Children's Time Use Calendar

A child-friendly tool to assess time use

Overview

Children often struggle to navigate time[1] and provide reliable estimates of when and for how long they have done certain activities in the past, which can make efforts to collect exact time information challenging. To address this, the International Cocoa Initiative (ICI) has developed an innovative approach to produce usable proxy representations of how children spend their time over recent days.

The Children's Time Use Calendar is a child-friendly data collection tool that helps children report their main activities over the course of a day, using a visual and participatory approach. By guiding children step by step through recent days, the tool can help them recall and report past events more easily than with other traditional survey methods.

The Calendar can be used for research, monitoring and evaluation purposes to better understand how children's time is divided into schooling, work activities, household chores and leisure. It can be used to identify children in child labour, hazardous work and to assess the severity of children's work engagement.

This document provides an overview of this tool, including:

- What is the tool?
- Why use the tool?
- When to use the tool?
- How to use the tool?
- How to analyse the data collected?
- How was the tool developed?

What is the Children's Time Use Calendar?

The Children's Time Use Calendar is a visual and interactive tool designed to assess how children spend their time over a short recall period, typically three to five days.[2] It captures information on children's daily activities, such as attending school, working in agricultural activities, performing household chores, or playing.

The tool consists of a timetable used as a visual aid representing the days of the week and several moments of the day, which serve as approximate time units: "before sunrise", "after sunrise", "before midday", "after midday", "before sunset" and "after sunset". These time units are not meant to be translated into hours. To help children better visualise time, the three key moments of the day are illustrated (sunrise, midday, sunset).

Using this visual aid, children are guided through the past few days to recall the activities they carried out during each moment of the day. This approach helps children focus on recent events and describe their daily routines more easily. To measure exposure to hazardous child labour, pictures of common hazardous tasks are printed on the back of the Calendar tool. For each day covered by the exercise, the child is asked whether they carried out any of the hazardous activities printed on the back of the tool.

See ICI's Calendar tool and survey form for more details.

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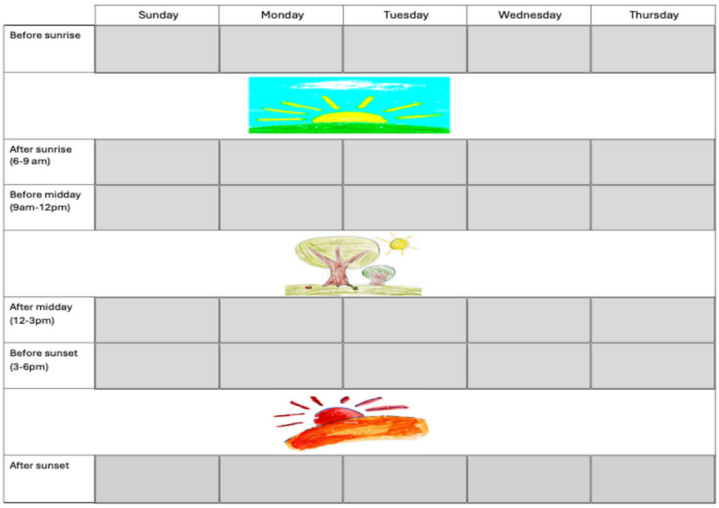
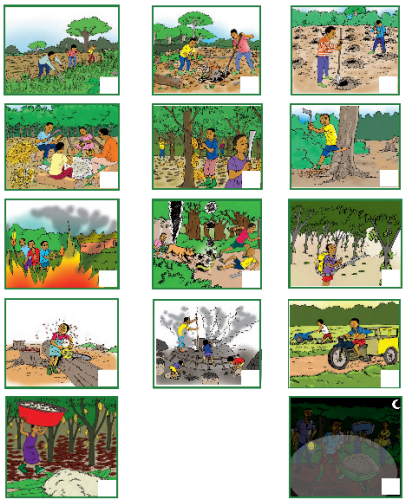
[1] https://www.nature.com/articles/s41598-023-27419-4.

[2] The tool has been tested in different contexts covering the past 3-7 days. The number of days covered was found to impact the time taken to administer the tool, as well as children's fatigue and capacity to report accurate-enough information. For children under 7, administration time was higher in general, as more time is needed to reach an understanding on the time-related concepts used. However the results appear reliable even for this younger age group as corroborated by additional information collected from other, older respondents. Limiting the recall period to 5 days maximum is recommended.





The tool can be administered in two ways, depending on the context.

It can be used as an activity or game where children are asked to draw predefined symbols corresponding to activities undertaken during a given moment of a specific day[3]. The tool may also be used as a visual support during a semi-structured interview, where the child reports their activities verbally while the enumerator uses the Calendar to guide the discussion.

Why use the tool?

Children often struggle to navigate time and provide reliable estimates about the duration or frequency of events in the past, even in the recent past. The younger the child and the further into the past, the more challenging this becomes. The Children's Time Use Calendar addresses this challenge through a participatory and visual approach.

