

HOME LEARNING ENVIRONMENT TOOL

TECHNICAL MANUAL

Compiled by Andrew Dawes, Matthew Snelling, & Linda Biersteker

Citation: Dawes, A., Snelling, M. & Biersteker, L. (2023). DataDrive2030 Home Learning Environment Tool Technical Manual. Cape Town: Datadrive2030

Introduction

In this document, we describe the development of the DataDrive2030 Home Learning Environment tool, and provide indicators and measures for use in research and programme evaluation. We also provide recommendations for a DD2030 HLE Multi-Indicator Index comprising three indicators.

Background

The relationship between children's home environment and children's cognitive development and school achievement is well established. Family socio-economic status and caregiver education are particularly powerful predictors of these outcomes, as is the quality of stimulation provided to preschool children by caregivers and other household members during early childhood (Barnett, 1998; Bradley & Caldwell, 1984; Bradley & Corwin, 2002; Burger, 2012; Duncan & Magnuson, 2013; Taylor & Yu, 2009; Tran, Luchters & Fisher, 2017).

A number of tools are available for the measurement of the home learning environments of young children. Prominent among them and widely used in research studies is the Home Observation for Measurement of the Environment (H.O.M.E.) (Bradley, Corwyn, McAdoo & García Coll, 2001; Bradley, 2012). Another is the PICCOLO (Parenting Interactions with Children: Checklist of Observations Linked to Outcomes) (Roggman, Cook, Innocenti, Jump Norman & Christiansen, K. (2009; 2013). Both have been used in South African programme evaluations (e.g. Dawes, Biersteker & Hendricks, 2012; Biersteker & Dawes, 2016). Both tools require a trained fieldworker to visit the child's home and observe interactions between the child and caregiver as well as record the availability of early learning resources such as books.

Where home observations are not feasible (for example in large scale surveys in which child level data is captured in preschools and other early learning programme sites), interview methods are an alternative. Here, data is gathered on household demographics and the early learning resources and activities to which young children are exposed at home. DataDrive2030 has developed the DataDrive2030 Home Learning Environment (DD2030 HLE) tool for use in South Africa and the region. The tool is provided in the Appendix to this document.

The DD2030 HLE draws on the UNICEF MICS and the Melhuish HLE tool (Melhuish, 2010; Melhuish et al., 2008). These include a limited number of items used in the H.O.M.E. but adapted for questionnaire administration. The Early Childhood H.O.M.E includes eight subscales that measure the availability of learning materials, the physical environment, and the quality of the caregiver's relationship with and stimulation of the child. The instrument requires lengthy observation of the child's home environment by trained observers.

The DD2030 HLE is designed for brief interviews with primary caregivers¹ by persons not trained to undertake detailed home observations.

Development

As an instrument appropriate for brief caregiver interviews was needed, the DD2030 HLE drew on two well-recognised sources:

- 1) an instrument developed by Melhuish and colleagues in the United Kingdom (Melhuish, Phan, Sylva, Sammons, Siraj-Blatchford Taggart, 2008; Melhuish, 2010); and
- 2) The Early Childhood Development module of the UNICEF Multiple Indicator Cluster Survey For Children Under Five (MICS: <https://mics.unicef.org>).

As will be evident in Table 1, apart from caregiver biographic information, the DD2030 HLE includes two additional items that are not present in the other two instruments: "Time for activities with the child during the week and in the weekend". These items were added as the time available to caregivers is likely to influence their ability to engage in the activities measured in the tool. Caregivers with very little time in the day are unlikely to be able to engage in stimulating activities at home even if they wish to.

¹ By primary caregiver, we mean the household member primarily responsible for the everyday care of the child. This is not necessarily a biological parent, but might be an adult relative living in the same household (e.g. a grandparent or an older sibling).

In addition, some of the original items were adapted. The MICS item “Spent time with (name) naming, counting, and / or drawing things?” and the Melhuish (2010) item “How often has the child played at recognising letters, words, shapes or numbers in last week?” combine these areas of early learning into one question. As we were interested in the amount of activity in each learning area, we created three specific items in the DD2030 HLE to capture each activity. In addition, there are variations in scoring on comparable items.

Early Learning Resources module

The MICS scores the number of books from 0-9 and an additional point is awarded for ten or more. Melhuish (2010) has five weighted categories (score 0 for no books; score 2 for 1-10 books; score 4 for 11-20 books; score 5 for 21-30 books; score 7 for 30 + books); the DD2030 HLE simply captures the total number of books. In terms of other early learning resources, MICS and DD2030 HLE use the same dichotomous scale (Yes / No). These are not included in the Melhuish (2010) HLE.

Activities module

- Melhuish (2010) uses 7 points to represent each day of the week, while MICS uses a dichotomous scale (Yes / No). The DD2030 HLE has three values (Never = 0; Sometimes = 1; Many Times = 2). Three (albeit coarse) values for the DD2030 HLE were used because our experience in South Africa is that it is often difficult to obtain more precise recollections on each day of the week, and we would not be sure of their reliability. We recognise that this is less desirable from a scale construction point of view than seven points, as the range is more restricted.
- The MICS item “Spent time with (name) naming, counting, and / or drawing things?” and the Melhuish (2010) item “How often has the child played at recognising letters, words, shapes or numbers in last week?” combine activities. For the DD2030 HLE, these were separated into three specific items because we were interested in the amount of activity in each area.

