

## **USE OF CROSS-NATIONAL LEARNING ASSESSMENTS TO MEASURE SDG 4.2.3**

SDG Indicator 4.2.3 Percentage of children under 5 years experiencing positive and stimulating home learning environments

*This note reviews questionnaires of cross-national learning assessments (CNAs) to understand their potential to provide an estimate of SDG 4.2.3. Parent questionnaires of 4<sup>th</sup> grade students in TIMSS 2019 asks about home learning prior to school starting while PISA 2018 asks about home learning in the first year of ISCED 1, though the parent questionnaire of PISA 2018 was only applied in 17 countries. Other assessments to date are not well suited to measure learning environment either during the child's current school year or prior to starting school due to few questions administered in the parent questionnaires.*

## Background

SDG 4.2.3 is being currently measured using MICS or DHS data and reported by UNICEF (UIS 2021). The indicator is defined as

*Percentage of children 36-59 months old with whom an adult has engaged in four or more of the following activities to promote learning and school readiness in the past 3 days:*

- a) reading books to the child,*
- b) telling stories to the child,*
- c) singing songs to the child,*
- d) taking the child outside the home,*
- e) playing with the child, and*
- f) spending time with the child naming, counting or drawing things*

## Objective and methodology

The purpose of this note is to assess the ability of cross-national assessments or other datasets to provide a measure of SDG 4.2.3. Questionnaires for major cross-national assessments (CNA) were reviewed (PISA 2018, TIMSS 2019, SEA-PLM 2018, LLECE 2013, PASEC 2014) as well as EGRA. Two assessments of school readiness were also included in this study: the Early Development Instrument (EDI) and the Early Human Capabilities Index (EHCI).

## Potential contribution of TIMSS and PISA

Both TIMSS 2019 and PISA 2018 administer a parents' questionnaire which asks about how frequently various home learning activities occurred for young children. TIMSS 2019 asks the following question to parents of 4<sup>th</sup> grade students:

*Before your child began primary/elementary school, how often did you or someone else in your home do the following activities with him or her? ("often", "sometimes", or "never or almost never")*

- a) Read books*
- b) Tell stories*
- c) Sing songs*
- d) Play with alphabet toys (e.g., blocks with letters of the alphabet)*
- e) Talk about things you had done*
- f) Talk about what you had read*
- g) Play word games*
- h) Write letters or words*
- i) Read aloud signs and labels*

- j) *Say counting rhymes or sing counting songs*
- k) *Play with number toys (e.g., blocks with numbers)*
- l) *Count different things*
- m) *Play games involving shapes (e.g., shape sorting toys, puzzles)*
- n) *Play with building blocks or construction toys*
- o) *Play board or card games*
- p) *Write numbers*
- q) *Draw shapes*
- r) *Measure or weigh things (e.g., when cooking)*

PISA 2018 asks parents of 15 year-old students the following question:

*When your child attended the first year of <ISCED 1>, how often did you or someone else in your home undertake the following activities with her or him? (“Never or hardly ever”, “Once or twice a month”, “Once or twice a week”, “Every day or almost every day”)*

- a) *Read books*
- b) *Tell stories*
- c) *Sing songs*
- d) *Play with alphabet toys (for example: blocks with letters of the alphabet)*
- e) *Talk about things you had done*
- f) *Talk about what you had read*
- g) *Play word games*
- h) *Write letters or words*
- i) *Read aloud signs and labels*
- j) *Say counting rhymes or sing counting songs*

From both these assessments, a measure of SDG 4.2.3 could be estimated with limitations discussed subsequently. The parent questionnaire in PISA 2018 was implemented in 17 countries (see OECD 2019:27) while most TIMSS 2019 jurisdictions implemented the parent questionnaire (59 countries or jurisdictions, see IEA 2021). PISA 2018 also asks parents about support for learning during the student’s current school year including whether the parent discusses how well the child is doing at school, helps the child with homework, discussing reading, social issues, etc.

### **Other CNAs with parent questionnaires**

The SEA-PLM 2019 and LLECE 2013 student assessments also administer a parents’ questionnaire; however, these studies lack question items around home learning either during the student’s current school year or previously. LLECE 2013, for example, asks about whether parents help ensure homework is completed but does

not ask in detail about the types of learning activities being done in the household.

Another potential source of this measure is the EGRA studies. EGRA may ask the child about whether someone reads to her or him at home and whether the child reads aloud at home. These responses are not as detailed as the MICS, DHS, or PISA and TIMSS question items, and given that the child is in one of the first few grades of school, the responses may not be reliable.

### **School readiness assessments**

A number of countries administer school readiness assessments including the EDI and EHCI which are often implemented as a census, sampling large proportion of children in the target age group (age 5 for EDI, ages 3 to 5 for EHCI). These instruments are rating type assessments in which typically preschool teachers are the respondents; however, in some cases, parents or caregivers have been the respondents. In this latter case, these assessments offer the potential to measure SDG 4.2.3 if questions about the home environment were included.

### **Limitations of using PISA and TIMSS**

The chief limitations with using TIMSS 2019 and PISA 2018 to derive an estimate of SDG 4.2.3 are (1) recall bias, particularly for PISA 2019, (2) time lag, and (3) poorly defined or mismatched age group. First, both surveys rely on parents remembering what types of activities they did with their children and how frequently, and recall bias in which there are systematic inaccuracies by survey respondents responding to questions about the past are well documented (though not necessarily in the context of an educational survey). This may be particularly true for PISA 2019 which would require parents to recall activities that they did with their 15 year-old approximately a decade ago.

The second limitation is closely related to recall bias in that the estimates would be for a time period previous to the year of the survey. For example, the activities reported in TIMSS 2019 would have taken place prior to starting primary or elementary school, which would be approximately 2015 or 2016 depending on countries' definition of first year. PISA 2018, by contrast, would provide estimate for the year 2008.

The third limitation is that the time period of these activities does not match well with the definition of the SDG indicator or correspond to the definition used by UNICEF. For the TIMSS 2019 question, parents are asked about learning activities before

starting primary or elementary school. PISA 2018 asks about the first year of ISCED 1.

As a result, whether or not these limitations are worthwhile would ultimately depend on the extent to which using TIMSS 2019 and PISA 2018 would add additional data points excluded by MICS and DHS. MICS and DHS survey low and middle income countries while TIMSS 2019 may offer figures for high income countries and middle (and the few cases low) income countries not included in the MICS or DHS programmes.

### **References**

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