 and 1) who are aged one year below the official entry age a to primary education

$P_{AG(a-1)}$ = population aged one year below the official entry age a to primary education

Data considerations

Household surveys commonly ask questions about children's age and participation in schooling, with some, such as Uwezo and MICS, asking specifically about pre-school attendance. Participation in learning programmes in the early years is not full-time for many children, meaning that exposure to learning environments outside of the home will vary in intensity. The indicator measures the percentage of children who are exposed to organized learning but not the intensity or quality of the programme.

Indicator 4.2.3

Percentage of children under five years experiencing positive and stimulating home learning environments

Definition

Percentage of children aged 36 to 59 months who live in households where their mother, father or other adult household members have engaged with them in four or more of the following types of activities in the past

three days: reading or looking at picture books; telling stories; singing songs; taking children outside the home; playing; and naming, counting and/or drawing.

Purpose

The indicator aims to measure the learning environment and level of nurturing care of children at home to ensure that it promotes and does not harm children's development. Within the home, caregivers are tasked with establishing a safe, stimulating and nurturing environment and providing direction and guidance in daily life. Interactions with responsible caregivers who are sensitive and responsive to children's emerging abilities are central to social, emotional and cognitive development.

Indicator calculation

The indicator is calculated as the percentage of children aged 36 to 59 months participating in activities in the areas being measured.

$$PCPSH_{36t59} = \frac{CPSH_{36t59}}{P_{36t59}}$$

Where:

$PCPSH_{36t59}$ = percentage of children aged 36 to 59 months experiencing positive and stimulating home learning environments

$CPSH_{36t59}$ = number of children aged 36 to 59 months experiencing positive and stimulating home learning environments

P_{36t59} = population aged 36 to 59 months

Data considerations

Surveys or survey modules that focus on early childhood development commonly ask parents or caregivers questions about the types of

developmentally supportive activities they engage in with their young children. In some surveys, caregivers are also asked about the availability of materials such as books, toys and other objects in the home that can support learning. Questions on early stimulation and responsive care in the home that can be used to generate data on Indicator 4.2.3 are included as part of the standard ECD module in MICS and have also been collected in some countries through DHS.

Indicator 4.2.4

Gross early childhood education enrolment ratio in (a) pre-primary education and (b) early childhood educational development

Definition

Total enrolment (or attendance) in (a) pre-primary education (ISCED level 02) and (b) early childhood educational development (ISCED level 01) regardless of age, expressed as a percentage of the population of the official age for the respective level of education.

Purpose

The indicator measures the general level of participation in the two categories of early childhood education: pre-primary education and early childhood educational development. The values indicate the capacity of the education system to enrol children of early childhood education age.

Indicator calculation

The number of students enrolled in (or attending) the given category of early childhood education is expressed as a percentage of the population of the official age for the respective level of education.

$$GER_{0,c} = \frac{E_c}{P_{0,c}}$$

Where:

$GER_{0,c}$ = gross early childhood education enrolment ratio in category c

E_c = enrolment or attendance in early childhood education category c

$P_{0,c}$ = population of the official age for category c

c = early childhood education (ISCED level 0), early childhood educational development (ISCED level 01), or pre-primary education (ISCED level 02)

Data considerations

Data needed to calculate this indicator are available from household surveys that collect basic data on children. Household surveys typically ask questions about school attendance (as opposed to enrolment). The indicator can exceed 100% due to the inclusion of over-aged or under-aged pupils because of early or late entrance.

2.4.3 TVET and higher education

Target 4.3

By 2030, ensure equal access for all women and men to affordable quality technical, vocational and tertiary education, including university

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

Definition

Percentage of youth and adults in a given age range (e.g., 15 to 24 years, 25 to 64 years, etc.) participating in formal or non-formal education or training in a given time period (e.g., the last 12 months).

Purpose

The indicator shows the level of participation of youth and adults in education and training of all types.

Indicator calculation

The number of persons in selected age groups participating in formal or non-formal education or training is expressed as a percentage of the total population of the same age.

$$PR_{AG_i} = \frac{E_{AG_i}}{P_{AG_i}}$$

Where:

PR_{AG_i} = participation rate of the population in age group i in formal and non-formal education and training

E_{AG_i} = enrolment or attendance of the population in age group i in formal and non-formal education and training

P_{AG_i} = population in age group i

i = 15 to 24 years, 15 years and above, 25 to 64 years, etc.

Data considerations

Though data regarding formal education are readily available among the household surveys reviewed, questions related to non-formal education or vocational training are less common. The STEP

and Young Lives surveys are examples of surveys which ask respondents about on-the-job training. Labour force surveys also provide information on participation in education. The reference period for participation in education varies between surveys and is often less than 12 months, leading to underestimation of the indicator. The types of non-formal education covered by survey questions also varies, affecting comparability of data from different sources. To improve data availability and comparability, the TCG has developed a survey module that can be used to collect data for calculation of Indicator 4.3.1 (UIS, 2019).

Indicator 4.3.2

Gross enrolment ratio for tertiary education by sex

Definition

Total enrolment in tertiary education regardless of age, expressed as a percentage of the population in the 5-year age group immediately following upper secondary education.

Purpose

The indicator measures the general level of participation in tertiary education and indicates the capacity of the education system to enrol students of a particular age group.

Indicator calculation

The number of students enrolled in (or attending) tertiary education is expressed as a percentage of the 5-year age group immediately following upper secondary education.

$$GER_{5t8} = \frac{E_{5t8}}{P_{5t8,a}}$$

Where:

GER_{5t8} = gross enrolment ratio in tertiary education (ISCED levels 5, 6, 7 and 8)

E_{5t8} = enrolment or attendance in tertiary education (ISCED levels 5, 6, 7 and 8)

$P_{5t8,a}$ = population of the official age group a for tertiary education (ISCED levels 5, 6, 7 and 8)

The population of the official age for tertiary education is estimated to be the 5-year age group immediately following upper secondary education.

Data considerations

Many of the household surveys reviewed, including LSMS, MICS, PIAAC, and STEP, ask about household members' participation in education programmes. Ideally, the age range to be used would depend on the country's official age of secondary school completion. For example, in countries where the official entrance age to upper secondary education is 15 years and the duration is 3 years, all students attending tertiary education would be added up and compared to the 18- to 22-year-old population. However, questions on attendance are normally directed at persons aged 5 to 24 years and therefore exclude tertiary students over 24 years. If calculated from household survey data, this indicator may therefore underestimate participation in tertiary programmes.

Indicator 4.3.3

Participation rate in technical and vocational programmes (15- to 24-year-olds), by sex

Definition

Percentage of young people aged 15 to 24 years participating in technical or vocational education, either in formal education, work-based or other settings, on a given date or during a specified period.

Purpose

The indicator shows the level of participation of youth in technical and vocational education and training.

Indicator calculation

The number of young people aged 15 to 24 years participating in technical and vocational education at secondary, post-secondary or tertiary levels is expressed as a percentage of the population of the same age group.

$$PR_{V,15t24} = \frac{E_{V,15t24}}{P_{15t24}}$$

Where:

$PR_{V,15t24}$ = participation rate of young people aged 15 to 24 years in technical and vocational education and training

$E_{V,15t24}$ = enrolment or attendance in technical and vocational education and training of young people aged 15 to 24 years

P_{15t24} = population aged 15 to 24 years

Data considerations

Although all household survey questionnaires reviewed ask about current attendance or enrolment in formal education, technical and vocational education is not always available as a response option. Adding response options that distinguish general secondary education from technical and vocational education can address

this information gap. Technical and vocational education and training can be offered in a variety of settings including schools and universities, workplace environments and others. To improve data availability and comparability, the TCG has developed a survey module that can be used to collect data for calculation of Indicator 4.3.3 (UIS, 2019).

2.4.4 Skills for work

Target 4.4

By 2030, substantially increase the number of youth and adults who have relevant skills, including technical and vocational skills, for employment, decent jobs and entrepreneurship

Indicator 4.4.1

Proportion of youth and adults with information and communications technology (ICT) skills, by type of skill

Definition

Percentage of youth (aged 15 to 24 years) and adults (aged 15 years and above) that have undertaken certain ICT-related activities in the last three months.

Purpose

The lack of ICT skills is one of the key barriers keeping people from fully benefitting from the potential of ICT. Indicator 4.4.1 may be used to inform targeted policies to improve ICT skills, and thus contribute to an inclusive information society.

Indicator calculation

The indicator is calculated as the percentage of a given population who reported certain ICT use in the last three months in a survey, e.g. regarding the use of ICT skills in various subject areas or learning domains, the use of ICT skills inside or outside of school or the workplace, the minimum amount of time spent using ICT skills inside and outside of school or the workplace, and availability of internet access inside or outside of school or the workplace.

$$PICT_{a,s} = \frac{ICT_{a,s}}{P_a}$$

Where:

$PICT_{a,s}$ = percentage of people in age group a who have ICT skill s

$ICT_{a,s}$ = number of people in age group a who have ICT skill s

P_a = population in age group a

a = 15 to 24 years (youth), 15 years and older (adults)

s = type of ICT skill

Data considerations

Though not as common, some surveys or modules designed to measure adult and youth labour force participation and skills ask respondents about their ICT skills. The International Telecommunication Union (2014) has proposed questions for data collection on ICT skills in its *Manual for Measuring ICT Access and Use by Households and Individuals*. One of the main challenges of measurement for this indicator is that it is based only on information reported by survey

respondents, including the types of activities they have undertaken, but not their proficiency level.

Indicator 4.4.3

Youth/adult educational attainment rates by age group and level of education

Definition

Distribution of the population according to the highest level of education attained or completed. The indicator is usually presented for the population 25 years or older, but can also be calculated for youth (15 to 24 years). The indicator measures for each level of education the percentage of the population who completed at least that level of education. Education levels are defined according to the International Standard Classification of Education (ISCED).

Purpose

To show the educational composition of the population. The indicator reflects the structure and performance of the education system and informs policies aimed at increasing educational opportunity. Educational attainment is also a measure of the human capital of individuals and entire nations.

Indicator calculation

The number of persons who attained a certain level of education (measured by the highest level completed) is expressed as a percentage of the total population of the same age.

$$EA_{AGi,n} = \frac{EAP_{AGi,n}}{P_{AGi}}$$

Where:

$EA_{AGi,n}$ = percentage of population in age group i that attained level of education n

$EAP_{AGi,n}$ = population in age group i that attained level of education n

P_{AGi} = population in age group i

Data considerations

As with questions about school or education participation, school attainment questions are asked in virtually all household surveys (see Table 2.2). Labour force surveys are the most common source of data on educational attainment. Population censuses and international sample surveys, such as DHS, LSMS or MICS, are another source.

2.4.5 Equity

Target 4.5

By 2030, eliminate gender disparities in education and ensure equal access to all levels of education and vocational training for the vulnerable, including persons with disabilities, indigenous peoples and children in vulnerable situations

Indicator 4.5.1

Parity indices (female/male, rural/urban, bottom/top wealth quintile and others such as disability status, indigenous peoples and conflict-affected, as data become available) for all education indicators on this list that can be disaggregated

Definition

Parity indices require data for the specific groups of interest. They represent the ratio of the indicator value for one group to that of the other. Typically, the likely more disadvantaged group is the numerator. A value of exactly 1 indicates parity between the two groups.

Purpose

To measure the general level of disparity between two sub-populations of interest with regard to a given indicator.

Indicator calculation

The indicator value of the likely more disadvantaged group is divided by the indicator value of the other sub-population of interest.

$$DPI = \frac{[Ind_i]_d}{[Ind_i]_a}$$

Where:

DPI = Dimension (sex, wealth, location, etc.) Parity Index

Ind_i = indicator *i* for which an equity measure is needed.

d = likely disadvantaged group (e.g., female, poorest, rural, etc.)

a = likely advantaged group (e.g., male, richest, urban, etc.)

For all SDG indicators, the UIS disseminates adjusted parity indices, which are symmetrical around 1 and have a range between 0 and 2. The further from 1 the parity index lies, the greater the disparity between the two groups compared. The adjusted parity index is calculated as follows.

$$DPIA = \begin{cases} \frac{[Ind_i]_d}{[Ind_i]_a} & \text{if value for usually disadvantaged group} \leq \text{value for usually advantaged group} \\ 2 - \frac{1}{\frac{[Ind_i]_d}{[Ind_i]_a}} & \text{if value for usually disadvantaged group} > \text{value for usually advantaged group} \end{cases}$$

Where:

DPIA = Dimension (sex, wealth, location, etc.) Parity Index, adjusted

Ind_i, *d*, and *a* are defined as for the unadjusted parity index

Data considerations

This indicator is calculated by disaggregating the data according to equity dimensions (sex, wealth, location) and comparing the indicators for two groups. This comparison is done by dividing the indicator for a traditionally disadvantaged group (e.g., the poor) by the traditionally advantaged group (e.g., the wealthy). The parity indices are calculated from the same data as the underlying indicators. No additional data are needed. The original survey design should include plans to collect data from sub-populations to enable comparisons of progress toward achieving SDG 4 among different populations.

Indicator 4.5.2

Percentage of students in primary education who have their first or home language as language of instruction

Definition

Percentage of students in primary education whose first or home language is one of their languages of instruction.

Purpose

To measure the extent to which children in primary education are learning in a language with which they are familiar and in which they are likely to be proficient. Language is key to communication and understanding in the classroom and education in the mother tongue has been linked to improved learning outcomes.

Indicator calculation

The number of students in primary education whose first or home language is one of their languages of instruction is expressed as a percentage of the total number of primary students.

$$PELA_1 = \frac{EF_1}{E_1}$$

Where:

$PELA_1$ = percentage of students in primary education (ISCED level 1) whose first or home language is one of the languages of instruction

EF_1 = number of students in primary education (ISCED level 1) whose first or home language is one of the languages of instruction

E_1 = number of students in primary education (ISCED level 1)

Data considerations

The primary limitation of using international assessment data for the indicator is that the language of instruction is not readily available. Instead, the language of the test is reported, although this generally matches the official language of instruction. Household surveys that have a strong education focus – such as ASER,

Uwezo, MICS, and Young Lives – ask questions about the principal home language, as well as the primary language of instruction at school.

Indicator 4.5.4

Education expenditure per student by level of education and source of funding

Definition

Total initial funding from government, private and international sources for a given level of education per student enrolled at that level in a given year. The results are expressed (i) as a percentage of GDP per capita and (ii) in PPP\$ (constant). At the time of publication, this indicator was in need of further methodological development.

Purpose

The indicator reflects the amount of resources invested on average in a single student, going beyond government sources so that total expenditure per student can be calculated. Expenditure information is critical for assessing the direct cost of education to households. Expressing the indicator either as percentage of GDP per capita or in PPP\$ allows for comparisons between countries, and using constant values for time series is necessary to evaluate how real resources (eliminating the effects of inflation) are evolving over time.

Indicator calculation

Total initial funding (including transfers paid but excluding transfers received) from government (central, regional, local), private (households and other private) or international sources for a given level of education (pre-primary, primary, lower secondary, upper secondary, post-secondary non-tertiary, and tertiary education) is divided by the number of

students enrolled at that level in a given year. The result is divided by (i) GDP per capita and (ii) the PPP\$ conversion factor. The indicator can be calculated for individual sources of funding, for example only private expenditure, or for all sources combined.

$$XGDPpc_{n,s} = \frac{X_{n,s}}{E_n \times GDPpc}$$

$$XPPPconst_{n,s} = \frac{X_{n,s}}{E_n \times PPPconst}$$

Where:

$XGDPpc_{n,s}$ = expenditure per student in level n of education from source s of funding as a percentage of GDP per capita

$XPPPconst_{n,s}$ = expenditure per student in level n of education from source s of funding in constant PPP\$

$X_{n,s}$ = expenditure on level n of education from source s of funding

E_n = enrolment in level n of education

$GDPpc$ = GDP per capita

$PPPconst$ = PPP constant \$ conversion factor

Data considerations

Household expenditure on education, for calculation of the private component of the indicator, is collected through a wide variety of surveys, including LSMS and household budget surveys. These surveys differ in the amount and type of information they collect and spending data are not always comparable. To support

the collection of high-quality data, the UIS and the World Bank (2018) published a guidebook on designing and implementing household surveys that include measurement of expenditure on education. The guidebook provides a standardized set of guidelines to (1) foster the harmonization of education-expenditure data in household surveys, (2) ensure that the data collected are more easily comparable across surveys and countries, (3) are sufficiently comprehensive, and (4) acknowledge country-specific needs.

