



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

METADATA

Target 4.c By 2030, substantially increase the supply of qualified teachers, including through international cooperation for teacher training in developing countries, especially least developed countries and small island developing States

4.c.7 Percentage of teachers who received in-service training in the last 12 months by type of training

Definition

Percentage of students whose teachers have received in-service training in the past 12 to 24 months as reported in cross-national assessments (CNAs) and teacher surveys.

Purpose

The proposed indicator is designed to match SDG 4.c.7 as closely as possible given the sampling design and data collection instruments of CNAs and teacher surveys.

Data sources: estimates calculated by the UIS using cross-national learning assessments and estimates reported by the OECD based on TALIS data.

Metadata points: The metadata points indicate the source of data (Table 1 provides details for each data source). The estimates provided by UIS also include standard errors and confidence intervals estimated based on the methodologies suggested by the assessment programmes.

Definition of professional development:

Data Source 1: Cross-national learning assessment estimates by UIS

Estimation method: The calculation method varied by type of survey (see Table 1). Estimates were made following the guidelines provided by each survey on how to estimate teacher-level indicators. In general, teachers were defined to have either received in-



service training in the past 12 to 24 months based on their responses to their respective questionnaires. An indicator variable was defined for each teacher equal to one if they had received in-service training, zero if they had not, and missing if there was no response to the questionnaire items on recent teacher training.

For surveys whose teacher data is representative of teachers in the country or jurisdiction, the indicator is calculated as the percentage of teachers who received in-service training as a mean of the indicator variable (weighted by the appropriate sample weights). For surveys whose teacher data is representative of students' teachers, the unit of measure is the student. In which case, an indicator variable is defined for students whose value equals that of their teacher. The indicator is calculated as the percentage of students whose teachers received in-service training as a mean of student indicator value (weighted by the appropriate sample weights). In some surveys, students have more than one teacher, and the average of his or her teacher's indicator variable is used.

For PISA 2015 and 2018 teacher data, estimates are computed using the grade non-response adjusted school base weight and standard errors are estimated to be robust to intra-cluster correlation at the school level using a linearized model as part of the SVY module for Stata.

For TIMSS 2015, 2019 and PIRLS 2016, 2021 the unit of analysis was each teacher's-student combination and the teacher weight was used; standard errors were estimated as described in the common meta-data annex below.

For LLECE (2013), the same approach was applied with the sample weight divided by the number of teachers per student following TIMSS 2015. For LLECE ERCE 2019, the average for teachers at each school was calculated (for all teachers as well as female and male teachers), and then merged with the student data, as recommended in the ERCE 2019 analysis manual.

Interpretation: The indicator may be interpreted as either the percent of teachers or percent of students' teachers receiving in-service training in the past 12 to 24 months, depending on the survey (see Table 1).

Disaggregation: By level of schooling, by teacher sex, and urban or rural location (see Annex for definition of urban and rural location by assessment). Note that estimates for sub-populations are representative of the population that would respond to the question identifying the sub-population. Given that response rates to the questions defining the sub-populations are generally not 100 percent in a sample, the estimated mean for the target population as a whole generally differs from the target population which responds to the sub-population question. As a result, for a particular disaggregation, the average of the indicator for the target population for a country may not lie between the averages of the



two sub-populations. In addition, in cases where one of the two categories of a sub-population (e.g.: female and male) is not reported (see non-response and small sample size below), then the other category is also not reported. For example, if there is insufficient sample size or response rate for rural areas for a particular year and country and consequently no reported value for rural areas, then urban areas are also not reported for that particular year and country.

Data Source 2: OECD estimates using TALIS

Estimation method: TALIS is representative of teachers in ISCED 2 level schools (and optionally other levels depending on country participation), sampling schools and then teachers and school leaders within these schools. The OECD reports the percent of teachers who have participated in professional development activities in the past 12 months. See indicator questionnaire in Table 1 below.

Interpretation: Because the OECD TALIS data is representative of teachers in the specified level of schooling (typically ISCED 2), the indicator can be interpreted as a percentage of teacher as specified in the SDG indicator. This differs from the learning assessments described above in which only estimates of students' teachers are possible.