Table 1: Comparison of the Melhuish HLE (2010), MICS, and DD2030 HLE items

MELHUISSHLE ITEMS	UNICEF MICS-4 ITEMS	DD2030 HLE ITEMS
TIME FOR ACTIVITIES S WITH THE CHILD		
N/A	N/A	0.1 How much time do you have between Monday and Friday to play with, read to and talk with your child? {SCORING: very little (>1 hour) = 1; some (2 hours) = 2; Lots (>2 hours) = 3}
N/A	N/A	0.2 NOW, think about the weekend. On the weekend, how much time do you have to play with, read to and talk with your child? {SCORING: very little (>1 hour) = 1; some (2 hours) = 2; Lots (>2 hours) = 3}
EARLY LEARNING RESOURCES		
About how many children's books do you have in your home at the moment, including library books, that are aimed at children under 5? (SCORING: 0 = none; 2 = 1 to 10 items; 3 = 11 to 20 items; 4 + = 21 to 30 items; 7 = 30 + items)	How many children's books or picture books do you have for (name)? (SCORING: none = 0; 1-9 = the number; ten or more = 10)	1.1 How many children's books or picture books do you have for (child's name)? (SCORING: total number of books)
N/A	Homemade toys (such as dolls, cars, or other toys made at home)? (SCORING: YES = 1; NO = 0)	1.2 Homemade toys (such as dolls, cars, or other toys made at home)?
N/A	Toys from a shop or manufactured toys? (SCORING: YES = 1; NO = 0)	1.3 Toys from a shop or manufactured toys?
N/A	Household objects (such as bowls or pots) or objects found outside (such as sticks, rocks, animal shells or leaves)? (SCORING: YES = 1; NO = 0)	1.4 Household objects (such as bowls or pots) or objects found outside (such as sticks, rocks, animal shells or leaves)?
ACTIVITIES		
SCORING ALL ITEMS 0-7 (N days / week) In the last week:	SCORING ALL ITEMS YES = 1; NO = 0 In the past 3 days, did you or any household member over 15 years of age engage in any of the following activities with (child)	SCORING ALL ITEMS NEVER HAPPENED = 0; HAPPENED SOMETIMES = 1; HAPPENED MANY TIMES = 2 In the past week, how often did you or any household member:

How often do you/your partner look at books with child or read stories with him/her in last week?	Read books to or looked at picture books with (name)?	2.1 Read books to or look at picture books with (child's name)?
N/A	Told stories to (name)?	2.2 Tell stories to (child's name)?
How often do you/partner recite nursery rhymes or sing songs with child in last week?	Sang songs to (name) or with (name), including lullabies?	2.3 Sing songs to (child's name) or with (child's name) including lullabies (songs when the child is going to sleep)?
N/A	Took (name) outside the home, compound, yard or enclosure?	2.4 Take (child's name) outside the home, compound, yard or enclosure?
N/A	Played with (name)?	2.5 Play with (child's name)?
How often has the child played at recognising letters, words, shapes or numbers in last week?	Spent time with (name) naming, counting, and / or drawing things?	2.6. Tell (child's name) the names of things?
How often has the child played at recognising letters, words, shapes or numbers in last week?	Spent time with (name) naming, counting, and / or drawing things?	2.7 Count things with (child's name)?
How often has the child done activities involving painting or drawing in last week?	Spent time with (name) naming, counting, and / or drawing things?	2.8 Draw or paint things with (child's name)?

Approaches to the use of DD2030 HLE items

DD2030 HLE items can be used separately or combined to form scales.

Using the Caregiver Time for Activities with the Child items separately

It may be helpful to have a gauge of the availability of caregivers' time for play with their children as this will be likely to moderate their opportunity to engage in the activities specified in the DD2030 HLE.

Also, parenting programmes need to be sensitive to the amount of time caregivers have to implement what they may have learnt in the programme. Limited caregiver time may be common in South African low-income families. For example, the Early Learning Programme Outcomes (ELPO) study, which included children from low-income households, found that on average, caregivers had two hours or less available for activities with their children over the course of the entire week, including the weekend (Dawes, Biersteker, Girdwood, Snelling, & Horler, 2020). In that study, there was no relationship between this measure (for either the week or weekend) and ELOM Total scores at endline. The restricted range of time available in this sample may have played a role in this finding.

For reporting purposes, separate scores for the amount of time caregivers report having for playing, reading, and talking to their child during the week and the weekend (HLE items 0.1 and 0.2 respectively) can be used as follows:

- Indicator: Caregiver Time for Activities with the Child.
- Measure: Proportions of caregivers reporting less than 1 hour, about 2 hours or 3 or more hours:
 - a. during the week
 - b. during the weekend.

For the Activities items (2.1 - 2.8), the following may be used in reports:

- Indicator: Frequency of caregiver participation in activities with the child.
- Measure: The proportions of caregivers who a) never, b) sometimes or c) often engaged in each activity in the past week. You may also wish to assess who undertakes each activity with the child (items 2.1.1 - 2.8.1).

Using the Early Learning Resources items separately

Caregiver responses to items 1.1 (number of books) and 1.2 (variety of toys) can each be described separately for groups of caregivers.

- Indicator: Early literacy resources (item 1.1)
Measure: The average number of children's books or picture books.
- Indicator: Basic early learning equipment (homemade toys such as dolls and cars); toys from a shop or manufactured toys; household objects (such as bowls or pots) or objects found outside such as sticks, rocks, seeds or leaves (items 1.2, 1.3 and 1.4).
Measure: The average number of resources (the sum of scores on 1.2, 1.3 and 1.4).

The DD2030 HLE scales

Where multivariate analyses are being undertaken, it is helpful to reduce the number of variables as their number affects study power and the number of participants required for the study. To this end, psychometric analyses were conducted on DD2030 HLE data collected in the ELPO Study (Dawes et al., 2020) using 327 caregiver interviews.

The DD2030 HLE Early Learning Activities Scale

Principal Component Analysis was used to determine whether the eight activity items could be combined into a single factor to constitute this scale. As is evident in Table 2, preliminary analysis indicated that all items correlated

with at least one other item at the level of .30 or greater (as required in this procedure).