2.4.6 Literacy and numeracy

Target 4.6

By 2030, ensure that all youth and a substantial proportion of adults, both men and women, achieve literacy and numeracy

Indicator 4.6.1

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

Definition

Percentage of youth (aged 15 to 24 years) and adults (aged 15 years and above) who have achieved or exceeded a given level of proficiency in (a) literacy and (b) numeracy.

Purpose

The indicator is a direct measure of the skill levels of youth and adults in the areas of literacy and numeracy.

Indicator calculation

The number of youth and adults who have achieved at least a fixed level of proficiency in functional literacy and numeracy in a population-based skills survey is expressed as a percentage of the total number of youth and adults in the same age group.

$$FPL_{a,d} = \frac{FP_{a,d}}{P_{a,d}}$$

Where:

$FPL_{a,d}$ = proportion of population in age group a who have achieved at least a fixed level of proficiency in domain d in a population-based skills survey

$FP_{a,d}$ = number of persons in age group a who have achieved at least a fixed level of proficiency in domain d in a population-based skills survey

$P_{a,d}$ = total number of persons in age group a who participated in the skills survey of domain d

a = 15 to 24 years (youth), 15 years and older (adults)

d = domain which was assessed (functional literacy or numeracy)

Data considerations

This indicator is collected via skill assessment surveys of the adult population, e.g. the Programme for the International Assessment of Adult Competencies (PIAAC), the Skills Towards Employment and Productivity (STEP) programme, and national adult literacy and numeracy surveys. Only PIAAC measures both skills. PIAAC and STEP surveys can be put on a common scale as they are linked psychometrically by design.

Indicator 4.6.2

Youth/adult literacy rate

Definition

Percentage of youth (aged 15 to 24 years) and adults (aged 15 years and older) who have the ability to both read and write, with understanding, a short, simple statement about everyday life.

Purpose

The literacy rate indicates the proportion of a given population that has a minimum level of reading and writing skills. It shows the accumulated achievement of primary education and literacy programmes in imparting basic literacy skills to the population. Literacy represents a potential for further intellectual growth and contribution to economic, social and cultural development of society.

Indicator calculation

The literacy rate is calculated by dividing the number of literate persons by the total number of persons in the same age group, excluding persons with unknown literacy status.

$$LR_{AG_i} = \frac{LP_{AG_i}}{P_{AG_i}}$$

Where:

LR_{AG_i} = literacy rate of population in age group i

LP_{AG_i} = literate population in age group i

P_{AG_i} = population in age group i , excluding persons with unknown literacy status

i = 15 to 24 years (youth), 15 years and older (adults)

Data considerations

The interpretation of the indicator is strongly linked to the method of data collection. Whereas Indicator 4.6.1 measures proficiency levels in literacy and numeracy, and ultimately identifies the proportion of the population achieving functional literacy and numeracy, Indicator 4.6.2 merely identifies youth and adults as literate or illiterate. Questions used to collect the data needed to calculate Indicator 4.6.2 are frequently limited, as in the case of LSMS, to asking participants if they are able to read and write. Other surveys, such as the DHS and MICS individual man and individual woman questionnaires, ask respondents to read a simple sentence. Fewer surveys ask about ability to do arithmetic problems; as an example, the Egypt Labour Force Survey asks if respondents are able to solve simple mathematics problems. The STEP survey Module 5 asks respondents to list the type of mathematics they use at work and outside of work. In countries where nearly all individuals have completed basic education, the literacy rate provides limited information on the variance of literacy skills in the population.

Indicator 4.6.3

Participation rate of illiterate youth/adults in literacy programmes

Definition

Number of youth (aged 15 to 24 years) and adults (aged 15 years and older) participating in literacy programmes, expressed as a percentage of the illiterate population of the same age.

Purpose

To show the level of participation of illiterate youth and adults in literacy programmes.

Indicator calculation

The indicator is calculated by dividing the number of persons in the relevant age group participating in literacy programmes by the illiterate population of the same age.

$$PRLP_a = \frac{PartLit_a}{IllitPop_a}$$

Where:

$PRLP_a$ = participation rate of the illiterate population of age group a in literacy programmes

$PartLit_a$ = participants in literacy programmes of age group a

$IllitPop_a$ = illiterate population of age group a

a = 15 to 24 years (youth), 15 years and older (adults)

Data considerations

Practices for identifying illiterate persons vary depending on the data source. Indicator 4.6.3 must therefore be analysed with caution and together with other indicators reflecting the literacy situation of the population. Some surveys that have a labour force skills and/or education focus (such as STEP Module 5) ask respondents if they have ever attended an adult literacy programme. To improve data availability and comparability, the TCG has developed a survey module that can be used to collect data for calculation of Indicator 4.6.3 (UIS, 2019).

2.4.7 School environment

Indicator 4.a.2

Percentage of students experiencing bullying in the last 12 months

Definition

Percentage of students who, during a school year, were physically attacked, participated in a physical fight, experienced bullying, corporal punishment, harassment, sexual discrimination or abuse. Bullying includes verbal and relational abuse.

Purpose

This indicator provides information on the extent of self-reported violence and bullying in schools. Bullying has been linked to reduced academic and health outcomes for victims and for perpetrators.

Indicator calculation

The number of students in a given level of education reporting that they have experienced any of the different types of violence or abuse in the past year is expressed as a percentage of all students at the same level of education.

$$PEB_n = \frac{EB_n}{E_n}$$

Where:

PEB_n = percentage of students in level n of education experiencing bullying in the last 12 months

EB_n = students in level n of education experiencing bullying in the last 12 months

E_n = total enrolment or attendance in level n of education

Data considerations

Data for Indicator 4.a.2 mainly come from two different school based-surveys: the Global School-based Student Health Survey (GSHS) and the Health Behaviour in School-aged Children (HBSC) survey. During an individually and orally administered interview, children may feel more comfortable talking about bullying, fighting or corporal punishment when they are at home rather than at school and potentially in the presence of the bully or perpetrator of the abuse. It can be challenging to find a quiet and private location to carry out school-based interviews. The Young Lives survey directly asks children about corporal punishment from teachers. The bullying questions, on the other hand, are indirect. Students are asked to list reasons for not being in school and bullying as well as teacher and principal abuse are response options. Direct questions would be preferable because children who attend school and are victims of bullying are not captured by questions addressed only to children not in school.

This concludes the discussion of which SDG 4 indicators can be monitored using data collected via household surveys. The next section discusses how household survey data can be integrated with and complement data collected by other means, in order to provide policymakers with an even more comprehensive picture of the status of education in a given country.

2.5 How can household survey data be integrated with and complement other data?

As noted earlier, there are distinct advantages to using household survey data. Data such as student and household characteristics may be more reliably

collected via household vs school-based surveys or assessments. This is particularly true when assessing younger children. Sensitive information about bullying and corporal punishment may be more safely collected at the household level. Unless specific screening is conducted at school or accurate administrative records are available, disability prevalence information is also more accurately collected at the household level through caretaker interviews using questionnaires such as those recommended by the Washington Group on Disability Statistics.

With growing interest in issues such as social inclusion, there has been a commensurate growth in the demand for data that provide policymakers with a granular view of the current situation, as well as changing trends over time. Policymakers also want to see how certain sub-populations are impacted by policy decisions (Al and Bakker, 2000). In order to provide the information needed to meet this demand, researchers have started integrating household survey data with administrative data. By integrating household and school-level data, researchers can link child and household characteristics with school characteristics (such as class size, facilities, teacher preparation and teaching practices) and student performance. Having a more complete picture of household, child and school characteristics associated with school access and performance can provide invaluable insights into the policy reforms needed to ensure that all children are learning well. One example of data integration comes from Young Lives household survey data. By linking Young Lives data from Ethiopia, India, Peru and Viet Nam with TIMSS results from these countries, researchers were able to explore how household characteristics and school efficiency rates impacted children's performance gaps in learning assessments. They

found that differences in student performance were largely due to differences in school system productivity (Singh, 2014).

Another example comes from some of the People's Action for Learning (PAL) Network surveys. Both ASER and Uwezo, which are citizen-led assessments, include a brief school observation of the major school in the village or town being assessed. When children are assessed during the household survey, they are asked which school they attend. If this school matches the observed school, the assessor indicates this on the child's form to permit future linkage to the school data. The school observation instrument collects data on multiple features, including teaching materials, school infrastructure, student enrolment, number of teachers employed in the school, student-teacher ratios, and student and teacher attendance on the day of the observation. By linking the ASER household data with school observation data, researchers were able to link student literacy and numeracy proficiency with these school factors and student and home characteristics. One ASER study conducted in 2010 found that student and teacher attendance rates, presence of a library at school, parental education levels, and availability of reading materials at home were all significantly linked to student performance in schools in India. Other school infrastructure, and even pupil-teacher ratios, were not found to be significantly correlated (Wadhwa, 2010). Though not explored in the 2010 study, when the sample design permits, researchers could also measure equity by comparing school infrastructure, student-teacher ratios, and attendance rates with the characteristics (socio-economic status, home language, ethnicity, or disability status) of the predominant student group at the school, village or district.

In addition to being linked or integrated with administrative data, household survey data can also be used to complement other existing data. For example, if a country already routinely conducts pre-primary school-based assessments such as the Measuring Early Learning Quality and Outcomes (MELQO) project in a nationally representative sample of schools, a household survey could be used to estimate the proportion of children who are not attending school, and more specifically, which sub-populations are lagging in pre-primary school attendance and why. This can help to answer questions such as: Are direct or indirect costs of schooling too great? Are schools too far from the home? Do parents have security concerns? Do parents not see the value in schooling due to cultural beliefs or are local schools seen as lacking? Are children with disabilities not attending school because schools are unable to accommodate them or are families not sending them due to cultural norms and/or concerns about bullying at school? Having these insights can help policymakers and programme planners better understand barriers that are limiting progress in achieving SDG 4.

Household surveys such as the DHS routinely record GPS coordinates of each household they visit, making it possible to integrate the survey data with GIS data. Findings can then be mapped

and integrated with local infrastructure and school location information. This type of visual information helps planners to more easily identify and target areas where support is most needed.

Prior planning is essential to ensure that integration of household and administrative or school-based data will be possible. For example, parents could be presented with a list of local schools and would be asked to indicate which school their children attend. Then, the corresponding school's EMIS code could be embedded in the household datasets, permitting its integration with school-based data. Data from household surveys such as MICS could also be linked at the regional or district level, depending on the sample design. The integration at this more aggregate level will be simpler and require less advanced planning than linking individual households to individual schools. Another consideration to keep in mind is that respondents will need to provide consent at the time of the survey to having their responses linked to other data in the future. Provisions would also have to be made to ensure respondent anonymity within public use survey data files, as described in Chapter 3.

After this overview of the use of household survey data for SDG monitoring, the next chapter explains how household surveys can be implemented.

3. Implementing household surveys to monitor SDG 4

3.1 Introduction

As discussed in the preceding chapter, monitoring of indicators — measures that show the state or condition of achieving SDG 4 — is essential to ensure continuing progress in achieving inclusive and equitable quality education.

Chapter 2 presented the indicators for SDG 4 and their sources of data, including information from household surveys. Chapter 3 provides an overview of household surveys, briefly describing the major decisions affecting them and their key features. It is intended for government officials, stakeholders and others interested in a concise summary of the operations of household surveys so that they are successfully planned and implemented and in the end produce valid, reliable and useful data.⁹

National Statistics Offices (NSOs) typically have the mandate and necessary expertise for implementation of household surveys. They will not only be familiar with the recommendations in this chapter but can also apply them to the national context. NSOs should therefore always be involved when a nationally representative household survey is planned.

The sections that follow first discuss the resources necessary to conduct a household survey, then

⁹ Though household survey and census data are both collected at the household level, this document, when discussing household-based surveys, refers to surveys where data are collected from a *sample* of households. Census data are collected from *all* households within a geographic area (for example, a state, province or country).

the procedures for developing a questionnaire and tasks to perform, as well as preparation for collecting data. These are followed by sections on collecting data, analysing data and preparing reports, and dissemination of findings. The final section of the chapter summarizes recent developments in the field of data collection in response to the global COVID-19 pandemic. The scope of survey research is broad and cannot possibly be covered in detail in this chapter. Additional resources for further information are listed in Annex 3.

Throughout this chapter, the material focuses on survey design and implementation that will result in valid, reliable data suitable for calculating the SDG 4 indicators of interest. Doing so requires conscientious attention to avoid two types of what is termed a “survey error”, the difference between the “true” parameter for the entire population, and that estimated from the portion sampled.

1. **Sampling error** is the error that results from taking a sample rather than measuring the whole population. Due to natural variability between samples and the total population, all surveys can be expected to have some degree of sampling error. Sampling errors can be reduced by developing a good sampling design based on a probability sample, a larger sample size, and appropriate stratification.

2. **Non-sampling errors** are any errors that cannot be attributed to sample-to-sample variability. Non-sampling errors can arise from many sources, such as inaccurate question wording, a low-quality sampling frame, non-response from households that decline to participate, interviewer non-compliance with survey protocols, patterns of non-response to particular questions, problems during data editing and processing, and more. Non-sampling errors can be reduced by using effective techniques and practices that have emerged from the science of survey research.

3.2 Resources: What does it take to conduct a household survey?

Undertaking a nationally representative household survey requires political support, technical expertise, financial investment and participation from stakeholders. Being aware of potential political, financial, technical and logistical challenges ahead of time can mitigate their impact or avoid them entirely.

Ensuring effective oversight

It is recommended to form a country-level steering committee to provide general oversight and accountability. This buy-in will be important for validating both the approach and the resulting findings. For a household survey that is focused on SDG 4, the group should be made up of representatives from the ministry of education, relevant officers from the national statistical office (NSO) and from the national learning assessment council and the funding institution(s), and relevant researchers. Depending on the scope of the survey, others from the local education sector (private or non-

formal education) may also be good candidates for the steering committee.

This committee will collectively decide on key matters, such as which indicators, beyond the global and thematic SDG indicators, to prioritize; review the local adaptation of survey questions; and advise on disseminating the results. Having a dedicated steering committee from the beginning that is kept informed of progress as well as setbacks, can help to smooth the path by ensuring that interests from across the education and research sectors are represented.

Obtaining and sustaining both political and financial support

It may be challenging to persuade decision-makers of the importance and value of a household survey in the production of education indicators. With regard to using a household survey to measure progress toward SDG 4 specifically, some key individuals whose political or financial support is critical may question why existing census, administrative, or school-based survey data are not sufficient for calculating SDG 4 indicators. They may point to existing surveys and data sources that should be “good enough” for the job, supplying all or some of the information needed. Modifications to future waves of existing surveys, if possible, may be preferable to the implementation of a new survey. More in-depth information can be found in the [UIS Sustainable Development Data Digest 2016](#), which describes findings from a global survey of data availability for SDG 4 (UIS, 2016). For more recent information on data availability, refer to [Figure 1.1](#) in Chapter 1 of the present *Digest*.

When preparing to make a case to government stakeholders, financial sponsors, or both, for conducting a household survey or adding modules

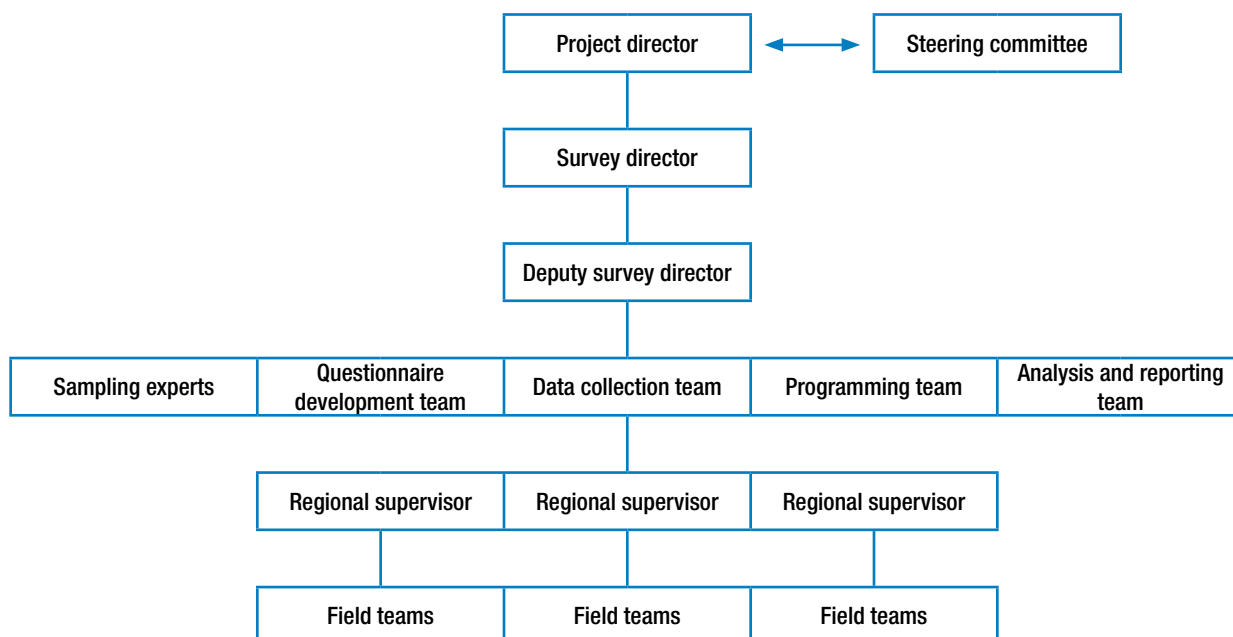
Key resources for conducting a household survey

- [International Household Survey Network](#)
- [Intersecretariat Working Group on Household Surveys](#)
- [Household sample surveys in developing and transition countries](#)
- [Designing household survey samples: practical guidelines](#)

specific to SDG 4, planners should be thoroughly familiar with extant datasets containing potentially relevant data. It is equally important to have thorough knowledge of the methodology used to collect those data to ascertain whether they are representative, of high quality and unbiased. Knowing which SDG 4 indicators can and cannot be calculated from these data will make the request specific and tangible.

