



The Zambia Child Assessment Test (ZamCAT): Development and Use in Three African Countries

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Overview

- Rationale for the Development of ZamCAT
- ZamCAT subscales
- Validation of the ZamCAT in Zambia
 - I. Zambia Early Childhood Project (2010-2012)
 - II. Amundame study (2010-2011)
- Firelight ZamCAT Initiative- (Malawi, Tanzania & Zambia)

Rationale

- Development of the ZAmCAT was inspired by the growing need for culturally relevant child assessments in Africa.
- To estimate the impact of early childhood on child development and subsequent schooling

Development of the ZamCAT

Collaborators in the development phase:

- Harvard Center on the Developing Child (Prof. G. Fink & S. Zuilkowski)
- University of Zambia (Prof. R. Serpell, B. Matafwali, K. Kalima, T. Chansa Kabali, J. Jere-Folotiya)
- UNICEF, Zambia (M. Banda)
- Examination Council of Zambia (T. Nakazwe)
- Ministry of Education (E. Simfukwe)

Development process

- Selection of subscales
- Translation
- Piloting
- Validation

ZamCAT subscales

Child Assessment

- Language
 - Receptive
 - Expressive
- Nonverbal cognitive abilities
 - Tactile pattern reasoning
- Information processing
 - rapid naming test



ZamCAT subscales

Child Assessment

- Executive functioning
- Fine motor skills –
 - copying, threading, buttoning, Nsolo
- Socio-emotional development
 - (parent-report)
- Task orientation
 - (assessor evaluation)
- Physical growth
 - height, weight, arm circumference



ZamCAT subscales

Parent Survey

- Household structure
- Parent health and education
- Childhood health
- Home literacy environment

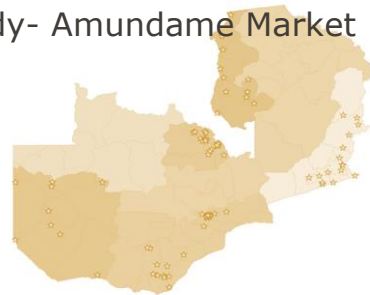


Piloting of the ZamCAT

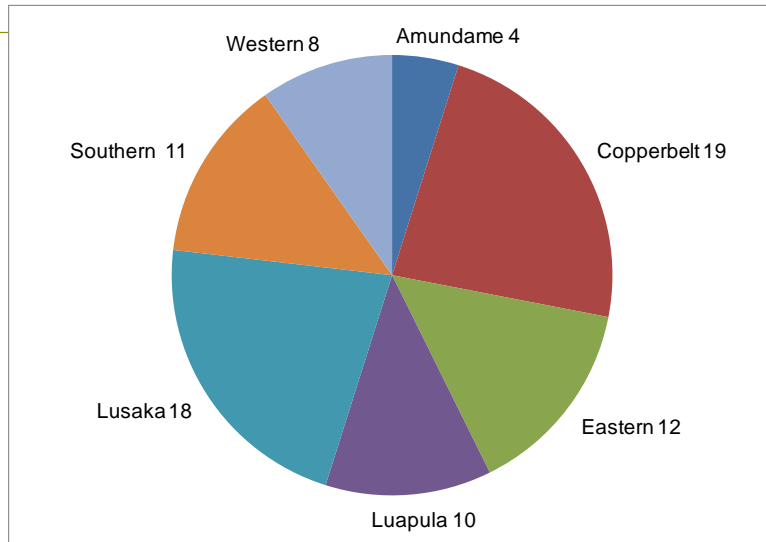
- **Translation** into seven curriculum languages; CiBemba, CiNyanja, CiTonga, Silozi, Kikaonde, Lunda & Luvale
- **Piloting**
 - 84 children in Lusaka Province (Language: Nyanja)
 - 139 children in four provinces (Languages: Nyanja, Bemba, Lunda, Luvale, Kikaonde, Tonga & Lozi)
 - Refinement before implementation with a large cohort

Validation of ZamCAT-Zambia ECD Project (2010-2012)

- 1700 children participated in the study
- 76 clusters in 6 provinces were captured
- 25 children per cluster
- Prospective Case control Study- Amundame Market Based ECD centre



Regional Distribution of Study Clusters



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Internal Consistency

Subscales	Total Score	Alpha Scale
Fine Motor Skills	10	0.79
Receptive Language	30	0.83
Expressive Language	5	NA
Tactile Pattern Reasoning	10	0.75
Letter Naming	20	NA
Attention skills	20	0.84
Socio-emotional skills	20	0.86
Task Orientation	13	0.91