Table 2: Activities Items Correlation Matrix

Correlation Matrix^a

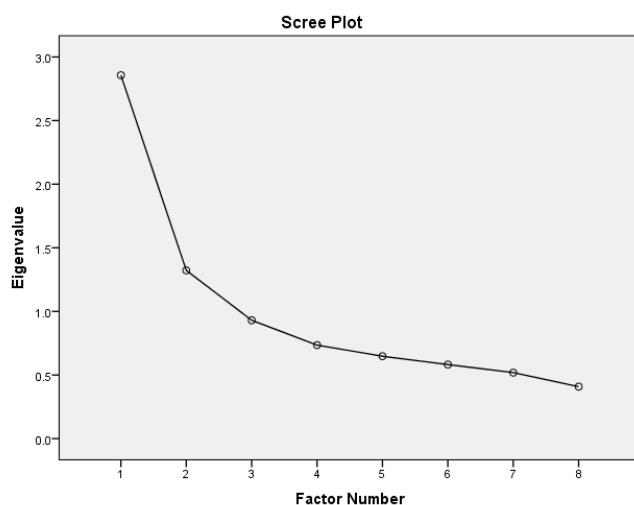
	Activities_ReadBooks	Activities_ToldStories	Activities_SangSongs	Activities_Outside	Activities_Play	Activities_Names	Activities_Count	Activities_PaintDraw	
Correlation	Activities_ReadBooks	1.000	.419	.048	.258	.254	.173	.185	.199
	Activities_ToldStories	.419	1.000	.117	.310	.222	.110	.138	.188
	Activities_SangSongs	.048	.117	1.000	.189	.022	.397	.232	.299
	Activities_Outside	.258	.310	.189	1.000	.262	.297	.240	.286
	Activities_Play	.254	.222	.022	.262	1.000	.308	.277	.282
	Activities_Names	.173	.110	.397	.297	.308	1.000	.525	.452
	Activities_Count	.185	.138	.232	.240	.277	.525	1.000	.499
	Activities_PaintDraw	.199	.188	.299	.286	.282	.452	.499	1.000
Sig. (1-tailed)	Activities_ReadBooks		.000	.193	.000	.000	.001	.000	.000
	Activities_ToldStories	.000		.017	.000	.000	.023	.006	.000
	Activities_SangSongs	.193	.017		.000	.349	.000	.000	.000
	Activities_Outside	.000	.000	.000		.000	.000	.000	.000
	Activities_Play	.000	.000	.349	.000		.000	.000	.000
	Activities_Names	.001	.023	.000	.000	.000		.000	.000
	Activities_Count	.000	.006	.000	.000	.000	.000		.000
	Activities_PaintDraw	.000	.000	.000	.000	.000	.000	.000	

a. Determinant = .206

The determinant (a) below Table 2 (alongside visual inspection of the correlation matrix) indicated no multi-collinearity (greater than 0.00001). In addition, the Kaiser-Meyer-Olkin Measure of Sampling Adequacy was found to be adequate at .767 (it must be >.60). Bartlett’s Test of Sphericity must be significant, and this is the case (P < .001).

Visual inspection of the Scree Plot (Figure 1) indicated one or two factors present in the data.

Figure 1: DD2030 HLE Activities Scree plot



As it was desirable to have a single factor, that solution was tested and was found to be consistent and reliable. The factor matrix on the next page (Figure 2) indicates that all activity items loaded on a single factor at a level

greater than .35 {(above the minimum recommended level of 0.30) (Goldberg & Velicer, 2006)}.

Figure 2: Factor matrix

Factor Matrix^a

	Factor
	1
Activities_ReadBooks	.383
Activities_ToldStories	.363
Activities_SangSongs	.384
Activities_Outside	.487
Activities_Play	.449
Activities_Names	.687
Activities_Count	.644
Activities_PaintDraw	.660

Extraction Method: Principal Axis Factoring.

a. 1 factors extracted. 5 iterations required.

Item-Total Statistics are presented in Table 3 below, and suggest that all meet the minimal Item-Total Correlation of 0.30. The "Alpha if Item Deleted" column indicates that there would be no meaningful benefit to the removal of any item.

The resultant *Early Learning Activities Scale* is unidimensional and has sound reliability (Cronbach's alpha = .726, $p < .001$). This level of reliability is acceptable for a measure of this type (the coefficient value should equal or exceed 0.70).

Table 3: Activities Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
Activities_ReadBooks	7.4373	7.958	.353	.224	.711
Activities_ToldStories	7.4557	7.924	.351	.236	.712
Activities_SangSongs	7.5688	7.626	.300	.205	.730
Activities_Outside	7.1835	7.512	.436	.205	.695
Activities_Play	6.8165	7.972	.370	.199	.708
Activities_Names	6.9755	7.496	.557	.417	.674
Activities_Count	6.9908	7.604	.502	.369	.683
Activities_PaintDraw	7.2630	7.170	.532	.342	.674

Further analyses using the ELPO study data were undertaken to examine whether scores on this scale predicted ELOM scores. When combined with other variables in the study for purposes of multi-level modelling (MLM), no relationship was evident.

Independently of the MLM, bootstrapped Pearson correlations were also run on the relationship between the DD2030 HLE Activities Scale and endline ELOM Total and domain scores. A small but statistically significant relationship was observed between the Activities Scale and ELOM Total scores ($r = .169$, $p < .01$), weakly relationships with the Emergent Language and Literacy (ELL) ($r = .165$, $p < .001$), Emergent Numeracy and Mathematics (ENM) ($r = .160$, $p < .01$) and Fine Motor Coordination and Visual Motor Integration (FMC&VMI) ($r = .136$, $p < 0.01$) domains.