To help secure support for the household survey, the project director – the primary point of contact between the project team and the steering committee (**Figure 3.1**) – should have a comprehensive understanding of the entire process. The project team should prepare a detailed timeline of activities, indicating who is responsible for what, and what the outcome or product of each stage of the process will be. In addition, the team should

Figure 3.1. Sample project organization chart



prepare a detailed budget that covers all technical support before, during and after fieldwork, instrument development activities, fieldwork training, travel, data collection labour and dissemination events. If total funding cannot be made available in the beginning, it is necessary to clearly indicate key milestones during the overall process where tranche payments will be necessary to continue survey activities.

Political support that is initially secured for the household survey may waver if survey results reveal a reality that is different from what was previously assumed by those in government. Unexpected results could indicate that some education policy planning may have been based on faulty evidence, or no evidence, and that resources may have been invested inefficiently. One of the purposes of a good household survey is to provide better evidence for policy planning. Maintaining integrity, transparency and rigour throughout the process will help provide assurances that the survey data are of high quality and validity. By maintaining ongoing communication with key stakeholders, the project director can help avoid any unpleasant surprises, so interim briefings should be scheduled, or interim findings should be distributed.

Maintaining technical standards

If time or funding is tight, it can be challenging to maintain high standards in the technical aspects of survey development and implementation. To minimize technical challenges, planners can take full advantage of existing household survey instruments, such as those described in [Table 1.1](#), and utilize available expertise. Some survey teams have done much of the heavy lifting involved in planning and implementing a household survey, such as preparing training materials, developing interviewer manuals, translating questions and creating codebooks for use during data analysis. In other cases, planners may need to consult experts

in other organizations (perhaps as an in-kind contribution) or bring in outside experts.

Conduct with in-house government staff or outsource to a contractor?

An early decision will need to determine whether the household survey is conducted by a particular government agency or whether it is outsourced to a private contractor. Often, the decision spreads responsibility across the two. One important advantage of keeping the work in-house is cost because labour hours of skilled staff can be an in-kind contribution to the survey – but that very advantage can be lost when staff must fulfil their normal job duties and are unable to devote sufficient attention to the work. An advantage of outsourcing is that contractors will commit to having sufficient personnel to conduct the work. If outsourcing to a contractor, it is advisable for the governance and planning team to develop a request for proposals, then solicit bids from multiple vendors. Their submissions can be assessed according to pre-specified criteria that reflect the planners' priorities, such as experience, communication and partnership strategies, availability of qualified personnel and equipment, technical approach and cost. If a survey is outsourced, a steering committee with government representatives should have a supervisory role throughout the process, so that the results can be endorsed by the government.

Personnel

Although staffing details will vary across the scope and methods used for household surveys, the types of personnel likely to be needed are presented in [Figure 3.1](#), an organization chart for a stand-alone survey to be conducted in person – which is the method most common among the large international surveys that are typically used to calculate SDG indicators. (If only a few questions

need to be asked in a household survey to monitor SDG 4, they can probably be inserted into other existing surveys and the number of personnel reduced.) Telephone, web or mail surveys would have similar structures.

The staff's primary responsibilities are as follows:

- The project director is typically a high-ranking agency official who interacts with members of the governance and planning groups, monitors the survey's progress, and reports to stakeholders and funders. The project director tends not to be involved with day-to-day operations but is accountable for decisions and expenditures.
- The survey director should have at least 3 to 5 years of experience conducting household surveys and be aware of the many decisions and operational features that the work will entail. The survey director is responsible for the quality and integrity of the work, the schedule and the performance of individuals' leading tasks. The survey director is involved with all aspects of the survey's design, including decisions about the mode of administration, sampling, questionnaire design, training, field operations and computing and leads the preparation of the survey's reports and datasets.
- A deputy survey director works alongside the survey director and is involved in the same aspects of the project. The deputy manages the project when the survey director is ill or otherwise unable to work.
- The survey has several teams responsible for specialty work to be performed: sampling, questionnaire development, data collection,

computer programming, and analysis and reporting. These teams are led by experienced task leaders who have demonstrated proficiency with the requisite skills. Because the work of each team has a bearing on the work of other teams, their activities and decisions must be well coordinated.

- The data collection team probably has the largest staff. Working under the direction of the data collection task leader are regional supervisors, with their number depending on the geographic scope of the survey. Regional supervisors manage field teams, which typically consist of a supervisor, 3 to 5 interviewers (or enumerators), and, for rural or remote areas, a driver and the appropriate logistics.

Costs

Accurately estimating the costs of a household survey depends on several interrelated decisions, plus variable factors.

Decisions affecting costs

1. Will the survey stand alone or be embedded as modules within an existing survey?
The former costs more to develop and implement; the latter costs substantially less. The former offers control over survey design decisions; the latter approach generally means little or no control over the survey design.
2. How will the questionnaire be administered?
In-person, by phone, web-based, or by mail? In-person may be the only feasible mode; it is also the most expensive.
3. How much professional labour will be available as in-kind contributions from

government agencies or universities? Substantial amounts can drop the cost, but assurances should be obtained that staff will be relieved of their normal duties so that they can tend to the household survey.

4. Who is funding the survey? International surveys sponsored by major international organizations and development agencies (UN agencies, USAID, DFID, OECD and similar organizations) may have high-quality design requirements that require considerable investment. The organizations may provide substantial funding or technical resources to achieve high-quality data. National surveys may be less richly endowed.

Variable factors affecting costs

1. **Sample size:** Larger samples produce more robust estimates, but they cost more than smaller samples. Cluster sampling (selecting according to geographic location) can help reduce costs, but it introduces a disadvantage because clusters have relatively homogeneous groups and thus risk being non-representative of the total population.
2. **Use of existing materials and resources:** If questions or complete questionnaires have been developed, cognitively tested and translated, costs can be lower. Similarly, if field personnel have recently completed a similar survey, costs can be lower because successful interviewers can be hired and training can focus mostly on the new questionnaire and spend less time on general interviewing practices.
3. **Wages:** Labour costs can vary widely from one country to the next and also within

country (e.g., they may be higher for urban than rural residents).

4. **Geography:** Costs will be higher for countries that are large and collect data from people living in remote areas.
5. **Expertise:** Some countries may have sufficient technical expertise among their personnel for a sophisticated household survey operation, whereas others may need to hire international experts.

It is not easy to get good cost estimates from previous household surveys, both because the interplay of design decisions results in wide ranges and because funders tend to want to keep cost information confidential. One source compares the costs of surveys whose data in the aggregate can be used to monitor all 17 SDGs. The analysis shows a per survey cost that ranges from about \$450,000 to \$1,700,000 ([Table 3.1](#)).

Cost information from other national household surveys – including those sponsored by commercial enterprises – confirms the information in [Table 3.1](#), which shows that the majority of household survey costs are incurred for data collection (presented as “operations” in the table). These other surveys are often smaller with a sample size of about 2,000 completed interviews and more modestly funded than cross-national efforts, but their costs are relevant. Recent data collection costs from these other national surveys conducted in more than ten countries totalled about \$25-35 per completed interview in low-income countries and about \$60-75 per completed interview in middle-income countries. These costs *do not* include professional labour for questionnaire development, sampling, analysis, reporting and dissemination.

Table 3.1. Average cost per survey in US dollars

| Expenditure category | DHS | MICS | LSMS type | Labour force surveys | Agricultural surveys | Supplemental |
|----------------------|------------------|------------------|------------------|----------------------|----------------------|----------------|
| Operations | 800,186 | 716,040 | 1,235,852 | 331,204 | 1,117,303 | 319,002 |
| Field support | 805,027 | 340,985 | 495,427 | 133,128 | 431,135 | 125,974 |
| Total | 1,605,213 | 1,057,025 | 1,731,279 | 464,333 | 1,548,438 | 444,977 |

Source: Data for Development: A Needs Assessment for SDG Monitoring and Statistical Capacity Development. Sustainable Development Solutions Network, 17 April 2015, Table 3, p. 19. <https://sustainabledevelopment.un.org/content/documents/2017Data-for-Development-Full-Report.pdf>

Notes: Operations consist of training, transport, personnel and data processing; field support covers technical assistance, administrative and other costs.

DHS: Demographic and Health Survey.

MICS: Multiple Indicator Cluster Survey.

LSMS type: Living Standards Measurement Study.

Labour force surveys, agricultural surveys: undertaken to collect data on these specific areas.

Supplemental: other surveys that may be necessary to measure progress toward achieving SDG goals.

Substantially lower data collection costs can be achieved for in-person interviews only if government agencies donate labour (and guarantee the time commitments) of skilled staff to conduct the work. Other attempts to achieve cost reductions (e.g., field staff cutting corners and interviewing only willing respondents, rather than visiting sampled households, re-visiting them if necessary and trying to persuade reluctant sample members to participate) are not appropriate because they will almost certainly result in poor quality or biased data.

3.3 Preparing the questionnaire

Countries may choose to use existing questionnaires or modules from internationally respected surveys to monitor SDG 4 targets – **Annex 2** lists relevant examples from major household surveys – but additional questions

and perhaps entire questionnaires will need to be developed to address many SDG 4 indicators. This section discusses key decisions to be made and presents an overview of steps to take in preparing the questionnaire.

Stand-alone survey or separate module

One key decision is whether the household survey to inform SDG monitoring will be its own, stand-alone survey or whether it will be embedded as a module within another survey. The answer depends on the topics to be covered in the SDG 4 household survey and the suitability of other surveys.

In terms of topics, the team of policymakers, programme planners, other officials and researchers should determine the areas to be addressed in the household survey. Some countries may have extensive data resources to address

Survey planners should be mindful of the potential burden survey participation places on NSOs and government agencies, and potentially on households. Attempts to reduce the data collection burden on countries include avoiding duplication across surveys and establishing data exchange collaboration between international statistical agencies collecting the same or similar data from participating states. One example of collaboration is the UOE (UIS, OECD and Eurostat) partnership on education data collection.

many indicators for SDG 4, so they may need to collect relatively little information through a household survey, such as identifying out-of-school youth or measuring early childhood development levels. In these circumstances, inserting a module that covers these topics into another survey probably makes good sense. Other countries may have limited data resources and need much more information to assess the indicators for SDG 4, so they may need to design and implement a comprehensive survey that would best be administered as a stand-alone enterprise.

In considering whether the SDG 4 questions could be asked as part of another household survey, the team needs to carefully assess the suitability of these other surveys. Questions to consider include the following:

1. Does the other survey rely on a probability sample?
2. Does it cover the geographic areas of interest for analysis? For example, will it produce national estimates? State- or provincial-level estimates? Urban vs rural estimates?
3. Will the survey allow collection of information at the individual and household level, including by age, sex, disability status or wealth categories?
4. Do questions on education properly fit with topics included in the other survey?
5. Will the team have adequate control over the selection of the respondent?
6. Does the survey have adequate quality control procedures?
7. Is the survey conducted with the frequency needed for SDG 4 reporting?
8. Does the information collected meet the international quality standards for reporting on SDG 4?

Ascertain cross-cultural comparability

This guide is intended to help design surveys that yield results that are suitable for SDG monitoring and comparable across countries. The challenge is to balance the sampling design, questions, and data collection strategies that are optimal for a given country against the same features necessary for multinational, multicultural, or multiregional surveys (referred to as “3MC” surveys). There is general consensus that a single approach is not feasible for 3MC surveys due to variances in local

capacity, funding and human resources and could possibly result in poorer quality data. There is also general consensus that planning for cross-cultural comparability should be a central focus of discussions establishing the research questions at the start of an initiative.¹⁰

Creating the questions

A survey is only as good as the questions it asks. An entire body of research and the field of survey methodology underlies the practices followed to develop survey questions. The discussion below summarizes major considerations. It should be stated at the outset that adapting existing tools – for example established surveys like the DHS, LSMS or MICS – is preferred over designing a new survey from scratch.

Writing good questions and answers

As planning for a household survey gets underway, one smart task is to search for relevant questions from previously administered, high-quality surveys and methodology reports that often accompany them. If the questions on the topic of interest have been cognitively tested and have shown validity and reliability, then they may be suitable for use.

If the questions are close, but not an exact match to information needs, then they may be thoughtfully modified. If no suitable questions can be located, they will need to be developed using several principles for writing good questions and answers. (Note: these principles are also good for assessing the suitability of questions from other surveys.)

Principle #1: Map questions against analytical use

Questions on a household survey should be asked only if their answers are essential to answer

¹⁰ A discussion about solutions and best practices for cross-cultural comparability are beyond the scope of this Digest, so additional resources are provided in Annex 3.

the research questions and information needs previously identified. Asking interesting, but irrelevant questions would put undue burden on the respondent who could become tired, distracted or irritated – and in turn give less accurate answers and perhaps say “don’t know” simply to bring the interview to an end.

One way to make sure all survey questions are necessary is to create a matrix. Enter each survey question on the left-hand side and the research question—in this case, an SDG 4 indicator – it addresses on the right-hand side. If a survey question does not help address a research question, planners should consider deleting it.

Principle #2: Make sure the questions are worded correctly

Questions need to be worded so that the respondent understands and can accurately answer them. Too often, researchers ask what seems to be a simple question without realizing that the respondent may interpret the question differently from the way it is intended. Consider the following, which may be asked at the start of the survey to generate a roster of people living in the home:

How many children do you have living at home?

- What does “children” mean? People under a certain age? All individuals—regardless of age—who consider the respondent as a parent?
- What does “do you have” mean? Are these only children who are the direct offspring of the respondent?
- What does “living at home” mean? What if a child is hospitalized or living away from home part of the time?

Depending on the way data from a question will be used, clarification and more detail is often an appropriate solution. The sequence of questions below is more likely to garner accurate responses:

1. *Did any children under the age of 18 sleep in this house last night? [if yes] How many?*
2. *Are you the parent of any of these children? [if yes] How many?*
3. *Please tell me the name and birth date of each child. Let's start with the youngest one. [continue until the number in Q2 is reached]*
4. *Just to confirm: you are the parent to [number from Q2] children who slept in this house last night. Is that correct? [if not, repeat Q2-Q4]*
5. *Are you the parent of any children under the age of 18 who slept someplace else last night? [if yes] How many?*
6. *Please tell me the name and birth date of each child who slept someplace else last night. [continue until the number in Q5 is reached]*
7. *Just to confirm: you are the parent to [number from Q5] children who slept someplace else last night. Is that correct? [if not, repeat Q5-Q7]*

Asking this kind of sequence of questions takes a little time, but higher quality, more reliable data will result from good, clearly worded questions that the respondent can understand.

Principle #3: Word questions neutrally

To make sure the research does not inadvertently influence the respondent, questions should be written using neutral language. As an example, consider the following:

1. *Some people believe that most teachers are not adequately trained for their jobs. How*

do you feel? Do you strongly agree, agree, somewhat disagree, or strongly disagree with this statement?

2. *Do you feel that most teachers are adequately trained for their jobs? Yes or no?*

The first one implicitly gives the respondent permission to be critical of teacher preparedness; the second one is worded more neutrally because it signals the respondent that a positive or negative response is acceptable.