Disaggregation: The data included in the UIS dataset includes only the publicly available OECD estimates which are not disaggregated.

Measurement points: When there is more than one estimate within a level of education, the average of the levels is used.

Table 1. Data sources, target population, and questions on recent in-service training

Data source	Target population	Recent in-service training questionnaire items	Mapping to indicator
LLECE ERCE 2013 (TERCE)	Teachers of 3 rd grade students; teachers of 6th grade students	<p>Have you participated in any of the following professional development activities in the last two years? Check all relevant answers:</p> <ul style="list-style-type: none"> • Obtained a Master's Degree • Obtained a diploma • Professional development course (60 hours or more) in language, mathematics, sciences, or another subject related to teaching (separate items) • Have not participated in any professional development 	Yes if any of the responses (except have not participated....) were selected. No if have not participated was selected. Missing if no responses were selected.
LLECE ERCE 2019	Teachers of 3rd grade students; teachers of 6th grade students	<p>20. In the last 2 years, have you participated in any of the following professional teaching <improvement> activities?</p> <p>20.1. Master.</p> <p>20.2. Diploma or postgraduate.</p> <p>20.3. <improvement> course (60 hours or more) in general pedagogy (evaluation, curriculum, learning processes).</p> <p>20.4. <improvement> course (60 hours or more) in language.</p> <p>20.5. <improvement> course (60 hours or more) in mathematics.</p> <p>20.6. <improvement> course (60 hours or more) in science.</p>	Yes if any of these were answered yes; no if all were answered no, and missing if all were missing responses.

Table 1. Data sources, target population, and questions on recent in-service training

Data source	Target population	Recent in-service training questionnaire items	Mapping to indicator
PASEC 2014	Teachers of 2 nd grade students; teachers of 6 th grade students	Have you received additional on-the-job training (educational course, training seminar, educational resource and development centre...) during the past two years? Yes or no	Mapped as stated; missing if no answer.
PIRLS 2016	Teachers of 4th Grade Reading	In the past two years, how many hours in total have you spent in formal professional development (e.g., workshops, seminars, lesson studies, etc.) that dealt directly with reading or teaching reading (e.g., reading theory, instructional methods)?	Yes if any number of hours; no if none was reported
PIRLS 2021	Teachers of 4 th Grade Reading	In the past two years, have you participated in formal professional development in reading (e.g., workshops, seminars, lesson studies)? Check yes or no for each of the following: a) Teaching reading comprehension skills or strategies, b) Integrating literacies across the curriculum, c) Addressing students' language needs in, teaching reading, d) Integrating technology into reading instruction e) Instruction related to digital literacies, f) Addressing differentiation of instruction for students' needs and interests, g) Assessing students' reading	Yes if any of the topics were selected; Missing if no valid response for all topics, and No otherwise.
PISA 2018	Teachers of the national modal grade for 15 year-olds (excluding those teaching language classes as they were given an alternate questionnaire	During the past 12 months, did you participate in any of the following professional development activities? (yes or no to the following) • Courses / workshops (e.g.: on subject matter or methods and/or other	Yes if yes to any of these; No if no to all of them that were answered. Missing if all are unanswered.

Table 1. Data sources, target population, and questions on recent in-service training

Data source	Target population	Recent in-service training questionnaire items	Mapping to indicator
	that did not include this question)	<p>education-related topics)</p> <ul style="list-style-type: none"> • Education conferences or seminars (where teachers and/or researchers present their research results and discuss educational issues) • Observation visits to other schools • Observation visits to business premises, public organisations, non-governmental organisations • In-service training courses in business premises, public organizations, non-governmental organisations <p>During the last 12 months, did you participate in any of the following activities? (yes or no to the following)</p> <ul style="list-style-type: none"> • Qualification programme (e.g. a <degree programme>) • Participation in a network of teachers formed specifically for the professional development of teachers • Individual or collaborative research on a topic of interest to you professionally • Mentoring and/or peer observation and coaching, as part of a formal school arrangement • Reading professional literature (e.g. journals, evidence based papers, thesis papers) 	