To investigate the influence of third variables on this relationship, partial correlations controlling for child age, ECD site quintile and caregiver education were run (separately in each case). Correlations were of a similar order suggesting that none of these variables was contributing much to this relationship.

It is possible that the restricted range in education and socio-economic background of the ELPO study participants has contributed to these findings. Different results may be obtained from a sample with a wider range of education and socio-economic status.

Despite these observations, the psychometric analysis reported here shows that DataDrive2030 HLE Activity items 2.1 to 2.8 form a reliable and valid Early Learning Activities Scale. As all the items load on a single factor, scores on all the Activity Items can be summed and the total score used in analyses. Items are each scored: never (0); sometimes which is less than 3 times a week (1); many times which is 3 or more times a week (2).

The DD2030 HLE Early Learning Opportunity Scale

This scale, also developed for the ELPO study combines DD2030 HLE Activities Scale items (2.1 – 2.8) with Caregiver Time for Activities with the Child in the week and weekend (items 0.1 and 0.2) to form a single factor that is unidimensional and has sound reliability (Cronbach alpha = .800, $p < .001$). In the ELPO study, it did not predict ELOM Total or Domain scores. This is perhaps surprising (the score range was good and was not skewed (skewness = .323, Mean = 4.97 SD 2.089).

Through examination of several possibilities, a reliable single factor scale for the combined items was achieved by weighting the caregiver time estimates for the week and weekend as follows:

- a) The sum of the scores for frequency of engagement between the caregiver and the child on the 8 activities items is divided by the maximum possible score (16).

b) Caregiver Time for Activities with the Child in the week and weekend (items 0.1 and 0.2): Options for these items are: very little time which is under 1 hour (1); some time which is about 2 hours (2); lots of time which is 2 hours (3):

- All 9 possible responses to this item were ranked to form an ordinal scale running from 1 (I spend less than 1 hour playing with my child during the week, and less than 1 hour playing with my child during the weekend) to 9 (I spend greater than 2 hours playing with my child during the week, and I spend greater than 2 hours playing with my child on the weekend).
- The rest of the scores reflected combinations of less than 1 hour, about 2 hours, and greater than 2 hours for the week and the weekend.
- Weekdays were ranked higher than weekends (as there are more days). The “greater than 2 hours” response was also favoured when combined with <1 hour, as it provided a high ceiling for time spent with the child that would likely fall beyond other combinations made up of lesser selections. The full table of responses and their score is presented below.

Score	Weekday	Weekend
1	<1 Hour	<1 Hour
2	<1 Hour	±2 Hours
3	±2 Hours	<1 Hour
4	±2 Hours	±2 Hours
5	<1 Hour	>2 Hours
6	>2 Hours	<1 Hour
7	<2 Hours	>2 Hours
8	>2 Hours	<2 Hours
9	>2 Hours	>2 Hours

Users may prefer to use the DD2030 HLE Activities scale and the Caregiver Time for Activities with the Child scale (items 0.1 and 0.2) separately as described above. That approach would permit separate investigation of the amount of time caregivers estimate they have to spend on activities with their children from the time they spend on specific early learning activities.

The DD2030 HLE Early Learning Resources Scale

This scale was developed for the ELPO study, and is a combination of the total number of books that caregivers reported having in the home (item 1.1), and the sum of the playthings (homemade toys; shop-bought toys, and household playthings) interviewees report having in the home (items 1.2, 1.3 and 1.4). The reliability of this scale was found to be sound ($r = .750$, $p < .001$) and predicted ELOM FMCVMI and Cognition and Executive Functioning (CEF) domain scores ($p < .05$; $d = 0.33$).



In the development of this scale, and to ensure items were weighted equally, they are treated as follows:

- a) The total number of books reported by each interviewee is divided by the highest number of books reported by one of the interviewees in the sample.
- b) The total score for items (items 1.2, 1.3 and 1.4) is divided by the maximum possible score (3) for these items.
- c) Results for a) and b) are summed and multiplied by 5 to obtain a score out of 10.

Summary

In sum, the DD2030 HLE is an easily administered brief instrument based on tools used internationally, and has been tested in South African low-income populations. The DD2030 HLE can be used to assess the relationship between the child's home learning environment and their learning outcomes assessed on a tool such as the DataDrive2030 Early Learning Outcomes Measure (ELOM) 4&5 Years Assessment.

Using the tool described here, the South African Early Learning Outcome Study (ELPO), has found relationships between the early learning outcomes of preschool children, their learning resources at home (Dawes et al., 2020), and the time caregivers have for activities with their children (Dawes et al., 2023).

In what follows, we describe the DD2030 Multiple Indicator HLE Index.

The Multiple Indicator HLE Index

An index is comprised of a limited number of reliable and valid indicators. An example is the Child Status Index developed to monitor the status of vulnerable children in the context of the HIV and AIDS pandemic (Measure Evaluation, 2009). That tool has six domains, each comprising several indicators, that are scored and reported separately. The domains are food and nutrition, shelter and care, protection, health, psychosocial, and education and skills training.

A clear case can be made for the inclusion of the Early Learning Resources indicator (DD2030 HLE Early Learning Resources Scale) in the Index as it is reliable and predicts ELOM scores.

The results of various analyses do not provide compelling evidence for a clear choice between the DD2030 HLE Early Learning Opportunities and the

DD2030 HLE Early Learning Activities scales. The latter is recommended because it is a reliable scale that does not include caregiver time in the week and weekend; and some evidence of its relationship with ELOM scores is available.

Results for the Caregiver Time for Activities with the Child indicator (Caregiver hours for play in the week and in the weekend) are also not strong, but some significant relationships are evident. This indicator is likely to be useful for programmes that seek to increase caregivers' early learning engagements with their children.