Principle #4: Keep questions short

The human brain can retain only a limited amount of information during any given information exchange. One clear demonstration of this reality comes when we use directions to go to a place we have not visited before. A GPS device gives step-by-step instructions because most people probably cannot remember a rather lengthy list of turn-by-turn segments; if a GPS device is not available, we can use a map and follow along as the route is traversed. The same holds for survey questions: the respondent will be able to hear, comprehend and accurately answer questions only when they are short enough to be retained.

A good rule of thumb is that questions should be about 15-20 words maximum. If a question is too long, break it into smaller questions.

Principle #5: Avoid double-barrelled questions

A double-barrelled question asks about two (or more) matters that may not have the same answer. For example, "Does your daughter's school have a girls' bathroom and proper handwashing facilities?" asks about two items. The school may not have a girls' bathroom but does have handwashing facilities, so the respondent cannot give an accurate answer. A simple solution is to

break double-barrelled questions into two (or more) separate questions.

Principle #6: Avoid negation and double negative questions

Negatives are often challenging for respondents to comprehend accurately, and there is almost always a way to reword the question to make it smoother. Instead of, “Should teachers not have to buy their own classroom supplies?” try, “Should teachers have to buy their own classroom supplies?” Instead of, “Under what circumstances does [child name] not go to school?” try, “Think of the last time [child name] did not go to school. Why did [child name] not go then?”

Principle #7: Response categories should be comprehensive and mutually exclusive

Check responses to questions to make sure that (1) all possibilities are covered and (2) the responses do not overlap. For example, questions about the highest level of education a respondent has completed often use primary school, secondary school and post-secondary school as options. Depending on local situations, more precise categories may be needed such as those that would specify lyceum/college preparation, vocational education or teacher training programmes.

Principle #8: Use plain language and terms the respondent understands

Questions should be worded so they avoid jargon and can be easily understood by a typical respondent. If a question uses terms that could have multiple interpretations, such as “bullying,” be sure to clarify and define the term so the respondent can answer the question in accordance with its intent.

Conduct cognitive testing

Cognitive testing – sometimes referred to as “cognitive interviewing” – is used in survey research

Show cards can be a useful tool. These are printed on heavy-weight paper and often laminated. Response options are listed on the paper, which is shown to the respondent who picks one or more choices. Response options may be in text or pictures. If a child is asked about toilet facilities at her school, a show card might have pictures for her to choose from.

to determine whether respondents understand and answer questions the way they were intended. Cognitive testing should be conducted after the questions have been developed, translated, and put together into a survey instrument. People should be recruited for the cognitive test who are similar to the population that will be surveyed. These recruits are typically invited to come to a testing site, preferably one equipped with a one-way mirror so that observers can watch and learn from the process. An experienced researcher will guide the participant through the survey, asking him/her to:

- think aloud and talk about the question and its answer, basically helping the research team to understand the thought process that a typical respondent will go through when completing the survey; and
- answer verbal probes, which are questions that ask the participant how he/she interprets particular words or phrases, why the participant gave a particular answer, how confident the

participant is in his/her response, whether any items are not clear, and similar queries.

Organize the module(s) or questionnaire

The science of survey research has established the importance of a logical flow for questionnaires. Doing so helps improve the quality of data because the logical progression enables the respondent to answer questions with greater comprehension and accuracy. Most household surveys start with a brief introduction to the study's purpose and then ask questions that determine the household's eligibility to participate in the survey. If eligible, the interviewer typically next obtains consent, creates a household roster and identifies the respondent(s). Questions are asked and answered, with transitional statements between sections to alert the respondent of an upcoming shift in focus.

Sensitive questions are purposefully placed within the questionnaire. They are rarely asked at the start of the questionnaire so that the interviewer has time to establish rapport and a respectful relationship with the respondent; similarly, they are not often asked at the very end of the questionnaire so that the interview can end on a positive note. Although what constitute "sensitive" questions varies, they may include queries about reproductive health matters, communicable diseases, employment, violence, illicit activities, and income.

If the questionnaire is being administered electronically, questions and responses to multiple choice questions can easily be randomly ordered, which helps avoid bias. Known as "order effect," this kind of bias can arise because previous questions (or response options) can influence later questions (or response options). Randomization does not make sense in all cases, such as categories for household income – which should

be presented in numerical order – or questions that must flow in a certain logical order.

Translation

Ideally, questionnaires should be professionally translated into all local languages used by 10% or more of the sample, a practice recommended by international surveys such as the DHS. Other surveys, such as MICS, recommend taking into account unique circumstances, such as whether the sample specifically targets particular language groups or whether the number of local languages could become burdensome to translate.

The translated versions should be tested thoroughly for accuracy and comprehension among project staff, subjected to cognitive testing, and used by interviewers proficient in those languages. Unfortunately, some surveys achieve a false economy by skimping on this important task. Bad translation practices result in bad survey data, so the information becomes useless—or perhaps even worse, flawed information is used for policy development or programme implementation.

If tablets or laptop computers are used to administer the questionnaire, one option for handling sensitive topics is audio-computer assisted self- interviewing, known as ACASI. With ACASI, questions are previously recorded. The respondent hears them privately while wearing headphones and then enters responses him/herself.

Table 3.2. Basic ground rules for the interviewer

| Do not do this: | Instead, do this: |
|---|--|
| Allow interviewers to translate “on the fly,” using their knowledge to translate material as they administer a questionnaire. | <ul style="list-style-type: none"> • Professionally translate questions into local languages used by more than 10% of the sample. • If a language subgroup must be included in the survey but it is too small to justify professional translation, train interviewers – preferably from the local area – to translate questions into the local language as they administer the questionnaire, observe them during practice interviews, and provide corrective feedback (this strategy should be used only as a last resort). |
| Allow interviewers to “interpret” a term the respondent does not understand because of language issues. | Train the interviewer to say only, “let me repeat that question” and then do so exactly as it is written, or say “that term is whatever it means to you”. |
| Allow interviewers to administer the questionnaire in a dialect “close enough” to the respondent’s language. | Use a properly translated version or have the governance team decide as part of their planning work to define the household ineligible to participate. |
| Allow interviewers to arbitrarily select as a respondent a person fluent in the questionnaire language(s). | Have the governance team decide as part of their planning work whether someone can be substituted for the selected respondent – and train interviewers on procedures to follow in these cases. |
| Allow the respondent to ask another member of the household to interpret a question or term. | Train the interviewer to say, “I’m sorry, but the question must be answered only by [the respondent] without anyone else’s input”. |

Table 3.2 summarizes some ground rules for interviewers.

Conducting a pre-test

A pretest is indispensable for making sure that all aspects of data collection operations have been adequately developed and proven effective. The pretest should mimic data collection as much as possible on a small sample of respondents. The following are guidelines for the pretest:

1. Conduct the pretest in the same conditions that will be present in the full-scale portion. For example, if the full survey will be

administered in urban and rural locations, have the pretest in both locations as well.

2. Conduct the pretest in locations that are not in sampled sites for the main study.
3. Have staff who will be field supervisors conduct the survey. A total of 50 to 100 completed interviews is a good target.
4. Use the same mode of administration as during the main study. If the questionnaire will be administered on tablets, have the questionnaire programmed on tablets for field supervisors to use. If paper-and-pencil are used, have them printed for field supervisors, subject them to field

- editing, then have them sent into a central processing unit for data entry.
5. To have data for estimating field costs and monitoring performance, record the time it takes to complete each interview, including travel, multiple visits to the home if necessary, and the interview itself.
 6. Have field staff debrief daily and at the conclusion of the pretest. Note recommended changes and decide whether to make them.

3.4 Getting ready to field the survey

Several important matters must be resolved before the survey is implemented. Many should be decided during the planning process, which can often proceed at the same time as the questionnaire is being developed.

- Decide whether to offer an incentive. Practices are mixed: some surveys offer incentives, others do not. Factors to consider include:
 - The length of the questionnaire—an incentive may be more appropriate for one that takes 90 minutes to complete than one that takes 10 minutes.
 - The local custom—do similar surveys offer an incentive?
 - The need to avoid even the perception of coercion—an incentive should be a small token of appreciation, not an inducement to participate.
- Determine which ethics reviews are required. Some communities or funding agencies may require that an independent committee assess the planned research to make sure that it is consistent with basic principles that protect the rights, welfare and well-being of study members. Researchers may sometimes

request a review to make sure their forthcoming work respects local customs and practices. (Terms such as “Institutional Review Board” or “human subjects protection” are also used.)

- Obtain necessary approvals. Government agencies may require that surveys and plans for implementation are approved before they get underway. In other cases, formal approval may not be necessary but would be advisable. A supervisor or project staff could, for example, inform local community leaders that a household survey will be conducted in their jurisdiction, show them authorization letters from the sponsoring organization, and address any concerns they may have.

The sampling design

Developing the sampling design involves many steps and a level of detail that this *Digest* cannot provide.¹¹ Expertise can be found among sampling statisticians who have successfully completed specialized courses of study that cover the many decisions necessary to create a good sampling design.

A household survey is different from a census, which is very expensive to conduct because it includes all households in a given jurisdiction. Instead, statisticians will determine the number of households to include so that the resulting information gives an accurate picture of the population of interest; researchers will then randomly pick households to participate in the survey. The standard practice for high-quality household surveys is to draw what is referred to as a **probability sample**. When a probability sample is designed and drawn correctly, results can be analysed and presented as accurately reflecting

11 A few resources on sampling are listed in Annex 3 for those who wish to go deeper into the sampling design.

the target population. The data will be more valid and more reliable than non-probability samples, such as those resulting from convenience samples (e.g., interviewing readily accessible households or parents active in their children's schools) or people who volunteer to join the study.

A probability sample requires a current **sampling frame**, which is a list of administrative units that have defined boundaries and population statistics. Often, these are census **enumeration areas** (EAs). From the frame, usually several hundred EAs are randomly selected, with larger ones more likely to be selected than smaller ones (this is referred to as "probability proportional to size"). The selection can involve **stratification**, which makes sure that subpopulations of interest (such as both urban and rural residents) are included in the sample.

Next, households must be sampled. Two practices dominate current practice for this step. The first uses **listing**, which typically has a team of two individuals go to each EA and record information about the EA's boundaries, draw a map of the EA and its residences, develop a list and the location of each household (and the name of the head of the household) and record GPS coordinates. Central office staff then randomly select individual households within the EA to be surveyed. The second is a **random walk**, which assigns a team of interviewers to each EA and selects a starting point for the team (such as a market square, a village well or a particular intersection of two streets); the team then goes to the starting point and follows directions to sample households, such as "turn right and select the fifth household; after completing that one, continue to the right to select the next fifth household."

There is near universal agreement in the survey research community that listing is superior

to random walk for collecting high-quality, representative data. The random walk risks introducing bias into the study because the starting point is not neutral, interviewers do not follow the directions and instead conduct interviews with people easy to locate and persuade, or the random walk instructions are flawed (sometimes they are too complicated to follow, and at other times they do not consider all possibilities interviewers may encounter). The problem is that listing adds costs to a study. Whenever possible, listing should be chosen for the household selection process, even if doing so means that compromise may be necessary for other design features (e.g., draw a smaller sample, reduce the length of the questionnaire).

The final stage of sampling selects the member of the household to interview. Depending on the survey questions to be asked, the respondent may be the individual who is most knowledgeable about the children's educational experiences; the children themselves to complete assessments; and adults to determine their own (or their children's) literacy levels, information and communication technology proficiency, or participation in training or vocational

Statisticians and survey methodologists are trying to improve household sampling methods and overcome the shortcomings of the random walk. Promising practices include using GIS imagery to draw the sample or crowdsourcing listing by asking local residents to take videos of their communities.

education programmes. It may also be that information is to be obtained about only some—not all—of the adults and children in the household. In this instance, planners will need to decide who to have as the focal adult(s) and child(ren) (the oldest? the youngest?) or whether to randomly sample from among eligible household members within specific age categories.

Choosing the mode of administration

Household surveys can be administered using several methods:

- **By mail:** A survey is mailed to an address or an individual. A member of the household follows written instructions to identify the respondent (e.g., the oldest female between the ages of 18 and 65), who completes the survey and mails it back.
- **Over the phone:** Typically, telephone numbers are randomly dialled using a list of numbers from telephone service providers or a computer program that generates telephone numbers. An interviewer follows a selection process to identify the respondent, then administers the survey to the respondent by asking questions and recording answers.
- **In person:** An interviewer visits a household, follows a selection process to identify the respondent, then administers the survey to the respondent by asking questions and recording answers.
- **Web-based:** A respondent signs onto a website, typically using a user identification number and password previously received from the survey team, then completes the survey questions by entering answers online.
- **Text messaging (SMS):** A respondent receives a series of questions and responds using text messages to convey the answer.

The mode of administration is a key dimension in survey operations. Realistically, the funds available, level of technology usage, and technical capacity often limit the choice of mode to use for a given survey. Many low- and middle-income countries conduct international surveys in person because they do not have sufficient funds, technology or capacity to use alternative modes. But many international surveys directly or implicitly necessitate in-person data collection for several reasons, among them: the survey items require the interviewer to interact with the respondent (e.g., when collecting biomarkers such as blood samples, or when testing young children’s gross and fine motor skills), interviewers are asked to record observations that they must see (such as household assets), or the questionnaire is so lengthy that respondents might not finish if asked to do it on their own.

All modes have advantages and disadvantages (Table 3.3). For a household survey addressing SDG 4, a **stand-alone survey** would probably best be administered in person. The in-person mode allows interviewers to establish rapport with sample members, answer questions and use persuasive approaches to encourage participation, and observe the household in ways to inform potentially important questions, such as visible signs of the household’s financial status. It also enables interviewers to administer brief literacy or similar assessments of adults and children (if so desired). If, on the other hand, a country plans to insert a **module** into another survey to gain information for SDG 4, that other survey’s mode of administration should be appropriate to use. For example, if a country has sufficiently widespread telephone

Table 3.3. Advantages and disadvantages of modes of survey administration

| Mode | Advantages | Disadvantages |
|------------------|---|---|
| Mail | <ul style="list-style-type: none"> relatively inexpensive does not require respondent to have technology or technical ability data collection can be completed relatively quickly avoids purposeful and inadvertent interviewer effects that could be conveyed by tone of voice or emphasis placed on particular terms | <ul style="list-style-type: none"> very low-income and nomadic populations may be excluded from the sample low response rates must consider literacy levels study has no control over who actually completes the survey respondent does not have the option to ask questions of interviewer cannot adjust sample easily (e.g., if responses from a particular segment of the population are running low) responses must be entered into an electronic database |
| Phone | <ul style="list-style-type: none"> not as expensive as in-person no travel involved, which increases pool of qualified job candidates responses automatically entered into database better quality control through direct, ongoing observation of interviewers and monitoring of interviews as they occur can adjust sample quite easily respondent's ability to read is irrelevant suitable when in-person contact should be avoided (e.g. during a pandemic) | <ul style="list-style-type: none"> does not capture information on the segment of the population without access to a phone and thus introduces coverage bias need mechanism (often software) for randomly dialling telephone numbers a certain number of people will not answer the phone unless they recognize the number people may hang up even before the purpose of the call is explained requires time to select and train interviewers sample members may doubt the authenticity of the study interviewer and respondent cannot see each other's body language for cues |
| In person | <ul style="list-style-type: none"> generally achieves highest response rates interviewer is able to build rapport with sample member, respondent respondent is unlikely to terminate during the interview survey can do more than ask questions (e.g., administer assessments to children enrolled in school, out-of-school youth, and adults) interviewer can better control privacy, confidentiality | <ul style="list-style-type: none"> expensive requires time to select and train interviewers interviewers must be able to travel and be sufficiently trustworthy (or have passed background checks) to go into sample members' homes requires time to allow field teams to travel to sampled locations and collect data schedule can be affected by weather, natural disasters, conflict quality control can be less reliable cost often limits sample size collection of data on paper affects data quality (transcription errors, etc.) |
| Web | <ul style="list-style-type: none"> low cost data collection can be completed quickly can use images or videos within the questionnaire automatic data entry can route respondent through different questions, depending on answer to previous questions avoids purposeful and inadvertent interviewer effects that could be conveyed by tone of voice or emphasis placed on particular terms | <ul style="list-style-type: none"> low response rates must consider literacy and technological skill levels respondent must have access to technology study has no control over who actually completes the survey runs the risk of having "professional respondents" participate (that is, people who frequently complete surveys) who know how to choose "easy" answers that will enable them to complete the survey quickly respondent does not have option to ask questions of interviewer achieving probability sample is challenging and can drive up costs |
| SMS | <ul style="list-style-type: none"> low cost data collection can be completed quickly wide use among population requires little technology skill automatic data entry may be very suitable for getting quick answers to limited questions | <ul style="list-style-type: none"> requires adequate database of mobile phone numbers may have only limited demographic data on file, so need to collect during survey thus creating more questions sample members may question authenticity can ask only a few questions need only simple response options |

usage and sufficiently high cooperation rates to conduct a national phone survey, then many of the questions being asked for SDG 4 could be satisfactorily addressed over the phone.