Compared to traditional orally administered surveys with closed questions, this approach provides more reliable information about exposure to activities that either contribute to or compromise child development: *for how long, at what time of day,* and *when during the week*. The tool offers several advantages:

- **Shorter recall period** – The Calendar focuses on recent days, typically covering the previous three to five days.[4] Children generally find it easier to recall activities that happened recently than events that occurred further in the past. By guiding children step by step through recent days, the Calendar reduces recall bias and helps generate more reliable information about children's activities.
- **Visual representation of time and hazardous tasks** – The Calendar uses simple visual markers such as sunrise, midday and sunset to help children navigate time. This visual structure makes abstract concepts related to time easier to understand and allows children to describe what they did at different moments of the day and during the week. The use of images to represent hazardous tasks also facilitates the identification of hazardous work. In ICI's experience using this tool, children were more likely to report

[3] The child can draw several symbols in the same time unit, if she/he has undertaken several activities during this time.

[4] Independent of the period covered by the tool, the *recall* period may also vary according to the data collection strategy : in a one-off exercise, children are guided back to up to seven days during the same interview, while, when the tool is administrated to the same children over a short period (a school week), the recall period remains limited to one day back (« yesterday »).

exposure to hazardous tasks when shown pictures representing these activities than when asked about them during a traditional oral survey.

- **No need to estimate hours** – Traditional questionnaires often ask children to estimate the amount of time spent on different activities or the exact number of hours devoted to a particular task. Such questions can be difficult for children to answer accurately and may result in highly biased estimates. By using broader time periods (e.g. before sunrise, after sunrise or before midday), the Calendar reduces this cognitive burden while still providing information that is sufficient to assess children's use of time.
- **Participatory and child-friendly approach** – The playful and visual design of the Calendar makes the exercise less abstract and easier for children of different ages.

The Calendar is therefore suited to assess the **severity** of the situation of the child regarding child labour, as it provides information on when and how regularly children engage in different activities. It can also help identify exposure to **hazardous work**, using pictures representing common hazardous tasks.

When to use the tool?

The Calendar can be used to:

- Measure the **prevalence** of child labour and hazardous child labour
- Measure the **severity** of child work, through gathering more reliable data on time-use
- Measure **children's time use** – how they divide their time between different activities over a day – in a way that captures both positive and negative factors affecting child development (e.g., time spent in school *vs* time spent working in the fields or household chores).
- Monitor **changes in children's time use over time** (e.g. at baseline, midline, endline or on an annual basis)

It can also be used to support in-depth research, for example, to:

- Explore the link between the intensity of exposure to work and child wellbeing
- Assess whether a given intervention translates into more time spent at school and less time spent working, as measured by the calendar

The Calendar cannot be used to assess the number of hours worked by the child, as defined by national legislation, since it measures time via categorical "time units" or time blocks such as 'Monday before sunrise' rather than hours. Each time unit corresponds to a specific moment of the day represented in the Calendar: before sunrise, after sunrise, before midday, after midday, before sunset and after sunset.

These time units or time blocks do not represent fixed durations and cannot be converted into hours or other standard (absolute) measures of time. Instead, they provide a structured way to capture which and when activities take place and how they are distributed across the day and week.

These time units are therefore only comparable within the framework of the Calendar itself. They allow for consistent comparisons between children, groups of children (for example, between girls and boys), or time periods (for example, before and after an intervention), but they should not be directly compared with other time measurements, such as hours.

However, the Calendar allows gathering robust and comparable time estimates which can be used to assess the severity of child work or exposure to activities which promote child development, like playing or going to school.

How to use the tool?

The Children's Time Use Calendar can be administered in two different ways depending on the context.

It can be used as a **participatory drawing activity** in which children interact directly with the calendar by drawing symbols representing their activities. It may also be used by a trained enumerator as a visual aid during a **semi-structured interview**, for example, as part of a survey or monitoring exercise.

When the Calendar is administered as part of a semi-structured interview, enumerators should pay particular attention to the recall period. Asking children to report activities that occurred too far in the past can increase recall bias. In this context, it is generally recommended not to explore more than three days in the past, as children may struggle to accurately remember activities beyond this period.

When the Calendar is used as a participatory drawing activity, for example as a regular activity in the school setting, children complete the calendar day by day, recording the activities they carried out the day before. As it's a daily activity, it is possible to cover a longer period of time than when the tool is administered as part of a semi-structured interview.

Regardless of the administration method, the activity generally follows the steps below.

1. Introduce the activity

Given the interactive and playful nature of the Calendar tool, the activity should begin with a proper introduction for the child. The enumerator presents the visual aid and explains the "rules of the game", including the time references used in the Calendar (for example, sunrise, midday and sunset).