Based on these considerations, the following indicators make up the Multiple Indicator HLE Index:

Indicator 1 - Early Learning Resources:

Measure: The DD2030 HLE Early Learning Resources Scale (items combined and computed as described above).

Indicator 2 - Home Learning Activities:

Measure: The DD2030 HLE Early Learning Activities Scale (item scores summed as described above).

Indicator 3 - Caregiver Time for Activities with the Child:

Measure: Caregiver Time for Activities with the Child in the week and weekend (items 0.1 and 0.2 combined and computed as described in the description of the Early Learning Opportunity Scale above).

References

- Barnes, H., Noble, M., Wright, G. & Dawes, A. (2009) A Geographical Profile of Child Deprivation in South Africa. *Child Indicators Research*, 2, 121-199.
- Barnett, W. S. (1998). Long-term cognitive and academic effects of early childhood education on children in poverty. *Preventive medicine*, 27(2), 204-207.
- Biersteker, L. & Dawes, A. (2016). An evaluation of the Implementation, Outcomes and Integration of the ELRU Family & Community Motivator Programme into the Early Childhood Development Programme of the North West Department of Social Development, 2015- 2016. Claremont Cape Town: Ilifa Labantwana: <http://ilifalabantwana.co.za/>
- Bradley, R. H., & Caldwell, B. M. (1984). The HOME Inventory and family demographics. *Developmental Psychology*, 20(2), 315.
- Bradley, R. H., Corwyn, R. F., McAdoo, H. P., & García Coll, C. (2001). The home environments of children in the United States part I: Variations by age, ethnicity, and poverty status. *Child development*, 72(6), 1844-1867.
- Bradley, R. H. (2012). *HOME Inventory*. In L. C. Mayes & M. Lewis (Eds.), *Cambridge handbooks in psychology. The Cambridge handbook of environment in human development* (p. 568–589). Cambridge University Press.

Dawes, A., Biersteker, L., Snelling, M., Horler, J. & Girdwood, E. (2023). To what extent can community-based playgroup programmes targeting low-income children improve learning outcomes prior to entering the Reception Year in South Africa? A quasi-experimental field study. *Early Education and Development*, <https://doi.org/10.1080/10409289.2021.2005748>

Dawes, A., Biersteker, L., Girdwood, L., Snelling, M. & Horler, J. (2020). The Early Learning Programme Outcomes Study. Technical Report. Claremont Cape Town: DataDrive2030 and Ilifa Labantwana. The summary of the study report can be accessed [here](#) and the full ELPO Technical Report [here](#).

Dawes, A., Biersteker, L. & Hendricks, L. (2012) Towards Integrated Early Childhood Development. An evaluation of the Sobambisana Initiative. Cape Town: Ilifa Labantwana. <http://ilifalabantwana.co.za/wp-content/uploads/2016/04/An-Evaluation-of-the-Sobambisana-Initiative.pdf>

Duncan, G. J., & Magnuson, K. (2013). The importance of poverty early in childhood. *Policy Quarterly*, 9(2), 12-17.

Goldberg, L. R., & Velicer, W. F. (2006). Principles of exploratory factor analysis. In S. Strack (Ed.), *Differentiating Normal and Abnormal Personality: Second edition* (pp. 209-237). New York, NY: Springer.

Measure Evaluation (2009). Child Status Index: A Tool for Assessing the Well-Being of Orphans and Vulnerable Children — Manual. https://ovcsupport.org/wp-content/uploads/Documents/CSI_Manual_Jan09.pdf

Melhuish, E. (2010). Impact of the Home Learning Environment on child cognitive development: Secondary analysis of data from 'Growing Up in Scotland'. Edinburgh, United Kingdom: The Scottish Government.

Melhuish, E.C., Sylva, K., Sammons, P., Siraj-Blatchford, I., Taggart, B., & Phan, M. (2008) Effects of the Home Learning Environment and preschool center experience upon literacy and numeracy development in early primary school. *Journal of Social Issues*, 64, 157-188.

Roggman, L. A., Cook, G. A., Innocenti, M. S., Jump Norman, V. K., & Christiansen, K. (2009). PICCOLO (Parenting interactions with children: Checklist of observations linked to outcomes). Logan, UT: Utah State University. 58

Roggman, L. A., Cook, G. A., Innocenti, M. S., Jump Norman, V., & Christiansen, K. (2013). Parenting interactions with children: Checklist of observations linked to outcomes (PICCOLO) in diverse ethnic groups. *Infant Mental Health Journal*, 34(4), 290-306.

Taylor, S. & Yu, D. The importance of socio-economic status in determining educational achievement in South Africa. Stellenbosch Economic Working Papers: 01/09. Stellenbosch University.

Tran, T. D., Luchters, S., & Fisher, J. (2017). Early childhood development: impact of national human development, family poverty, parenting practices and access to early childhood education. *Child: care, health and development*, 43(3), 415-426.



elc@m

early learning measurement tools

HOME LEARNING ENVIRONMENT



INSTRUCTIONS

The ELOM HLE tool is a short questionnaire for a preschool child's caregiver that is designed to capture key features of the child's home learning environment that are known to be associated with early language and numeracy abilities, and cognitive functioning.

The form can be completed as an interview with the caregiver in their preferred language, and should take around 10-15 minutes to complete.

Where you see [child's name], please try to use the name of the child so as to make the interview more personal.

PROJECT

Province: Eastern Cape Free State Gauteng
KwaZulu-Natal Limpopo Mpumalanga
Northern Cape North West Western Cape

In what language are you conducting the interview?