The importance of telephone or internet surveys as an alternative to face-to-face enumeration became apparent during the COVID-19 pandemic that began in early 2020. Section 3.8 summarizes some of the consequences of the pandemic for data collection.

One decision associated with the mode of administration is how the survey should be presented and how responses should be recorded. Should the survey be printed on paper and answers recorded on that paper? Should the survey be programmed for electronic administration and completion? A strong consensus exists among survey researchers that electronic means – referred to as computer-assisted personal interviewing (or CAPI) or computer-assisted telephone interviewing (or CATI) – are superior to paper-and-pencil. Electronic formats substantially reduce the risk of inadvertent error: interviewers are automatically led through the proper routing of questions, skipping those that should not be asked to the respondent based on that person's previous answers; surveys can be programmed to check for internal consistency (for example, if the head of the household is age 25 but his/her children's ages are recorded as 17 and 3); surveys can be programmed to query responses that seem out of range; and the programme can avoid inadvertently missing questions or responses.

CAPI and CATI surveys can be programmed quite easily and at relatively low cost, especially by using online survey tools or open source software. They can be programmed onto tablets, which are lightweight and simple to use. They can also use video or audio recordings as part of a CAPI questionnaire. Data can be transmitted frequently,

Questions inevitably arise about the feasibility of using electronic data capture methods, particularly in remote areas or low-resource settings. Technology is rapidly removing most barriers, especially for studies that use tablets. Extra chargers are easy to carry and inexpensive to purchase; solar chargers can be used to keep batteries charged; hot spots can be established with cell service; and field staff can ask someone with a generator for a quick top-up.

often daily, thus eliminating the need to transport or ship paper forms and have the data entered separately. Electronic transmission also means that data can be checked daily for any anomalies or signs of potential problems, which can be rectified immediately. The possibility of fake interviews is reduced because GPS coordinates or telephone numbers can be collected automatically.

CAPI and CATI have a few disadvantages. Because some technological proficiency is required, interviewers tend to earn somewhat higher salaries. Tablets can be attractive to thieves. The programmed questionnaire must be thoroughly tested and retested before data collection gets underway. Regardless, the advantages of electronic over paper-and-pencil materials are very strong and should be a priority for planners who want to collect high-quality data.

Preparing field materials

Time should be allocated to prepare all materials that field staff will need to collect data. These tasks include:

- programming or printing the questionnaire, with multiple quality control checks to ensure accuracy
- preparing and printing a brochure about the study to give to interested parties and sample members
- obtaining and printing a letter of authorization from a respected authority that interviewers can carry with them as a demonstration of authenticity
- assigning supervisors to sampled areas so they can become familiar with their locations and any special considerations
- organizing packets, including consent forms, for field teams and distributing them to supervisors

Training

Training of survey staff is critically important for a successful survey operation and collection of high-quality data, regardless of the mode of administration.

Many logistical issues must be handled before training can begin, such as securing a venue, developing the agenda, arranging travel and lodging, selecting trainers and developing and printing the training manual. Arranging these matters can take 4 to 6 weeks.

The more complex the survey, the longer the training session. MICS, for example, has a recommended 29-day agenda; DHS estimates 4

to 5 weeks. These are multifaceted, well-funded surveys with unique data collection requirements, so it is reasonable to expect a shorter training period for a household survey tailored to SDG 4. For example, the Annual Status of Education Report training last five to six days at the state level and three days at the local level. If interviewers are hired who have previous survey experience and technological competency, training for a stand-alone survey can probably be completed in five to eight days; if the hired interviewers have lower levels of skills, training may need to be extended by another five to ten days.

Training offers the opportunity to create a team spirit and a sense of shared commitment to excellence. Interviewers should be introduced to their supervisors, and teams should be encouraged to get to know each other.

As the training agenda and contents are being developed, lessons learned from the pretest should be incorporated, especially those important to obtaining high-quality data, such as following the sampling requirements, engaging respondents, and handling potentially tough questions. Topics to cover during training include the following:

- **Content of the survey:** The topics covered by the questionnaire, definition of key terms, review and explanation of all questions, etc.
- **Locating the survey unit:** For an in-person survey, how to locate the households to visit and confirm that the location is correct, whether from listing or a random walk; for a phone survey, how to confirm the number that was dialed.
- **Introducing the study:** Verbatim text to be read to an adult explaining the purpose of the visit or the call.

- **Effective techniques to obtain agreement to participate:** The use of active listening, familiarity with frequently asked questions and responses, assurances of confidentiality, an official letter validating the study and vouching for the interviewer, use of formal ID badges and a professional appearance.
- **Selecting the respondent(s):** Precise steps to follow and definitions to use regarding the household composition, which typically involves generating a household roster, then having the proper respondent(s) automatically selected if using an electronic instrument or instructions if using paper and pencil.
- **Asking questions exactly as worded and using a neutral voice:** Interviewers may not interpret or reword questions, nor should they react to any answers or offer their opinions about any matters; they should be professional and make sure that their voice tone and body language does not influence any answers.
- **Steps to record answers accurately:** Checks to make sure data are entered correctly into a laptop or tapped onto a tablet, or checks to make sure answers are written correctly on paper forms, plus methods to transmit data or submit completed questionnaires.
- **Protecting confidentiality:** The interview should take place in a location where the respondent's answers cannot be overheard by others, and interviewers must be diligent in protecting the security of the data (e.g., turning off tablets or laptops, guarding paper records until they are handed over to a supervisor).
- **Logistics and paperwork:** How to fill out and submit a timesheet, how daily allowances

for food and lodging will be handled, photo ID badges, how cases will be assigned, and similar details.

Consistent with adult learning styles and proven benefit, training sessions should incorporate a variety of formats. Lectures will necessarily be a part of the training, but planners should be sure to include interactive sessions and interweave them into lectures so that trainees do not get bored or become disengaged. Supervisors can demonstrate the process by conducting mock interviews, with one serving as the interviewer and another as the respondent. Trainees can participate in a “round robin” where one person asks a question, the next person answers it, and so on around the entire training room. Trainees can pair off and practice conducting the interview, taking turns as one acts as the interviewer and the other as a respondent. Project personnel can observe these interactive exchanges as a way to determine whether training has been effective, areas for additional emphasis that apply to all trainees or only a few, and the adequacy of materials prepared for interviewers, such as the training manual, answers to frequently asked questions, or ways to handle matters likely to arise in the field.

The training should incorporate ample amounts of practice time. Interviewers should become fully familiar and proficient with the respondent selection process, the instrument's questions and response options, and methods for recording answers. After most classroom training has been completed, interviewers should participate in a full dress rehearsal. They should be assigned to the supervisor who will be their team leader, given locations to visit (select areas that are not included in the main study), and proceed to go to the field, conduct interviews, and submit completed

Training for the Early Grade Reading Assessment conducts at least two “assessor accuracy measure” evaluations. All trainees observe a video or a role-played assessment, which follows a predetermined script of responses or mistakes. They report and score their observations, which are then analysed for agreement with the gold standard expectations. These evaluations are conducted before and after the field practice. Staff enjoy seeing their individual and collective scores improve after practice.

questionnaires. Interviewers should debrief with their supervisors and with the group as a whole. Successes should be highlighted, and problems should be discussed.

The training session should end with assessments to determine the interviewer’s suitability to go to the field. The assessment could consist of a supervisor observing a mock interview, the interviewer’s ability to answer frequently asked questions, or study personnel’s judgements about the interviewer’s competency in terms of asking questions exactly as worded, neutral and professional demeanour, language skills, and efforts to establish rapport. Interviewers who show potential but are not sufficiently competent could be required to attend additional training to see if performance can be improved; those who do not demonstrate their ability to do the work well should be released from employment on the study.

3.5 Conducting the survey and monitoring progress

Supervisors have a great deal of responsibility during data collection, especially for surveys that are administered in person. They typically go

with their teams to the sampled areas; assign cases to interviewers; check that households are sampled accurately; observe interviewers as they visit households, determine eligibility, identify the respondent and conduct interviews; check data for accuracy and completeness; and make sure data are transmitted or forms are sent in. They debrief daily with interviewers to discuss accomplishments, challenges and lessons learned. In more remote areas and particularly in low-resource settings, they make sure transportation and lodging is handled and provide interviewers with daily allowances and sometimes their pay. They report regularly to the central office and discuss events that can affect data collection plans, such as what to do if they encounter a natural disaster (such as flooding) or unexpected risk (such as political conflict).

Perhaps the most important tasks central office staff perform as data collection is underway are to (1) monitor how data collection is progressing and (2) be prepared to make adjustments as matters unfold. Regardless of the mode of administration, performance metrics should be monitored daily, and central office staff should routinely—preferably daily—provide metrics to supervisors in the field, such as the sample indicators for in-person and phone surveys summarized in [Table 3.4](#).

Table 3.4. Examples of daily performance metrics

| Mode of administration | Metrics |
|------------------------|--|
| In person | <p>By interviewer, field team, and total</p> <ul style="list-style-type: none"> • number of households visited • number of households revisited • number of households refusing to participate • number of interviews completed • number of households declared ineligible • average hours per completed interview • proportion of “don’t know” or “refused” responses • non-response patterns |
| Phone | <p>By interviewer and total</p> <ul style="list-style-type: none"> • number of outbound calls • number of inbound calls • number of non-working or ineligible calls • number of disconnects or hang-ups • number of calls refusing to participate • number of interviews completed • average hours per completed interview • proportion of “don’t know” or “refused” responses • non-response patterns |

Field supervisors can be supported by a quality assurance team that conducts visits to field teams to monitor data collection in person. Central office staff are responsible for monitoring the overall progress of the survey and adjusting procedures as necessary. For example, if trend analysis of completion rates shows that target numbers are unlikely to be reached for particular subgroups of interest, they may determine that additional households from the original sample should be included in the survey.¹² As another example, if

monitoring suggests a particular team is performing significantly better or worse than other teams, they may investigate operations to help head off any problems.

Central office staff should also regularly run frequencies and cross-tabs on data from completed interviews. While this is easy to do for electronically captured data, it is more challenging for data collected through paper-and-pencil forms because of the time it takes to send in forms and have data keyed into a computer program. It is strongly

¹² Sampling statisticians often recommend drawing a sample larger than initial calculations suggest and setting aside randomly selected portions. This is referred to as the replicate sample. Replicate samples are advised because various conditions (e.g., natural disaster, weather or unexpectedly high refusal rates) may affect data collection and the initial pool may not produce enough completed

interviews. In these instances, study managers may release additional cases from the replicate sample, meaning field teams are assigned new cases. The replicate sample is statistically identical to the initial sample, so all design features remain intact.

recommended that surveys using paper forms *not* wait for hundreds of forms to arrive so they can be batched and entered efficiently. That turns out to be an artificial cost saving, one that prevents most mid-course correction in the event of systematic problems or errors. Running analysis on the data throughout the data collection period enables central office staff to examine outliers, potential inconsistencies, and questions that have a lot of “don’t know,” “not applicable” or missing answers.

Back checks are an important component of quality control practices. Knowing that back checks will be made helps deter interviewer fraud and allows the project to collect information about the respondent’s satisfaction with the interview experience. To conduct a back check, someone who did not interview the respondent contacts that individual, confirms his/her participation in the survey, and asks a couple of questions whose answers will be checked against the original responses. Back checks can be conducted in person, by phone or by using text messaging. In practice, the team’s supervisor is often the person conducting the back check, but it would be better if the responsibility was instead given to individuals who have had no association with the particular interviewer.

3.6 Preparing and analysing the data¹³

A well-designed questionnaire, cognitive interviewing, thorough training, monitoring field staff as they conduct interviews, and consistency checks embedded in questions distributed throughout the questionnaire will help avoid many potential problems before they occur. To continue the focus on obtaining valid and reliable information, data

13 This discussion of preparing and analysing the data is necessarily limited by the purpose and scope of this *Digest*. For a deeper examination of the topic, a good resource is United Nations Statistics Division (2005).

from completed questionnaires should be entered into a database and run through quality control checks regularly throughout the data collection period, preferably each day. Doing so enables project staff to identify any potential problems and correct them before they become widespread. Problems could arise from programming, response options, pathways through the survey questions and data entry. While most problems should be detected through testing conducted before the survey is fielded, new ones inevitably arise—and data checks are invaluable for mitigating them.

Identifying information to be stripped from case records can include the respondent’s name, address or location, GPS coordinates for where the interview took place, phone number, document numbers from records such as those used for education or health purposes, and other items that could be used to purposefully or inadvertently enable data users to determine who participated in the survey.

Survey data almost always need “cleaning,” so analysts often prepare two datasets: one has the original data, exactly as collected and entered; the other contains “cleaned” data that will be used for analysis. Importantly, data cleaning strips all identifying information from a case and stores it elsewhere in a highly restricted, secure location

that meets the study’s confidentiality and privacy requirements. Data cleaning may include coding of open-ended items; the identification and confirmation or adjustment of data deemed to be outliers (with extreme or unexpected values); calculation of survey weights, which adjust the sample to be closer to the “true” population; and the creation of composite measures, such as a variable for household wealth based on multiple indicators.

While the primary users of household data to monitor progress toward achieving SDG 4 will be within a given country, data should be made available through public use datasets, accompanied by documentation of the survey design and implementation. Making these data available could result in discomfort with findings, such as a subgroup’s literacy levels or comparisons that show disparities across types of jurisdictions. Still, the data should be made available in the spirit of transparency and as a demonstrated commitment to monitor progress toward achieving all SDG 4 targets, including the elimination of disparities between diverse groups of a country’s population. Moreover, important benefits arise when data are made publicly available for subsequent analyses:

- Information and insight can be obtained at low cost since the data have already been collected. Analyses can inform programme planning, policy development and resource allocation.
- Individuals and organizations that were not part of the household survey effort can use the data to contribute their expertise, visibility and stature.
- The investment to produce high-quality data continues to pay benefits. Public use datasets are generally of high quality, with documentation, weights and methodology reports. Government agencies and researchers will find them

valuable and will use the data for subsequent programming and policy decisions; graduate students and university faculty may use the data to conduct research resulting in peer-reviewed publications; and international organizations can use the data for analysis and reporting.

- Public-use datasets enable cross-country comparisons, which are likely to detect patterns and associations that would be difficult to see in single-country analyses.

Good models of making data publicly available are provided by the DHS and MICS programmes, where cleaned data are available to researchers who complete a brief online form indicating the intended uses of the data and analysis.

Analysis of the household survey data typically entails descriptive statistics, such as frequencies and cross-tabulations. These statistics present information such as the proportion of the total school-aged population whose parents completed secondary school education. A big focus of SDG 4 is education “for all,” so measuring equity is essential.¹⁴ Descriptive statistics can be disaggregated along equity dimensions such as male/female, urban/rural, wealthy/poor, children with and without disabilities, nomadic populations, mother tongue, and refugee status. Early planning for analyses along these dimensions is necessary for determining the required sample size to measure and monitor equity over time.

All SDG 4 indicators can be monitored by using descriptive statistics, including those that can be computed from household survey data. One simple example is to determine the out-of-school rate (SDG Indicator 4.1.4), which would use

14 For a good reference on measuring equity, see the *Handbook on Measuring Equity in Education* (UIS, 2018).

survey responses regarding school attendance and the number of young people in the defined age group counted in the survey. The proportion of out-of-school children would be calculated as follows, with survey weights applied to the numerator and denominator:

$$\frac{\text{Number of children in the official age range for a given level of education not attending school}}{\text{Total number of children in the official age range for a given level of education}} = \text{Proportion of out-of-school children}$$

Descriptive statistics can be presented in tables and graphs. They can also be visually presented on maps, which efficiently communicate geographic similarities and differences. For example, Indicator 4.1.2 measures the percentage of children and youth who completed primary or secondary education. A map could colour-code geographic areas according to their wealth and overlay a histogram to show completion rates.

Correlation and multivariate analysis (such as multiple regression and multiple analysis of variance) offers the opportunity to answer more complex research questions, such as “Which household characteristics are positively associated with stronger learning outcomes?” and “What factors are the strongest predictors of higher educational attainment rates?”