When used in a survey context, this introduction also helps the child and the enumerator transition from a question-and-answer format to a more interactive, semi-structured interview. To support this interaction, the Calendar should be presented in a printed format, rather than on a tablet, as this makes it easier for the child to engage with the visual aid.

2. Guide the child through the calendar

During the activity, the child is guided through the days covered by the exercise, starting from the most recent day backwards. Depending on the context, the child may be asked to draw symbols on the visual aid or (for semi-structured interview contexts) simply to point to the calendar while reporting verbally what they did during each moment of the day.

3. Ask about hazardous tasks

To assess exposure to hazardous work, the child is also asked whether they carried out any of the hazardous tasks illustrated on the Calendar during the period under consideration.

4. Record the information

The activities reported by the child are recorded by the enumerator in a digital form. For each day covered by the exercise and for each moment of the day (for example, "before sunrise", "after sunrise", "before midday", etc.), the enumerator records the activity reported by the child (for example, "At school", "Working in the field", "Household chores", "Playing"). In a survey or monitoring context, the enumerator enters the information by selecting the categories in the digital form corresponding to the child's verbal report. When the tool is used as a participatory drawing activity, the symbols placed by the child on the calendar correspond to these same activity categories and can later be transcribed into the digital form.

Because the Calendar relies on an interactive and participatory approach that differs from traditional survey questions, enumerators or facilitators must receive appropriate training on how to administer the tool and guide children through the activity.

For detailed administration guidance and suggested scripts, refer to the accompanying *Children's Time Use Calendar: Visual aid, guidance and data collection form* document.

How to analyse the data collected?

Each moment of the day represented in the Calendar corresponds to a time unit or time block in the dataset (for example, "Monday before sunrise" or "Tuesday after midday"). For each of these time units, the activity reported by the child is recorded using predefined categories such as "At school", "Working in the field", "Household chores" or "Playing".

When the Calendar covers several days (for example, the previous five days), this creates a set of time units for each day explored. Each time unit records the activity or activities undertaken during that moment of the day.

This structure allows the Calendar to capture both when activities take place and the intensity of exposure to a given activity, expressed as the number of time units during which that activity is reported.

This allows analysis of:

- The number of times a given activity is reported over the reporting period ("At school" mentioned 5 times = 5 time units for the activity "At school")
- The time estimates by broader categories (e.g., total time working in the field + total time dedicated to household chores = total time working)
- How exposure to different activities may differ between the weekend and school days[5].
- Exposure to hazardous work by using information on hazardous tasks ticked and reports of any work done before sunrise or after sunset.

The higher the score for each activity (or activity over a given moment of the week), the more intense the exposure to this activity.

How was the tool developed?

The *Calendar* was developed by ICI in response to commonly observed challenges for children to accurately navigate and report on how they spend their time. It was developed to help provide more accurate estimates regarding children's exposure to harmful work (an essential component of the severity of child labour) based on knowledge about child-friendly methods to help children navigate time[6] and real-world tests as part of multiple research studies in Côte d'Ivoire and Ghana.

5 This differentiation was proven useful in some research contexts – see, for example: ICI (2022), Linking child labour, schooling and child wellbeing.

[6] Gardner, E., Gross, J., & Hayne, H. (2020). The effect of drawing and socioeconomic status on children's reports of a past experience. *Journal of Experimental Psychology: Applied, 26*(3), 397–410. https://doi.org/10.1037/xap0000264; Barlow, C. M., Jolley, R. P., & Hallam, J. L. (2011). Drawings as memory aids: Optimising the drawing method to facilitate young children's recall. *Applied Cognitive Psychology, 25*(3), 480–487. https://doi.org/10.1002/acp.1716; https://assets.publishing.service.gov.uk/media/57a08b7bed915d3cfd000d50/YL-TN14-Vogler.pdf; Dillon, A. (2009). Measuring Child Labor. Comparisons between Hours Data and Subjective Measures. International Food Policy Research Institute, 879, https://hdl.handle.net/10568/161920.

The Calendar is developed on the following principles:

- Turn data collection into a "game" or a playful activity
  This increases the involvement of the child in the activity and reduces data collection fatigue and loss of concentration.
- Use visual aids and semi-structured interview techniques
  This helps the child navigate time by eliciting events of reference which make sense for the child. Visual clues facilitate the understanding of complex concepts related to time or to hazardous tasks.
- Don't go beyond a reasonable recall period of 5 days
  When children are asked to report on events that happened beyond 5 days, recall bias increases: they are more likely to invent or omit events or to forget when a given event took place.
- Don't seek more detailed information than is needed to gather a reliable estimate
  Questions aiming at collecting data on time spent on different tasks or at obtaining exact estimates of the number of hours spent on one task tend to overwhelm children and generate highly biased estimates. Using less precise time periods (e.g. before sunrise) provides estimates which are enough to assess the overall volume of a given activity in the child's routine and are comparable amongst children of all ages.