English Afrikaans isiZulu
isiXhosa Sesotho Setswana
isiNdebele Sesotho se Leboa (Sepedi) siSwati
Xitsonga Tshivenda Other

CHILD DETAILS

Please enter the child's details.

First Name: _____

Surname: _____

Child's sex: Female Male

Date of birth: _____

CAREGIVER

First Name: _____

Surname: _____

Sex: Female Male

How old are you? (years) _____

What is your relationship to [child's name]?

Mother	<input type="checkbox"/>	Father	<input type="checkbox"/>	Aunt	<input type="checkbox"/>
Uncle	<input type="checkbox"/>	Grandmother	<input type="checkbox"/>	Grandfather	<input type="checkbox"/>
Sister	<input type="checkbox"/>	Brother	<input type="checkbox"/>	Other person in the house	<input type="checkbox"/>
Don't know	<input type="checkbox"/>	Refuses to give an answer	<input type="checkbox"/>		

How many children do you look after in your household? _____

What is the highest school grade you have completed?

- | | | | | | | | |
|---------|--------------------------|---------|--------------------------|----------|--------------------------|---------------------------|--------------------------|
| None | <input type="checkbox"/> | Grade 4 | <input type="checkbox"/> | Grade 8 | <input type="checkbox"/> | Grade 12 | <input type="checkbox"/> |
| Grade 1 | <input type="checkbox"/> | Grade 5 | <input type="checkbox"/> | Grade 9 | <input type="checkbox"/> | Refuses to give an answer | <input type="checkbox"/> |
| Grade 2 | <input type="checkbox"/> | Grade 6 | <input type="checkbox"/> | Grade 10 | <input type="checkbox"/> | Other | <input type="checkbox"/> |
| Grade 3 | <input type="checkbox"/> | Grade 7 | <input type="checkbox"/> | Grade 11 | <input type="checkbox"/> | | |

Have you completed any post-school training? (Select all that apply.)

- | | | | | | |
|-------------|--------------------------|------------|--------------------------|---------------------------|--------------------------|
| Certificate | <input type="checkbox"/> | Diploma | <input type="checkbox"/> | Degree | <input type="checkbox"/> |
| None | <input type="checkbox"/> | Don't know | <input type="checkbox"/> | Refuses to give an answer | <input type="checkbox"/> |

What languages does [child's name] usually speak at home?

- | | | | | | |
|------------|--------------------------|---------------------------|--------------------------|----------|--------------------------|
| English | <input type="checkbox"/> | Afrikaans | <input type="checkbox"/> | isiZulu | <input type="checkbox"/> |
| isiXhosa | <input type="checkbox"/> | Sesotho | <input type="checkbox"/> | Setswana | <input type="checkbox"/> |
| isiNdebele | <input type="checkbox"/> | Sesotho se Leboa (Sepedi) | <input type="checkbox"/> | siSwati | <input type="checkbox"/> |
| Xitsonga | <input type="checkbox"/> | Tshivenda | <input type="checkbox"/> | Other | <input type="checkbox"/> |

TIME TO SPEND WITH CHILD

I am now going to ask you how much time you have in the day to play and talk with your child.

0.1. How much time do you have between Monday and Friday to play with, read to and talk with your child per day?

- | | | | |
|--------------------------------------|--------------------------|-----------------------|--------------------------|
| Very little time (less than an hour) | <input type="checkbox"/> | Some time (1-2 hours) | <input type="checkbox"/> |
| Lots of time (more than 2 hours) | <input type="checkbox"/> | Don't know | <input type="checkbox"/> |
| Refuses to give an answer | <input type="checkbox"/> | | |

0.2. Now, think about the weekend. On the weekend, how much time do you have to play with, read to and talk with your child per day?

- | | | | |
|--------------------------------------|--------------------------|-----------------------|--------------------------|
| Very little time (less than an hour) | <input type="checkbox"/> | Some time (1-2 hours) | <input type="checkbox"/> |
| Lots of time (more than 2 hours) | <input type="checkbox"/> | Don't know | <input type="checkbox"/> |
| Refuses to give an answer | <input type="checkbox"/> | | |

HOME LEARNING ENVIRONMENT

Thank you. Now I will ask you about books and playthings at home.

1. RESOURCES

1.1. How many children's books or picture books do you have for [child's name]? _____

1.2. I am interested in learning about the things that [child's name] plays with when he/she is at home. Does [child's name] play with any of the following? Select all that apply.

(Probe to learn specifically what the child plays with to get the right response.)

- | | |
|---|--------------------------|
| Homemade toys (such as dolls, cars, or other toys made at home)? | <input type="checkbox"/> |
| Toys from a shop or manufactured toys? | <input type="checkbox"/> |
| Household objects (such as bowls or pots, bottle tops) or objects found outside (such as sticks, rocks, seeds or leaves)? | <input type="checkbox"/> |
| None of these | <input type="checkbox"/> |
| Don't know | <input type="checkbox"/> |
| Refuses to give an answer | <input type="checkbox"/> |

2. ACTIVITIES

I am now going to ask you about activities you or any household member did with [child's name] in the past week (past 7 days). Tell me if it never happened, if it happened sometimes, or if it happened often in the past week.

2.1.1. In the past week, how often did you or any household member read books to or look at picture books with [child's name]? Was it never, sometimes or many times?

Never	<input type="checkbox"/>	Don't know	<input type="checkbox"/>
Sometimes (less than 3 times a week)	<input type="checkbox"/>	Refuses to give an answer	<input type="checkbox"/>
Many times (3 or more times a week)	<input type="checkbox"/>		

2.1.2. Who read books to [child's name] or looked at picture books with [child's name]? (Select all that apply.)

Mother	<input type="checkbox"/>	Father	<input type="checkbox"/>	Aunt	<input type="checkbox"/>
Uncle	<input type="checkbox"/>	Grandmother	<input type="checkbox"/>	Grandfather	<input type="checkbox"/>
Sister	<input type="checkbox"/>	Brother	<input type="checkbox"/>	Other person in the house	<input type="checkbox"/>
Don't know	<input type="checkbox"/>	Refuses to give an answer	<input type="checkbox"/>		

2.2.1. In the past week, how often did you or any household member tell stories to [child's name]? Was it never, sometimes or many times?