Regression examines the factors, referred to as independent variables, that are associated with a particular outcome, referred to as the dependent variable. In other words, the numerical or categorical value of the dependent variable

One important caveat: correlation does not imply causation. Put another way, when data show a statistical connection (a correlation), analysts cannot automatically conclude that a particular set of factors produced a particular outcome. Other causes may not have been measured or the correlation may have emerged merely by chance. Possible actions to take after detecting statistical significance or correlation include (i) additional statistical analysis and (ii) study of the underlying phenomena to understand what is happening in the real world.

is correlated with the values of the independent variables.

Multivariate analysis can be used for predictive purposes. Analysis that determines which factors from the home environment affect school performance, for example, could test the effects of positive or negative changes in those factors. Similarly, multivariate analysis can determine the relative contribution of various factors on an outcome variable (or SDG indicator) of interest. Household survey data can also be combined with data from other sources, as explained in Chapter 2. These types of analyses are likely to inform discussions about policy and programmatic changes that could lead to improving performance on SDG 4 targets.

3.7 Communicating findings

To ensure that the household survey data are used to the maximum extent possible, resulting findings must be disseminated in ways appropriately tailored for the intended audiences. The project team should create a dissemination plan that specifies the key findings to be disseminated, identifies the key audiences to be targeted, and describes the dissemination approaches or media best suited for both the information and the audience.

Target audiences

The chosen methods and media for dissemination will depend on the target audiences and their priorities and levels of interest. Typical audiences include:

- **Non-technical ministry of education officials, local donors, and non-governmental organizations working in the country's education sector.** These stakeholders will be most interested in key findings and summary statistics.
- **International or multilateral donor organizations.** These stakeholders will be interested in cross-national comparisons of indicator measurements as well as the full technical report and dataset.
- **Academic researchers and technical units within the ministry of education.** A small audience will require a full technical report.
- **General public and media.** Average citizens and the media, both local and international, should be able to easily access key findings.

Dissemination formats and key messages

The various target audiences outlined above will require different levels of detail of information, which can drive decisions about the dissemination format. Various means of communicating findings are listed below; this is followed by Table 3.5 which maps the target audience to dissemination formats.

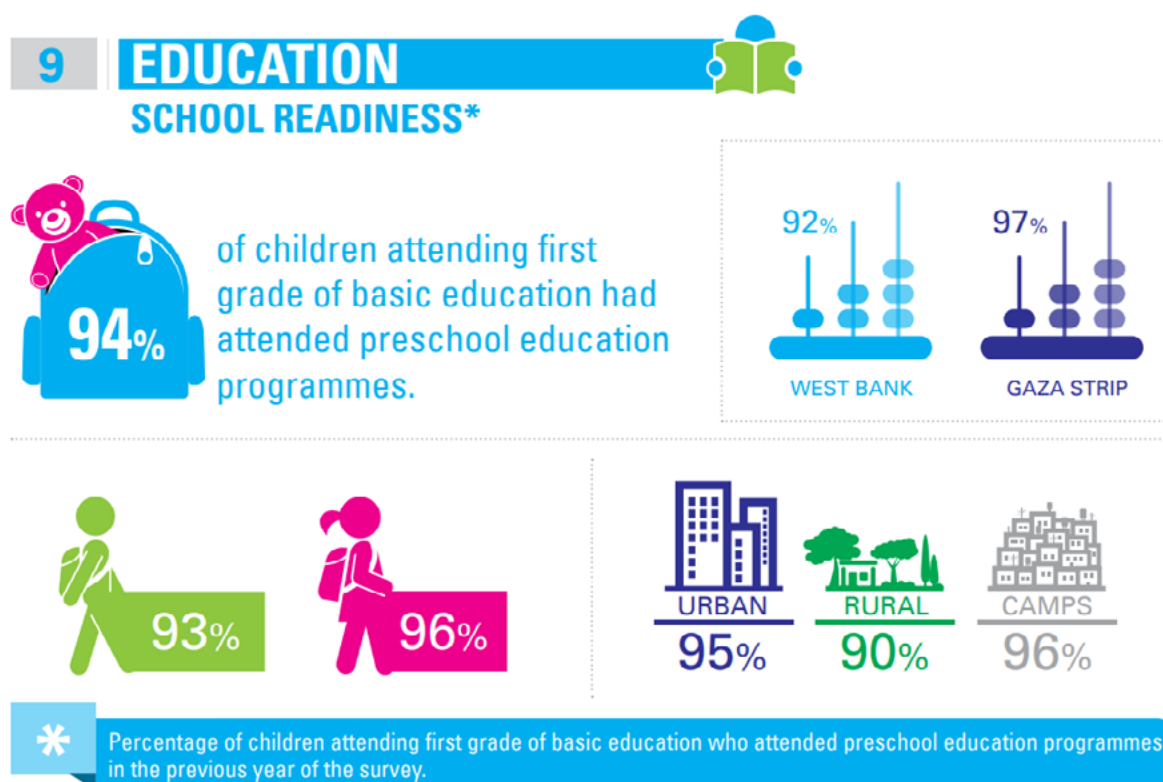
- **Fact-sheets, infographics.** These and other non-technical materials can be accessed online or printed for dissemination events. They present key findings that are clear and concise, with minimal text. The MICS dissemination materials are [available online](#) by country and in various languages and formats, including posters, banners and even wall calendars (UNICEF, 2020a). **Figure 3.2** shows an infographic with data from a MICS conducted in Palestine in 2014.
- **Policy briefs** that connect specific survey findings with related policy implications. For example, if data from a household survey show disparities in educational attainment between boys and girls, a policy brief can show the relevant data points (such as pre-primary attendance, primary and secondary completion rates, and participation in technical-vocational training programmes) to highlight the significance of the disparity at various levels. In consultation with subject experts (e.g., gender) and key stakeholders (e.g., ministry of education official for primary grades), authors of the brief can then connect the data to suggested policy changes that could lessen disparities (DHS Program, n.d.).
- **Online dashboards.** Each of the above can be made publicly available online, provided

all necessary permissions are granted by government and funders in the form of static PDF files or in the form of an interactive dashboard. SDG indicator data can be added to repositories of education data or “online dashboards” that are interactive in nature and allow comparisons with other countries’ data, such as the [SDG 4 Dashboard](#) by the UNESCO Institute for Statistics, UNICEF’s [EduView](#) dashboard, the DHS Program’s [STATcompiler](#) and the University of Oxford’s [SDG Tracker](#). Such dashboards enable even non-technical users to visualize data

themselves, with charts, graphs and maps showing data from a single year or across years.

- An **oral presentation** covering key findings should preferably be accompanied by a visual component such as PowerPoint slides. The presentation should be delivered at a dissemination event by someone who is a clear and effective verbal communicator, is intimately familiar with the findings while being able to maintain a “big picture” perspective and is cognisant of the larger political, socio-

Figure 3.2. Example of infographic: Palestine MICS, 2014



Source: Palestinian Central Bureau of Statistics and UNICEF (n.d.)

economic and educational context—both locally and globally.

- **Media.** In many places, radio and television remain good outlets for highlighting key survey findings. In addition, once dissemination materials are created, the general public and news media can be alerted to them via social media. Twitter, Facebook and other platforms can be used to help further disseminate findings and materials. Videos of dissemination events, media interviews or coverage, and even animated infographics can be shared on online video-sharing platforms. For example, key findings from India’s 2018 ASER are described in a [YouTube video](#) (ASER Centre, 2019). Similarly, MICS creates short videos to describe findings in many countries, such as one for Bosnia and Herzegovina (UNICEF, 2013).
- A **technical findings report.** At a minimum it should include subsections describing the purpose of the household survey, the methodology applied (sampling, instrument development, fieldwork and data analysis), the findings (which should be clearly tied to the SDG 4 indicators), any limitations of the approach and a discussion of implications for achieving SDG 4 in light of the findings.
- **Dataset.** The full dataset must be shared with the relevant unit within the ministry of education (as well as with the funding entity if distinct from the government). In addition, the cleaned and de-identified dataset and codebook can be made into public-use files that will be useful to researchers both nationally and internationally who wish to conduct secondary analyses. This can be made available through an electronic secure transfer process that requires verification

Table 3.5. Target audiences for dissemination

| Audience | Event, presentation | Briefs and infographics | Online data dashboard | Technical report | Dataset |
|--|---------------------|-------------------------|-----------------------|------------------|---------|
| Ministry of education, NSO, national learning assessment council, local NGOs | ● | ● | ● | | |
| Technical unit of MOE, NSO, NLAC, donors, researchers | | | | ● | ● |
| General public and media | ● | ● | ● | | |

of the person or group requesting the dataset, as well as their intentions for its use. Subsequent findings from secondary analyses should also be disseminated using similar platforms.

- **Working papers** that make use of the survey data. Organizations that sponsor household surveys sometimes organize and foster a working paper series to encourage greater utilization of the data. Prior to submitting for peer-reviewed publication, researchers may wish to share drafts of papers they are working on to solicit informal feedback from other researchers or stakeholders who are knowledgeable about the topic.

Table 3.5 maps dissemination formats with target audiences.

An important consideration during communication of results from surveys is the notion of “official government sources of data”. For example, it is not unusual for governments to prefer administrative data for indicator calculation and to view household surveys as a secondary source. Since discrepancies between the two sources of data are common, it is important to be clear about which data source should be considered official for key indicators and which one offers further insights but is not considered official.

If necessary and depending on the target audience, the dissemination products should also explain the differences between previously reported indicator values – derived from administrative records, household surveys, or other data sources – and the new indicator values based on household survey data. This will help users interpret historical trends and current statistics.

3.8 Implementing household surveys during COVID-19

A chapter on implementation of household surveys cannot be complete without a discussion of the impact of the COVID-19 pandemic that began in early 2020. The pandemic had a fundamental effect on many aspects of life and raised unprecedented challenges both for the provision of education and for data gathering and statistical capacities.

In the midst of disruption to school-based learning, there is intense pressure to document the effects of the pandemic on educational participation and learning outcomes. Not only are education systems expected to collect data more frequently to monitor the effects of the crisis, but to do so while respecting new forms of provision of schooling.

While there is increased demand on national statistical capacities, the crisis is simultaneously impeding the ability of authorities to collect data. Administrative systems that previously collected data at the school level can struggle to adapt to distance learning. Survey-based methods have the potential to provide valuable insights and fill in gaps left by administrative data collection. However, the risks associated with in-person canvassing of households at a time when social distancing should be practiced emphasize the need for new, safer data collection methods.

This section provides a summary of the challenges and potential responses regarding the effect of the COVID-19 pandemic on data collection in education. It provides an overview of its impact on statistical capacities, followed by examples of response initiatives, alongside an account of important considerations when using alternative survey modes.

The pandemic has disrupted data collection and stretched statistical capacities

A survey of governments by the UIS reveals the extent of disruption to education statistics planning units. Of the 129 countries surveyed between July and October 2020, around two-thirds reported that education statistics planning units had either ceased or postponed data collection during the 2020-2021 biennium. The same proportion reported that COVID-19 had severely or moderately affected their ability to meet global, regional and national SDG reporting requirements. Four out of ten countries reported that the main offices of their education statistics planning units were either closed or only open to essential staff (UIS, 2020).

Furthermore, poorer countries disproportionately report challenges to data collection. Over one-third of low-income countries report that the pandemic has severely affected their ability to meet national reporting requirements, compared to 6% and 13% among high- and upper-middle-income countries, respectively. Although difficulties in obtaining school census data rank above those associated with household and census data for the majority of countries, only one-third of low-income countries reported that surveys on the impact of COVID-19 are planned, and none reported that they were collecting data more frequently than usual (UIS, 2020).

A survey of NSOs by the United Nations Statistics Division (UNSD) and the World Bank reveals similar levels of disruption. Among the 112 countries that responded to the survey in July 2020, two-thirds reported that face-to-face data collection had been fully or partly suspended. Moreover, among all data collections activities, those linked to household surveys – namely household sector and labour market statistics – were reported as most affected (UNSD and World Bank, 2020).

In response to both surveys, NSOs reported that additional support was needed to withstand and adapt to the pandemic, with financial support, ICT infrastructure, training and technical assistance identified as priorities. Unsurprisingly, the UNSD survey found that low-income countries expressed the highest level of need for support, with at least half of NSOs reporting that assistance in the priority issues listed above was greatly needed. This proportion rose to over two-thirds in sub-Saharan African NSOs, with 80% reporting that technical assistance and training were greatly needed.

Remote modes of data collection can circumvent restrictions

Social distancing measures have prevented face-to-face data collection in many countries. In places where in-person interviews still take place, risk avoidance behaviour might also lower response rates. Alternative methods that allow remote data collection – such as computer-assisted telephone interviewing (CATI) and computer-assisted web interviewing (CAWI) – can therefore play an important role.

Although internet- and telephone-based methods are established in richer countries with a well-developed information infrastructure, the spread of information and communication technologies makes them increasingly viable in poorer contexts. Among remote methods, telephone-based interviewing has the broadest relevance across differing country contexts. In Africa, for instance, an estimated 90% of the population is covered by a cellular network and there are 80 mobile subscriptions for every 100 inhabitants (ITU, 2019).

The penetration of mobile phone ownership, combined with the relative ease of interviewing,

has enabled CATI methods to provide frequent updates throughout the pandemic. For example, the World Bank has conducted several waves of high-frequency phone surveys (HFPS) in several countries, collecting data from households across multiple topics, including educational participation (Josephson et al., 2020). In total, over 100 phone surveys are being implemented with World Bank support to monitor the impact of COVID-19 on households and individuals. As part of this initiative, guidelines covering sample design, training and survey implementation have been prepared, alongside sample questionnaires and an interviewer's manual (World Bank, 2020a, 2020b, 2020c).

In response to the pandemic, several countries have moved to remote interviewing for their existing surveys. In Brazil, for example, the most prominent household survey, the Continuous National Household Sample Survey, shifted to CATI methods from March 2020, while an experimental high-frequency phone-based COVID survey has also been implemented, capturing information on school attendance and participation in learning activities (Silva, 2020). In the Philippines, interviewing for the labour force survey has shifted from computer-assisted personal interviewing (CAPI) to mixed modes of CAPI, CATI and CAWI (ILO, 2020a).

Phone-based surveys have also been used to carry out learning assessments during the pandemic, in order to collect data that are essential to understand the effects of educational disruption on child learning and to inform policy responses. Utilizing both SMS and direct phone calls, preliminary results from a pilot initiative in Botswana suggest that phone assessments can provide valid information at a fraction of the cost of face-to-face interviews (Angrist et al., 2020).

New interview modes require adaptations to survey design and implementation

Despite its potential for providing regular and less costly means of data collection throughout the pandemic, remote data collection is not a simple replacement for face-to-face interviews. Remote surveys require different infrastructure and survey content may need to be adapted. They also pose distinct challenges for obtaining representative samples. These considerations call for different approaches and capacities during survey design and implementation.

Questionnaires and survey content for remote surveys may need to be adapted for remote interviews. Due to greater potential for fatigue and lower levels of engagement among respondents, telephone interviews typically should not last more than half an hour. Careful consideration may therefore be needed for what questions or modules to drop to keep the interview an appropriate length. Certain questions – such as those based on show cards or those with long lists of response options – may be dropped or revised. Similarly, the use of web-based surveys will require adaptation for self-completion, along with the development of online guides (UN DESA, 2020). Although such modifications may result in a loss of comparability with previous surveys, this can be partly remedied through future surveys that attempt to capture information retrospectively (UNECLAC, 2020a). Any adaptation of questionnaires and interview modes should be followed by comprehensive piloting to test whether questions are clearly understood by interviewers and respondents, and to confirm that scripted introductions and guidance materials are well comprehended (World Bank, 2020b).

CATI and CAWI methods were widely employed in advanced economies prior to the pandemic and for these countries, capacity challenges may largely be

restricted to adapting infrastructure to remote work. For countries that have largely relied on in-person interviews – particularly paper-based interviews – gaps in their capacity and infrastructure will be more severe. Interviewers may require additional training alongside the provision of computers and telephones. For surveys that continue to use paper-based entry, procedures must be put in place to enable forms to be returned and entered if interviewers are working remotely (ILO, 2020b).

The selection of a sampling frame, as well as the complications of non-response are comparatively challenging for both telephone and web-based surveys. If they are not dealt with appropriately, representation and comparability with previous surveys can be significantly compromised.

In the context of a pandemic or similar crises, and contingent upon the availability of contact details among respondents, the recommended approach to obtaining a sampling frame is to use one from a previous survey. Alternatives include using a list of contacts – such as those maintained by governments agencies, or telecommunications

and marketing companies – or methods such as random digit dialling. Although these methods have the advantage of accommodating large sample sizes, ensuring representation through survey design and stratification can be problematic due to the lack of auxiliary data (World Bank, 2020a).