Note: the following activity was also included

Table 1. Data sources, target population, and questions on recent in-service training

Data source	Target population	Recent in-service training questionnaire items	Mapping to indicator
		under this question but excluded from this list as it does not fit well with the definition of in-service training: "Engaging in informal dialogue with your colleagues on how to improve your teaching"	
PISA 2022	Teachers of the national modal grade for 15 year-olds (excluding those teaching language classes as they were given an alternate questionnaire that did not include this question)	<p>During the last 12 months, did you participate in any of the following activities? (Please select one response in each row.)</p> <ul style="list-style-type: none"> • Qualification programme (e.g. a <degree programme>) • Participation in a network of teachers formed specifically for the professional development of teachers • Individual or collaborative research on a topic of interest to you professionally • Mentoring and/or peer observation and coaching, as part of a formal school arrangement • Reading professional literature (e.g. journals, evidence based papers, thesis papers) • Course, workshop, or conference on teaching methods • Course, workshop, or conference relevant to your subject-matter field • Observation visits to other schools • Training courses in private companies or other organisations • Listening to or watching recorded 	

Table 1. Data sources, target population, and questions on recent in-service training

Data source	Target population	Recent in-service training questionnaire items	Mapping to indicator
		<p>seminars or online courses (e.g. <MOOCs>) about the use of <digital resources> for teaching</p> <ul style="list-style-type: none"> • Course, workshop, or conference about the use of <digital resources> for teaching • In-service training courses about the use of <digital resources> for teaching • Learning new pedagogical or instructional approaches with <digital resources> <p>Note: the following activity was also included under this question but excluded from this list as it does not fit well with the definition of in-service training: “Engaging in informal dialogue with your colleagues on how to improve your teaching”</p>	
TALIS 2018	Teachers of lower secondary education	<p>During the last 12 months, did you participate in any of the following professional development activities?</p> <ul style="list-style-type: none"> a) Courses/seminars attended in person b) Online courses/seminars c) Education conferences where teachers and/or researchers present their research or discuss educational issues. d) Formal qualification programme (e.g. a degree programme) e) Observation visits to other schools f) Observation visits to business premises, public organisations, or 	Indicator data reported by UIS is taken from OECD, TALIS 2018 Database, Table I.5.1.

Table 1. Data sources, target population, and questions on recent in-service training

Data source	Target population	Recent in-service training questionnaire items	Mapping to indicator
		nongovernmental organisations	
		g) Peer and/or self-observation and coaching as part of a formal school arrangement	
		h) Participation in a network of teachers formed specifically for the professional development of teachers	
		i) Reading professional literature	
		j) Other	
PISA 2015	Teachers of the national modal grade for 15 year- olds (and adjacent grade in some cases)	<p>During the last 12 months, did you participate in any of the following activities? (Please select one response in each row.)</p> <ul style="list-style-type: none"> • Qualification programme (e.g. a <degree programme>) • Participation in a network of teachers formed specifically for the professional development of teachers • Individual or collaborative research on a topic of interest to you professionally • Mentoring and/or peer observation and coaching, as part of a formal school arrangement • Reading professional literature (e.g. journals, evidence-based papers, thesis papers) <p>Engaging in informal dialogue with your colleagues on how to improve your teaching</p>	

Table 1. Data sources, target population, and questions on recent in-service training

Data source	Target population	Recent in-service training questionnaire items	Mapping to indicator
TIMSS 2015	Teachers of 4 th grade students; teachers of 8 th grade students	<p>M10 In the past two years, how many hours in total have you spent in formal <in-service / professional development> (e.g., workshops, seminars, etc.) for mathematics? (check one only)</p> <ul style="list-style-type: none"> • none • less than 6 hours • 6 – 15 hours • 16 – 35 hours • more than 35 hours <p>S9 In the past two years, how many hours in total have you spent in formal <in-service/professional development> (e.g., workshops, seminars, etc.) for science? responses as above</p>	No if answered none to both questions; otherwise yes unless no answer for both questions, then coded as missing. Teachers that teach only mathematics or science may be asked only one of these two questions, in which case, the unanswered question is treated as missing.