Never	<input type="checkbox"/>	Don't know	<input type="checkbox"/>
Sometimes (less than 3 times a week)	<input type="checkbox"/>	Refuses to give an answer	<input type="checkbox"/>
Many times (3 or more times a week)	<input type="checkbox"/>		

2.2.2. Who told stories to [child's name]? (Select all that apply.)

Mother	<input type="checkbox"/>	Father	<input type="checkbox"/>	Aunt	<input type="checkbox"/>
Uncle	<input type="checkbox"/>	Grandmother	<input type="checkbox"/>	Grandfather	<input type="checkbox"/>
Sister	<input type="checkbox"/>	Brother	<input type="checkbox"/>	Other person in the house	<input type="checkbox"/>
Don't know	<input type="checkbox"/>	Refuses to give an answer	<input type="checkbox"/>		

2.3.1. In the past week, how often did you or any household member sing songs to [child's name] or with [child's name] including lullabies (songs when the child is going to sleep)? Was it never, sometimes or many times?

Never	<input type="checkbox"/>	Don't know	<input type="checkbox"/>
Sometimes (less than 3 times a week)	<input type="checkbox"/>	Refuses to give an answer	<input type="checkbox"/>
Many times (3 or more times a week)	<input type="checkbox"/>		

2.3.2. Who sang songs or lullabies to [child's name]? (Select all that apply.)

Mother	<input type="checkbox"/>	Father	<input type="checkbox"/>	Aunt	<input type="checkbox"/>
Uncle	<input type="checkbox"/>	Grandmother	<input type="checkbox"/>	Grandfather	<input type="checkbox"/>
Sister	<input type="checkbox"/>	Brother	<input type="checkbox"/>	Other person in the house	<input type="checkbox"/>
Don't know	<input type="checkbox"/>	Refuses to give an answer	<input type="checkbox"/>		

2.4.1. In the past week, how often did you or any household member take [child's name] outside the home, compound, yard or enclosure? Was it never, sometimes or many times?

Never	<input type="checkbox"/>	Don't know	<input type="checkbox"/>
Sometimes (less than 3 times a week)	<input type="checkbox"/>	Refuses to give an answer	<input type="checkbox"/>
Many times (3 or more times a week)	<input type="checkbox"/>		

2.4.2. Who took [child's name] outside the home, compound, yard or enclosure? (Select all that apply.)

- | | | | | | |
|------------|--------------------------|---------------------------|--------------------------|---------------------------|--------------------------|
| Mother | <input type="checkbox"/> | Father | <input type="checkbox"/> | Aunt | <input type="checkbox"/> |
| Uncle | <input type="checkbox"/> | Grandmother | <input type="checkbox"/> | Grandfather | <input type="checkbox"/> |
| Sister | <input type="checkbox"/> | Brother | <input type="checkbox"/> | Other person in the house | <input type="checkbox"/> |
| Don't know | <input type="checkbox"/> | Refuses to give an answer | <input type="checkbox"/> | | |

2.5.1. In the past week, how often did you or any household member play with [child's name]?

Was it never, sometimes or many times?

- | | | | |
|--------------------------------------|--------------------------|---------------------------|--------------------------|
| Never | <input type="checkbox"/> | Don't know | <input type="checkbox"/> |
| Sometimes (less than 3 times a week) | <input type="checkbox"/> | Refuses to give an answer | <input type="checkbox"/> |
| Many times (3 or more times a week) | <input type="checkbox"/> | | |

2.5.2. Who played with [child's name]? (Select all that apply.)

- | | | | | | |
|------------|--------------------------|---------------------------|--------------------------|---------------------------|--------------------------|
| Mother | <input type="checkbox"/> | Father | <input type="checkbox"/> | Aunt | <input type="checkbox"/> |
| Uncle | <input type="checkbox"/> | Grandmother | <input type="checkbox"/> | Grandfather | <input type="checkbox"/> |
| Sister | <input type="checkbox"/> | Brother | <input type="checkbox"/> | Other person in the house | <input type="checkbox"/> |
| Don't know | <input type="checkbox"/> | Refuses to give an answer | <input type="checkbox"/> | | |

2.6.1. In the past week, how often did you or any household member tell [child's name] the names of things? Was it never, sometimes or many times?

- | | | | |
|--------------------------------------|--------------------------|---------------------------|--------------------------|
| Never | <input type="checkbox"/> | Don't know | <input type="checkbox"/> |
| Sometimes (less than 3 times a week) | <input type="checkbox"/> | Refuses to give an answer | <input type="checkbox"/> |
| Many times (3 or more times a week) | <input type="checkbox"/> | | |

2.6.2. Who told [child's name] the names of things? (Select all that apply.)

- | | | | | | |
|------------|--------------------------|---------------------------|--------------------------|---------------------------|--------------------------|
| Mother | <input type="checkbox"/> | Father | <input type="checkbox"/> | Aunt | <input type="checkbox"/> |
| Uncle | <input type="checkbox"/> | Grandmother | <input type="checkbox"/> | Grandfather | <input type="checkbox"/> |
| Sister | <input type="checkbox"/> | Brother | <input type="checkbox"/> | Other person in the house | <input type="checkbox"/> |
| Don't know | <input type="checkbox"/> | Refuses to give an answer | <input type="checkbox"/> | | |

2.7.1. In the past week, how often did you or any household member count things with [child's name]? Was it never, sometimes or many times?