Regardless of the choice of sampling frame and survey design, non-response will compromise representation unless adjusted. In addition, phone ownership may be skewed to certain demographics in some countries, such as younger men, and some sub-groups of the population may be less likely to answer phone calls. This calls for poststratification and (re)weighting procedures to correct for bias, including techniques commonly employed by polling agencies, such as multilevel regression with poststratification (MRP). However, in contexts where significant proportions of the population have no access to phones, the ability of weighting methods to correct for non-response is limited. In these contexts, there is still a need for mixed-mode methods, incorporating face-to-face interviews for certain subgroups (ILO, 2020b; UNECLAC, 2020b).

4. Conclusion

The purpose of this *Digest* is to encourage countries committed to achieving the Sustainable Development Goals – and in particular the education goal, SDG 4 – to take advantage of the rich data that can be collected via household surveys.

The advantages of household surveys over alternative sources of education data are clear. In comparison to administrative sources, household surveys can capture education outcomes among children within and outside of schools, and among those within the non-state sector. Household surveys are able to collect sensitive information that respondents are unwilling to report to authorities, for example on bullying in school, or data that caregivers are best placed to provide, such as information on child disability and functioning. Crucially, in most contexts only surveys can practically provide the rich individual and background data that are required to monitor and understand education inequalities.

Some limitations of household surveys must also be acknowledged. The periodicity of international survey programmes, typically every three to five years, means that they cannot be used for annual monitoring. For some indicators, for example those measuring school resources, administrative records are a better source. There can be measurement error linked to sampling, questionnaire design and errors during data collection and processing. The sample size may be problematic for some indicators, especially when they have to be disaggregated. Yet, in spite of these limitations, household surveys are an

important component of a well-functioning national statistical system and complement other sources of data.

Approximately one-half of global and thematic SDG 4 indicators can be calculated with data from current international household surveys. Country participation in such survey programmes has increased over time, allowing for more extensive and regular monitoring. This *Digest* gives an extensive account of the indicators that can be calculated from such programmes, together with the possible dimensions required to estimate educational inequality. The documented calculation methods help guide indicator estimation from any survey with sufficient data. The *Digest* also describes existing survey programmes and questionnaire modules that can be adapted for national data collection to minimize the cost associated with the design and implementation of a household survey.

Despite growing participation in household survey programmes, coverage is far from universal. There is still untapped scope for countries to utilize national surveys for SDG monitoring. With this in mind, and with the aim of increasing survey participation and implementation, this *Digest* gives an overview of important considerations for planning and administering surveys that cover the survey lifecycle, from initial planning to data collection, processing and communication of results. Among them are as follows:

- The importance of ensuring effective oversight, ownership and organizational structure.

- Obtaining and sustaining political and financial support for the survey during planning phases.
- Decisions and technical factors that affect cost, recognizing that expenses can vary substantially depending on the circumstances in which a survey is conducted.
- Technical considerations, such as sampling design.
- Good practices to take into account when formulating questionnaires.
- Appropriate guidance and training for survey enumerators and administrators.
- Possible methods of survey administration (such as in person or by telephone), where they are appropriate, and their relative advantages and disadvantages.
- Consideration for quality control, both before administration and in post-processing.
- Performance metrics for ensuring survey administration remains on track.
- Key considerations for communicating survey findings, such as the differentiation of target audiences and the selection of appropriate dissemination formats.

In addition to greater country coverage and survey periodicity, further efforts are

required to ensure greater comparability of all SDG 4 indicators. Standardizing relevant household survey questions and harmonizing data collection and indicator calculation methodologies are important steps in helping to address comparability and data gaps. There is unrealized potential to combine survey data with administrative sources for SDG 4 and cross-sectoral monitoring, examples of which are touched upon. Finally, COVID-19 has highlighted the necessity for innovative and flexible data collection methods in response to the constraints and new data needs caused by the pandemic. This *Digest* provides guidance towards these means, recognising that further methodological development in the application will remain on the agenda until 2030 and beyond.

As the main custodian agency for SDG 4 indicators, the UNESCO Institute for Statistics will continue to support countries' efforts to achieve global development goals, by working with Member States and institutional partners – including the Technical Cooperation Group on the Indicators for SDG 4-Education 2030 – on standard setting, methodological development, and data collection and dissemination.

By adopting the approaches described in this *Digest*, it is expected that both country-level and international actors will gain a vital new set of tools that could support them in tracking and achieving inclusive and equitable quality education and the promotion of lifelong learning opportunities for all.

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Annex 1: Global and thematic SDG indicators related to education

| Indicator | Indicator name |
|-----------|--|
| 1.a.2 | Proportion of total government spending on essential services (education, health and social protection) |
| 4.1.1 | Proportion of children and young people (a) in grades 2/3; (b) at the end of primary; and (c) at the end of lower secondary achieving at least a minimum proficiency level in (i) reading and (ii) mathematics, by sex |
| 4.1.2 | Completion rate (primary education, lower secondary education, upper secondary education) |
| 4.1.3 | Gross intake ratio to the last grade (primary education, lower secondary education) |
| 4.1.4 | Out-of-school rate (1-year before primary education, primary education, lower secondary education, upper secondary education) |
| 4.1.5 | Percentage of children over-age for grade (primary education, lower secondary education) |
| 4.1.6 | Administration of a nationally-representative learning assessment (a) in Grade 2 or 3; (b) at the end of primary education; and (c) at the end of lower secondary education |
| 4.1.7 | Number of years of (a) free and (b) compulsory primary and secondary education guaranteed in legal frameworks |
| 4.2.1 | Proportion of children aged 24-59 months who are developmentally on track in health, learning and psychosocial well-being, by sex** |
| 4.2.2 | Participation rate in organized learning (one year before the official primary entry age), by sex |
| 4.2.3 | Percentage of children under 5 years experiencing positive and stimulating home learning environments |
| 4.2.4 | Gross early childhood education enrolment ratio in (a) pre-primary education and (b) early childhood educational development |
| 4.2.5 | Number of years of (a) free and (b) compulsory pre-primary education guaranteed in legal frameworks |
| 4.3.1 | Participation rate of youth and adults in formal and non-formal education and training in the previous 12 months, by sex |
| 4.3.2 | Gross enrolment ratio for tertiary education by sex |
| 4.3.3 | Participation rate in technical-vocational programmes (15- to 24-year-olds) by sex |
| 4.4.1 | Proportion of youth and adults with information and communications technology (ICT) skills, by type of skill |
| 4.4.2 | Percentage of youth/adults who have achieved at least a minimum level of proficiency in digital literacy skills* |
| 4.4.3 | Youth/adult educational attainment rates by age group and level of education |
| 4.5.1 | Parity indices (female/male, rural/urban, bottom/top wealth quintile and others such as disability status, indigenous peoples and conflict-affected, as data become available) for all education indicators on this list that can be disaggregated |
| 4.5.2 | Percentage of students in primary education who have their first or home language as language of instruction |

| Indicator | Indicator name |
|-----------|--|
| 4.5.3 | Extent to which explicit formula-based policies reallocate education resources to disadvantaged populations* |
| 4.5.4 | Education expenditure per student by level of education and source of funding |
| 4.5.5 | Percentage of total aid to education allocated to least developed countries |
| 4.6.1 | Proportion of population in a given age group achieving at least a fixed level of proficiency in functional (a) literacy and (b) numeracy skills, by sex |
| 4.6.2 | Youth/adult literacy rate |
| 4.6.3 | Participation rate of illiterate youth/adults in literacy programmes |
| 4.7.1 | Extent to which (i) global citizenship education and (ii) education for sustainable development are mainstreamed in (a) national education policies; (b) curricula; (c) teacher education; and (d) student assessment* |
| 4.7.2 | Percentage of schools that provide life skills-based HIV and sexuality education |
| 4.7.3 | Extent to which the framework on the World Programme on Human Rights Education is implemented nationally (as per the UNGA Resolution 59/113)* |
| 4.7.4 | Percentage of students by age group (or education level) showing adequate understanding of issues relating to global citizenship and sustainability |
| 4.7.5 | Percentage of students in the final grade of lower secondary education showing proficiency in knowledge of environmental science and geoscience |
| 4.7.6 | Extent to which national education policies and education sector plans recognize a breadth of skills that needs to be enhanced in national education systems* |
| 4.a.1 | Proportion of schools offering basic services, by type of service |
| 4.a.2 | Percentage of students experiencing bullying in the last 12 months |
| 4.a.3 | Number of attacks on students, personnel and institutions |
| 4.b.1 | Volume of official development assistance flows for scholarships by sector and type of study |
| 4.c.1 | Proportion of teachers with the minimum required qualifications, by education level** |
| 4.c.2 | Pupil-trained teacher ratio by education level |
| 4.c.3 | Percentage of teachers qualified according to national standards by education level and type of institution |
| 4.c.4 | Pupil-qualified teacher ratio by education level |
| 4.c.5 | Average teacher salary relative to other professions requiring a comparable level of qualification* |
| 4.c.6 | Teacher attrition rate by education level |
| 4.c.7 | Percentage of teachers who received in-service training in the last 12 months by type of training* |

Notes: (1) Rows highlighted in grey refer to global indicators. (2) The UIS reports only the education component of SDG indicator 1.a.2.

* Indicator not included in the September 2020 data release because no data are currently available at the UIS.

** Refinement of the indicator name approved by the Inter-agency and Expert Group on SDG Indicators (IAEG-SDGs) on 13 March and 2 April 2020. Final approval pending the 52nd session of the Statistical Commission in March 2021.

Annex 2: Household survey questions for collection of SDG 4 data

This annex presents questions taken from existing household surveys that are relevant to SDG 4 indicators. The examples provided do not constitute an exhaustive list of questions. Rather, the questions are provided to give the reader a sense of what may be possible to collect with household surveys. Note that each question listed below would need to be tested prior to use in a new country.

Within each SDG 4 indicator, the example questions are frequently quite similar. Efforts to harmonize the questions would help ensure greater comparability of the resulting data.

Numbers or letters at the beginning of the questions below denote the item position in the original survey instrument.

| Primary and secondary education | |
|---|---|
| Target 4.1 By 2030, ensure that all girls and boys complete free, equitable and quality primary and secondary | |
| Indicator 4.1.2 (completion rate) | |
| Example questions | |
| Cohort | Question |
| MICS household questionnaire | ED5. What is the highest level and grade or year of school [name] has ever attended? LEVEL 1 PRIMARY 2 LOWER SECONDARY 3 UPPER SECONDARY 4 HIGHER 8 DK |
| STEP | Module 2: (8A) What is the highest grade/year of formal education that you have completed? |

| Indicator 4.1.4 (out-of-school rate) | |
|---|---|
| Example questions | |
| Survey | Question |
| ASER | For out-of-school children (currently not enrolled in school) (age 5 to 16) [select and complete the appropriate information]: <ul style="list-style-type: none"> • Never enrolled • Dropped out <ul style="list-style-type: none"> · Which standard were you in when you left school? · Which year did you drop out? (e.g., 2012) |
| DHS | Did [NAME] attend school at any time during the [current] school year? |
| Young Lives | Round 2 - 1.2 Are you currently enrolled in school? |

| Indicator 4.1.5 (percentage of children over-age for grade) | |
|--|--|
| Example questions | |
| Survey | Question |
| ASER | For in-school children (currently enrolled in school) (age 5 to 16): indicate the following: <ul style="list-style-type: none"> • Which Std.? • Type of school? <ul style="list-style-type: none"> · government · private · madrasa · EGS/AIE/other |
| MICS child questionnaire | CB3. How old is [name]? CB8. During this current school year, which level and grade or year is [name] attending? |
| STEP | Module 2:(20) What grade/year are you currently attending? |

Early Childhood

Target 4.2 By 2030, ensure that all girls and boys have access to quality early childhood development, care and pre-primary education so that they are ready for primary education

Indicator 4.2.2 (participation rate in organized learning)

Example questions

| Survey | Question |
|--------------------|--|
| MICS – ECDI | <p>UB6. Has [name] ever attended any early childhood education programme, such as [insert country-specific programme names]?</p> <p>UB7. At any time since the beginning of the school year, did (he/she) attend [programmes mentioned in UB6]?</p> <p>UB8A. Does (he/she) currently attend [programmes mentioned in UB6]?</p> |
| Uwezo | <p>H600. Pre-school status [going/not going]</p> <p>67a Does/did this child attend kindergarten/children's centre?</p> |

Indicator 4.2.3 (children under 5 years experiencing positive and stimulating home learning environments)

Example questions

| Survey | Question |
|------------------------------------|--|
| MICS Family Care Indicators | <p>In the past 3 days, did you or any household member age 15 or over engage in any of the following activities with [name]: If "yes", ask: Who engaged in this activity with [name]?</p> <p>Record all that apply.</p> <p>"No one" cannot be recorded if any household member age 15 and above engaged in activity with the child.</p> <p>[A] Read books or looked at picture books with [name]?</p> <p>[B] Told stories to [name]?</p> <p>[C] Sang songs to or with [name], including lullabies?</p> <p>[D] Took [name] outside the home?</p> <p>[E] Played with [name]?</p> <p>[F] Named, counted, or drew things for or with [name]?</p> |

Indicator 4.2.4 (gross early childhood education enrolment ratio in (a) pre-primary education and (b) early childhood educational development)

Example questions

| Survey | Question |
|-------------------------------------|--|
| MICS household questionnaire | ED9. At any time during the current school year did [name] attend school or any early childhood education programme? |
| Uwezo | <p>H600. Pre-school status [going/not going]</p> <p>67a Does/did this child attend kindergarten/children's centre?</p> |

Indicator 4.3.1 covers a wide range of education types. Below are examples of questions designed to cover the different types of education likely to be encountered by youth (15 to 24) and working-age adults (25 to 64). Note that STEP and PIAAC provide the most comprehensive list of questions regarding formal as well as non-formal training. Only a few examples are listed below.

| TVET and higher education Target 4.3 By 2030, ensure equal access for all women and men to affordable quality technical, vocational and tertiary education, including university | |
|---|--|
| 4.3.1 (participation rate of youth and adults in formal and non-formal education and training) Example questions | |
| Survey | Question |
| Questions related to formal education | |
| Module developed by TCG | During the last 12 months, that is since [specify: month, year] F1. Have you been a student or apprentice in formal education or training? [Yes/No] |
| PIAAC | B_Q02a Are you currently studying for any kind of formal qualification? |
| MICS household questionnaire | ED10. During this current school year, which level and grade or year is [name] attending? |
| STEP | (19) Are you currently attending a formal education programme (formal education)? (20) What grade/year are you currently attending? (21) In what field is this study? |
| Uwezo | H700 - School status Which STD./FORM is [NAME] enrolled in? |
| Young Lives Round 4 older cohort | 3.2 Q2. Are you currently in full-time education? |
| Questions related to non-formal training | |
| Module developed by TCG | During the last 12 months, that is since [specify: month, year] NF1. Have you participated in any of the following activities with the intention to improve knowledge or skills in any area (including hobbies) either in leisure time or in working time? <ul style="list-style-type: none"> · a course? [Yes/No] · a workshop or seminar? [Yes/No] · guided on-the-job training? [Yes/No] · a private lesson? [Yes/No] |
| STEP | Module 2: (37) In the past 12 months (i.e. since [month]), have you participated in any training courses, such as work-related training or private skills training, that lasted at least 5 days/30 hours (not part of the formal educational system)? (38) In what domains/fields did you do this skills training? Record up to two course fields. |

| | |
|---|---|
| PIAAC | <p>B_R12 - We would now like to turn to other organized learning activities you may have participated in during the last 12 months, including both work and non-work related activities. During the last 12 months, have you attended any organized sessions for on-the-job training or training by supervisors or co-workers?</p> <p>During the last 12 months, have you participated in courses conducted through open or distance education?</p> <p>During the last 12 months, have you participated in seminars or workshops?</p> |
| Young Lives Round 4 older cohort | <p>4.4. Q1. Since 2002 (E.C.) (equivalent to 2009 G.C.), have you had any training that has lasted at least one week and that is/was not part of formal education?</p> <p>Q2. Type of training?</p> <p>Q5. Full duration of the training?</p> |

Questions related to Indicator 4.3.2 should ideally have tertiary education specified in the response options.