Results of the Zambia ECD Project

Outcome	Receptive Language	Task Orientation	Socioeconomic development	Spatial Reasoning	Schooling
Any ECCDE experience	0.350*** (0.0536)	0.243*** (0.0534)	0.232*** (0.0556)	0.462*** (0.0548)	0.125*** (0.0318)
Observations	1,662	1,628	1,647	1,662	1,165

ECD had a positive impact on child development and school readiness even when we controlled for wealth, urban residence and other family characteristics.

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Prospective Case control Study- Amundame ECD centre



Amundame ECD centre

Amundame ("Take Care of Me"), Early Childhood Development (ECD) Centre located in the Central province of Zambia (in Kapiri Mposhi District).

- 40 children enrolled at the ECD centre as treatment group
- 40 children from same market area as comparison group
- All assessments conducted at home using ZamCAT instrument

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Results from Amundame study

Outcome	Receptive language	Letter naming	Pencil skills	Task orientation
Treated	0.337 (0.261)	0.481 (0.255)	0.290 (0.239)	0.657 (0.257)
Controls	Yes	Yes	Yes	Yes
Observations	75	75	75	75
R-squared	0.139	0.235	0.309	0.193

✓Children attending Amundame did 0.3-0.6 standard deviations better on all developmental outcomes

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Overall results- Zambia ECD project and Amundame

- ECD is strongly beneficial for children's development and school readiness: improved language skills, task orientation, early literacy skills, cognitive processing and executive functioning
- Amundame provides a model for community based ECD in Zambia: high quality of teachers, community involvement, formal curriculum, nutrition

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Validation in Tanzania, Malawi and Zambia- Firelight Foundation initiative

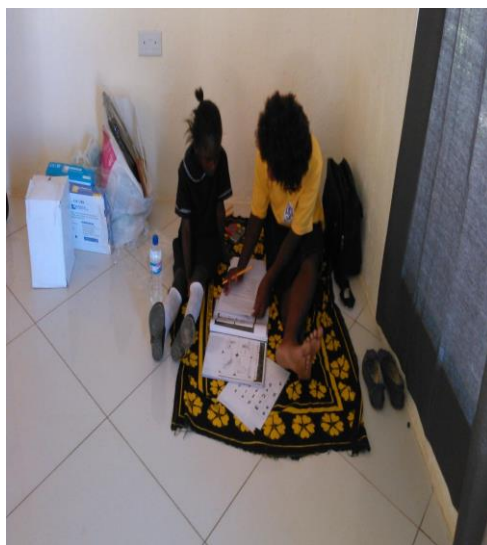


Firelight Foundation initiative

- Sadaf Shallwani, Firelight Foundation
- Zanele Sibanda, Firelight Foundation

Validation process

- Translation of the Instrument
(Tanzania-Kiswahili & Masai)
(Malawi- Cichewa & Yao)
- Training of assessors and ECD caregivers



Baseline and Midline Assessments

- Prospective case control study
- Assessed 500 children in 3 countries
- Treatment group
- Comparison group from the same communities
- Assessments conducted at baseline and midline.
- End line assessments yet to be conducted

Baseline Analyses

- Baseline analyses have examined associations among different dimensions of the ZamCAT as well as associations with different demographic and household characteristics.

Baseline Findings: Overall

	Receptive Language	Expressive Language	Letter Naming	Rapid Naming / Info Process	Attention / Exec Function	Tactile Pattern Recognition	Fine Motor Skills	Social-Emotional	Task Orientation	Overall ZamCAT Score
Primary caregiver's education	Y	Y	Y						Y	Y
Home possessions	Y	Y	Y	Y		Y		Y		
Home literacy environment and interactions	Y	Y		Y				Y		
Gender							Y	Y		
Age				Y			Y			
ECD or Comparison Group	Y	Y	Y				Y			Y

Summary of results – Firelight initiative

- **ECD** children scored appreciably higher on receptive language, expressive language, letter naming, and fine motor skills than comparison group
- **Home characteristics:** Across all the three countries, the homes of children in ECD had richer literacy environments at baseline

Conclusion

- With culturally appropriate measurement, it is possible to quantify the impact of early childhood on subsequent schooling.

THANK YOU!