- | | | | |
|--------------------------------------|--------------------------|---------------------------|--------------------------|
| Never | <input type="checkbox"/> | Don't know | <input type="checkbox"/> |
| Sometimes (less than 3 times a week) | <input type="checkbox"/> | Refuses to give an answer | <input type="checkbox"/> |
| Many times (3 or more times a week) | <input type="checkbox"/> | | |

2.7.2. Who counted things with [child's name]? (Select all that apply.)

- | | | | | | |
|------------|--------------------------|---------------------------|--------------------------|---------------------------|--------------------------|
| Mother | <input type="checkbox"/> | Father | <input type="checkbox"/> | Aunt | <input type="checkbox"/> |
| Uncle | <input type="checkbox"/> | Grandmother | <input type="checkbox"/> | Grandfather | <input type="checkbox"/> |
| Sister | <input type="checkbox"/> | Brother | <input type="checkbox"/> | Other person in the house | <input type="checkbox"/> |
| Don't know | <input type="checkbox"/> | Refuses to give an answer | <input type="checkbox"/> | | |

2.8.1. In the past week, how often did you or any household member draw or paint things with [child's name]? Was it never, sometimes or many times?

- | | | | |
|--------------------------------------|--------------------------|---------------------------|--------------------------|
| Never | <input type="checkbox"/> | Don't know | <input type="checkbox"/> |
| Sometimes (less than 3 times a week) | <input type="checkbox"/> | Refuses to give an answer | <input type="checkbox"/> |
| Many times (3 or more times a week) | <input type="checkbox"/> | | |

2.8.2. Who drew or painted things with [child's name]? (Select all that apply.)

- | | | | | | |
|------------|--------------------------|---------------------------|--------------------------|---------------------------|--------------------------|
| Mother | <input type="checkbox"/> | Father | <input type="checkbox"/> | Aunt | <input type="checkbox"/> |
| Uncle | <input type="checkbox"/> | Grandmother | <input type="checkbox"/> | Grandfather | <input type="checkbox"/> |
| Sister | <input type="checkbox"/> | Brother | <input type="checkbox"/> | Other person in the house | <input type="checkbox"/> |
| Don't know | <input type="checkbox"/> | Refuses to give an answer | <input type="checkbox"/> | | |

CHILD'S ECD PROGRAMME

Does [child's name] attend an ECD programme, playgroup, creche, primary school?

- Yes No Don't know Refuses to give an answer

For how many years has [child's name] been in the programme?

- | | | | |
|---------------------------|--------------------------|-----------------------|--------------------------|
| 1st year in the programme | <input type="checkbox"/> | 3rd year in programme | <input type="checkbox"/> |
| 2nd year in programme | <input type="checkbox"/> | Do Not Know | <input type="checkbox"/> |

Does the programme charge fees? Yes No Don't know Refuses to give an answer

If fees are charged, how much is the monthly fee (in Rands)? _____

What languages are usually spoken at the programme?

- | | | | | | |
|------------|--------------------------|---------------------------|--------------------------|----------|--------------------------|
| English | <input type="checkbox"/> | Afrikaans | <input type="checkbox"/> | isiZulu | <input type="checkbox"/> |
| isiXhosa | <input type="checkbox"/> | Sesotho | <input type="checkbox"/> | Setswana | <input type="checkbox"/> |
| isiNdebele | <input type="checkbox"/> | Sesotho se Leboa (Sepedi) | <input type="checkbox"/> | siSwati | <input type="checkbox"/> |
| Xitsonga | <input type="checkbox"/> | Tshivenda | <input type="checkbox"/> | Other | _____ |

How many days a week does the ECD programme operate? _____

How many days a week does your child typically attend the ECD programme? _____

How many hours per day does the child usually attend the programme? _____

How did you find out about the ECD programme your child attends? (Do not prompt.)

- | | |
|--|--------------------------|
| From a family member, friend or other community member | <input type="checkbox"/> |
| It was advertised in my community | <input type="checkbox"/> |
| The provider of the ECD programme invited me to participate | <input type="checkbox"/> |
| I observed other children attending | <input type="checkbox"/> |
| Don't know <input type="checkbox"/> Refuses to give an answer <input type="checkbox"/> | |
| Other | _____ |

Please tell me the most important reason you send your child / children to this ECD programme? (Do not prompt. Mark only the most important reason given).

- | | |
|---|--------------------------|
| It prepares child for school | <input type="checkbox"/> |
| It provides child care while busy / at work | <input type="checkbox"/> |
| It provides the child with food | <input type="checkbox"/> |
| It provides a chance to be with other children | <input type="checkbox"/> |
| I work at this programme and my child attends with me | <input type="checkbox"/> |
| The ECD programme helps me learn about how to help my child's development | <input type="checkbox"/> |
| Don't know | <input type="checkbox"/> |
| Refuses to give an answer | <input type="checkbox"/> |
| Other | <input type="checkbox"/> |

Would you like to share any other reasons for choosing this ECD programme?

Does the child's primary caretaker receive a grant for [child's name]?
(Make sure the grant is specified.)

- | | | | |
|-----------------------|--------------------------|---------------------------|--------------------------|
| Child support grant | <input type="checkbox"/> | None | <input type="checkbox"/> |
| Care dependency grant | <input type="checkbox"/> | Don't know | <input type="checkbox"/> |
| Foster care grant | <input type="checkbox"/> | Refuses to give an answer | <input type="checkbox"/> |

Thank you very much for talking to me.

ASSESSOR

Assessor name: _____

Do you have any additional comments or observations? Please note any unusual or special observations here. If none, leave blank.