| Indicator 4.3.2 (gross enrolment ratio for tertiary education) | |
|---|--|
| Example questions | |
| Survey | Question |
| PIAAC | PIAAC: B_Q02a Are you currently studying for any kind of formal qualification? |
| MICS household questionnaire | ED10. During this current school year, which level and grade or year is [name] attending? |
| STEP | (19) Are you currently attending a formal education programme (formal education)? (20) What grade/year are you currently attending? |
| Uwezo | Uwezo - H700 - School status. Which STD./FORM is [NAME] enrolled in? |
| Young Lives Round 4 older cohort | 3.2 Q2. Are you currently in full-time education? |

| Indicator 4.3.3 (participation rate in technical-vocational programmes) | |
|--|---|
| Example Questions | |
| Survey | Question |
| MICS household questionnaire | ED10. During this current school year, which level and grade or year is [name] attending? |
| STEP | (19) Are you currently attending a formal education programme (formal education)? (20) What grade/year are you currently attending? (37) In the past 12 months (i.e. since [month]), have you participated in any training courses, such as work-related training or private skills training, that lasted at least 5 days/30 hours (not part of the formal educational system)? |

| | |
|--|---|
| <p>Young Lives Round 4 older cohort</p> | <p>3.2 Q2. Are you currently in full-time education? Q.2 Which grade/type of programme are you/were you attending?</p> <ul style="list-style-type: none"> · 00=None · 20=Some form of formal or informal pre-school · Grade=01-11 · 13=Incomplete technical or pedagogical institute · 14=Complete technical or pedagogical institute · 15=Incomplete university · 16=Complete university · 17= Adult literacy programme · 18=Other (specify) · 19=Masters or doctoral programme at university · 21=Incomplete Cent. Técnico Productivo CETPRO/Cent. Edu. Ocupacional CEO · 22= Complete Cent. Técnico Productivo CETPRO/Cent. Edu. Ocupacional CEO <p>4.4. Q1. Since 2002 (E.C.) (equivalent to 2009 G.C.), have you had any training that has lasted at least one week and that is/was not part of formal education? Q2. Type of training Q5. Full duration of the training?</p> |
| <p>Module developed by TCG</p> | <p>Formal education: During the last 12 months, that is since [specify: month, year] F1. Have you been a student or apprentice in formal education or training? [Yes/No] If yes: F2. What was the level of the most recent formal education or training activity? [ISCED 1-8] F3. Was any formal education or training activity during the last 12 months a technical or vocational programme? [Yes/No]</p> <p>Non-formal education: During the last 12 months, that is since [specify: month, year] NF1. Have you participated in any of the following activities with the intention to improve knowledge or skills in any area (including hobbies) either in leisure time or in working time?</p> <ul style="list-style-type: none"> · a course? [Yes/No] · a workshop or seminar? [Yes/No] · guided on-the-job training? [Yes/No] · a private lesson? [Yes/No] <p>If any yes: NF2. Was any of these education or training activities a technical or vocational programme? [Yes/No]</p> |

Skills for work

Target 4.4 By 2030, substantially increase the number of youth and adults who have relevant skills, including technical and vocational skills, for employment, decent jobs and entrepreneurship

Indicator 4.4.1 (proportion of youth and adults with information and communications technology (ICT) skills)

Example questions

| Survey | Question |
|---|--|
| ITU model questionnaire for measuring ICT access and use | <p>19. Which of the following computer-related activities have you carried out in the last three months? Please tick all that apply.</p> <ul style="list-style-type: none"> · Copying or moving a file or folder · Using copy and paste tools to duplicate or move information within a document · Sending e-mails with attached files (for example, a document, picture, video) · Using basic arithmetic formulas in a spreadsheet · Connecting and installing new devices (for example, a modem, camera, printer) · Finding, downloading, installing and configuring software · Creating electronic presentations with presentation software (including text, images, sound, video or charts) · Transferring files between a computer and other devices · Writing a computer program using a specialized programming language |

Indicator 4.4.3 (youth/adult educational attainment rates)

Example questions

| Survey | Question |
|---|---|
| MICS household questionnaire | <p>ED5. What is the highest level and grade or year of school [name] has ever attended?</p> <ul style="list-style-type: none"> · Early childhood education..... 000 · Primary..... 1 · Lower secondary..... 2 · Upper secondary..... 3 · Higher..... 4 |
| SWTS | <p>C3. What is your highest level of completed education?</p> <ul style="list-style-type: none"> · Elementary level (primary)..... 1 · Vocational school 2 · Secondary level..... 3 · Higher education level..... 4 · Post-graduate, post-doctoral level... 5 |
| Young Lives Round 4 older cohort | <p>Round 4. What was the highest grade that [HHM] completed (excluding pre-primary)?</p> <p>Round 4. What is the highest complete qualification/certificate you have attained (including school leaving certificates/transcripts/report)?</p> <ul style="list-style-type: none"> · 00 = No certificate · 01 = Grade 8 completion/transcript national examination report · 02 = General secondary education · 03 = Higher education entrance certificate · 04 = Preschool teaching certificate · 05 = First cycle of primary teacher training certificate · 06 = Completion of TVET certificate · 07 = University degree |

Equity

Target 4.5 By 2030, eliminate gender disparities in education and ensure equal access to all levels of education and vocational training for the vulnerable, including persons with disabilities, indigenous peoples and children in vulnerable situations

Indicator 4.5.2 (percentage of students in primary education who have their first or home language as language of instruction)
Example questions

| Survey | Question |
|--|--|
| ASER | In which language is the child taught in school? (medium of instruction) |
| Uwezo | H108. Main language spoken at home |
| MICS child 5-17 questionnaire | FL7. Which language do you speak most of the time at home? FL9. What language do your teachers use most of the time when teaching you in class? |
| Young Lives Round 3 15-year-old child questionnaire | 3.30 In classes, what language do teachers usually speak when giving instructions or explaining something to the class? <ul style="list-style-type: none"> · 01 = Always speak (main national language) · 02 = Always speak only my mother tongue · 03 = Sometimes speak main national language, sometimes speak mother tongue · 04 = Other language (i.e. English) · 88 = N/A |

Indicator 4.5.4 (education expenditure per student by level of education and source of funding)**Example questions**

| Survey | Question |
|--|--|
| <p>UIS-World Bank module (2018)</p> | <p>Monthly expenses</p> <p>19a. How much did [NAME] spend MONTHLY on education during the [LAST COMPLETED SCHOOL YEAR] for each of the following?</p> <ul style="list-style-type: none"> • Ancillary fees (boarding, canteen, transport, health services) <ul style="list-style-type: none"> · A. School canteen fees · B. Fees for transport organized by the school • Textbooks and other teaching materials <ul style="list-style-type: none"> · C. Other required purchases (such as computer, extra books, athletic equipment, material for arts lessons, other school-related expense specific to the country) • School meals and transport purchased outside educational institutions <ul style="list-style-type: none"> · D. Transportation to and from school not organized by the school · E. School meals purchased outside school • Other categories (music and arts lessons, gifts, extra-curricular activities, etc.) <ul style="list-style-type: none"> · F. Gifts <p>Annual expenses</p> <p>19b. How much did [NAME] spend IN TOTAL on education during the [LAST COMPLETED SCHOOL YEAR]?</p> <p><i>If there was no expenditure, write '0'.</i></p> <p><i>If the respondent cannot divide school expenses into various categories, then record the aggregate education expenditure for the individual in column T, not allocable.</i></p> <ul style="list-style-type: none"> • Tuition and other fees <ul style="list-style-type: none"> · G. Tuition fees · H. Exam, registration and other official fees • Other contributions to school (PTA, SMC, school fund, in-kind contributions) <ul style="list-style-type: none"> · I. Contribution to parent-teacher associations and/or school management committees · J. Contribution to construction, maintenance or other school funds · K. Cash estimates of in-kind contributions • Ancillary fees (boarding, canteen, transport, health services) <ul style="list-style-type: none"> · L. School boarding fees · M. Fees for health services • Uniforms and other school clothing <ul style="list-style-type: none"> · N. Uniforms and other school clothing • Textbooks and other teaching materials <ul style="list-style-type: none"> · O. Textbooks and other teaching materials (stationery, etc.) • Private tutoring <ul style="list-style-type: none"> · P. Private tutoring • Additional books, computer, or learning software to be used at home in support of formal schooling <ul style="list-style-type: none"> · Q. Additional books, computer, or learning software to be used at home in support of formal schooling • Other categories (music and arts lessons, gifts, extra-curricular activities, etc.) <ul style="list-style-type: none"> · R. Music and arts lessons · S. Extra-curricular activities • Not allocable <ul style="list-style-type: none"> · T. Not allocable |

Literacy and numeracy

Target 4.6 By 2030, ensure that all youth and a substantial proportion of adults, both men and women, achieve literacy and numeracy

Indicator 4.6.1 (proficiency rate in functional (a) literacy and (b) numeracy skills)

Example Questions

| Survey | Question |
|------------------------------|--|
| PIAAC Survey of Adult Skills | Administers literacy and numeracy assessment for adults 16 to 65 years old |

Indicator 4.6.2 (youth/adult literacy rate)

Example questions

| Survey | Question |
|--|--|
| ASER/Uwezo | Administers literacy and numeracy assessment to children 5 to 16 years old |
| Egypt Labour Market Panel Survey Individual Questionnaire (2012) | Can you read a newspaper or letter? Can you write a letter? Can you do a simple arithmetic problem (addition or subtraction)? |
| LSMS Uganda National Panel Survey | Can [NAME] read and write with understanding in any language? 1 = Unable to read or write 2 = Able to read only 4 = Able to read and write 5 = Uses Braille |
| STEP | Module 1: (10) can [name] read a short simple statement? 1. Yes, without difficulty 2. Yes, but with difficulty 3. No Module 1: (11) can [name] write a short simple statement? 1. Yes, without difficulty 2. Yes, but with difficulty 3. No |
| STEP | Module 5: (19) as part of your life outside of work as [occupation], have you done any of the following in the past 12 months? 1. Measure or estimate sizes, weights, distances, etc. 2. Calculate prices or costs 3. Perform any other multiplication or division 4. Use or calculate fractions, decimals or percentages 5. Use more advanced maths, such as algebra, geometry, trigonometry, etc. 6. Other maths - specify |
| DHS Men's and Women's questionnaire (117) & MICS Questionnaire for Individual Women/Men (WB14) | Now I would like you to read this sentence to me. [Show sentence on the card to the respondent. If respondent cannot read whole sentence, probe: can you read part of the sentence to me?] 1. Cannot read at all 2. Able to read only parts of sentence 3. Able to read whole sentence 4. No sentence in required language/braille |

Indicator 4.6.3 (participation rate of illiterate youth/adults in literacy programmes)**Example questions**

| Survey | Question |
|---|--|
| Egypt Labour Market Panel Survey Individual Questionnaire (2012) | Have you ever joined a class/session of an “adult literacy” programme? Did you receive a certificate from an “adult literacy” programme? |
| STEP | Module 2: (10) Have you ever participated in a literacy programme or any programme that involved learning to read or write, excluding primary school? |
| Module developed by TCG | Formal education: During the last 12 months, that is since [specify: month, year] F1. Have you been a student or apprentice in formal education or training? [Yes/No] If yes: F4. Was the focus of any formal education or training activity during the last 12 months to improve your literacy skills? [Yes/No] Non-formal education: During the last 12 months, that is since [specify: month, year] NF1. Have you participated in any of the following activities with the intention to improve knowledge or skills in any area (including hobbies) either in leisure time or in working time? <ul style="list-style-type: none">· a course? [Yes/No]· a workshop or seminar? [Yes/No]· guided on-the-job training? [Yes/No]· a private lesson? [Yes/No] If any yes: NF3. Was the focus of any of these education or training activities to improve your literacy skills? [Yes/No] |

| School environment | |
|--|---|
| Target 4.a Build and upgrade education facilities that are child, disability and gender sensitive and provide safe, non-violent, inclusive and effective learning environments for all | |
| Indicator 4.a.2 (students experiencing bullying) | |
| Example questions | |
| Survey | Question |
| Young Lives (Round 3 15-year-olds) | Think about the past week at school or the last week that you were in school 3.25 In that week did you see a teacher use physical punishment on other students? (Physical punishment includes spanking, beating, punching, twisting child's ears or any other hitting, by using hand or an implement.) 3.26 In that week did the teacher use physical punishment on you? 3.23 What are the main reasons you are not going to school? 11= Bullying/abuse from peers 12= Ill-treatment/abuse from teachers/principal |

The Young Lives questions above only ask about bullying during the past week, while Indicator 4.a.2 is about bullying in the past 12 months. The Young Lives questions would have to be revised accordingly.

Annex 3: Resources and recommended reading for implementation of household surveys

On formulating questions:

Sudman, S. and N. M. Bradburn (1982). *Asking questions*. San Francisco: Jossey-Bass.

While dated, this is the classic introduction to formulating survey questions and is still widely used today.

On developing questionnaires for administration in low-resource areas:

Grosh, M. and P. Glewwe (eds.). (May 2000). *Designing household questionnaires for developing countries*, Volume One. Washington, DC: World Bank.

<http://documents.worldbank.org/curated/en/452741468778781879/Volume-One>

This is the first of three volumes that, despite their age, are excellent, highly detailed reference books.

On cognitive testing:

Willis, G.B. (2005). *Cognitive interviewing: A tool for improving questionnaire design*. Thousand Oaks: Sage Publications.

This is the standard textbook for teaching researchers about the practice and value of cognitive testing.

On translating questions and questionnaires:

Behr, D., and K. Shishido (2016). "The translation of measurement instruments for cross-cultural surveys", *The Sage handbook of survey methodology*. Thousand Oaks: Sage Publications.

This chapter thoughtfully sets forth considerations and recommendations to achieve high-quality translations in survey research.

For training household interviewers:

Training field staff for DHS surveys: Demographic and health surveys methodology. (October 2009). Calverton, Maryland: ICF Macro.

https://dhsprogram.com/pubs/pdf/DHSM3/Training_Field_Staff_for_DHS_Surveys_Oct2009.pdf

MICS main fieldwork training manual. (20 September 2017). <http://mics.unicef.org/tools>

Two well-funded, sophisticated international surveys, the DHS and MICS, have drawn on years of experience that are summarized in these comprehensive, detailed training manuals.

On sampling:

ICF International (2012). *Sampling and household listing manual: Demographic and Health Surveys methodology.* Calverton, Maryland: ICF International.

https://dhsprogram.com/pubs/pdf/DHSM4/DHS6_Sampling_Manual_Sept2012_DHSM4.pdf

The manual provides clear, comprehensive information about drawing the sample for the DHS; it is considered among the highest quality international surveys.

Kalton, G. (1983). *Introduction to survey sampling.* Newbury Park: Sage Publications.

The book is a helpful resource, especially for those with statistical knowledge or those who want to refresh their understanding of sampling.

Kish, L. (1965). *Survey sampling.* New York: John Wiley & Sons.

This is the foundational textbook for survey researchers, with lots of examples to demonstrate the lessons taught.

On cross-cultural comparability:

Survey Research Center (2016). *Guidelines for best practice in cross-cultural surveys.* Ann Arbor: Survey Research Center, Institute for Social Research, University of Michigan. <http://www.ccsr.isr.umich.edu>.

This comprehensive guide describes best practices for conducting multinational, multicultural, or multiregional surveys (known as “3MC” surveys). Its chapters present useful information for researchers and survey planners regarding research methods across cultures or countries.

On planning and implementing household surveys:

International Telecommunication Union (ITU) (2014). *Manual for measuring ICT access and use by households and individuals.* Geneva: ITU.

https://www.itu.int/dms_pub/itu-d/opb/ind/D-IND-ITCMEAS-2014-PDF-E.pdf

The International Telecommunication Union summarizes methods for countries “to collect and disseminate information and communication technology (ICT) statistics, based on internationally agreed definitions and standards,” using strategies and techniques similar to those recommended for SDG 4.

SDG 4 Data Digest

Using Household Survey Data to Monitor SDG 4

The 2020 edition of the *SDG 4 Data Digest* by the UNESCO Institute for Statistics focuses on household surveys as an important and underutilized tool to collect the data needed to track progress towards Sustainable Development Goal 4 and to ensure that no one is left behind. The *Digest* describes existing survey programmes and offers advice on the design and implementation of new surveys.

The *Digest* identifies a number of advantages to using household surveys and describes the categories of indicators best suited for monitoring with survey data. Data from household surveys complement administrative data collected in schools and can be disaggregated to a greater extent than administrative data to facilitate the monitoring of exclusion in education. The definitions and calculation methods of selected indicators are laid out and the combination of household survey data with data from other sources is explained.

This issue of the *Digest* is aimed at government officials, national planners, donors and others who make decisions about the implementation of nationally representative household surveys. It describes the requirements for conducting a household survey and the steps that must be followed from questionnaire design to data collection and analysis, and it gives advice on presentation of the findings. A section on COVID-19 summarizes the impact of the current pandemic on data collection. Additional resources, with suggested survey questions for the collection of education data through household surveys, are also included.