



TECHBRIDGEWORLD

# Lessons Learned from TechBridgeWorld Field Work in Zambia



# FRC Seminar – Oct. 16

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# TechBridgeWorld

We are a research group at Carnegie Mellon University spanning education, research, development, deployment, and outreach.

We are dedicated to defining the role of technology in sustainable global development.

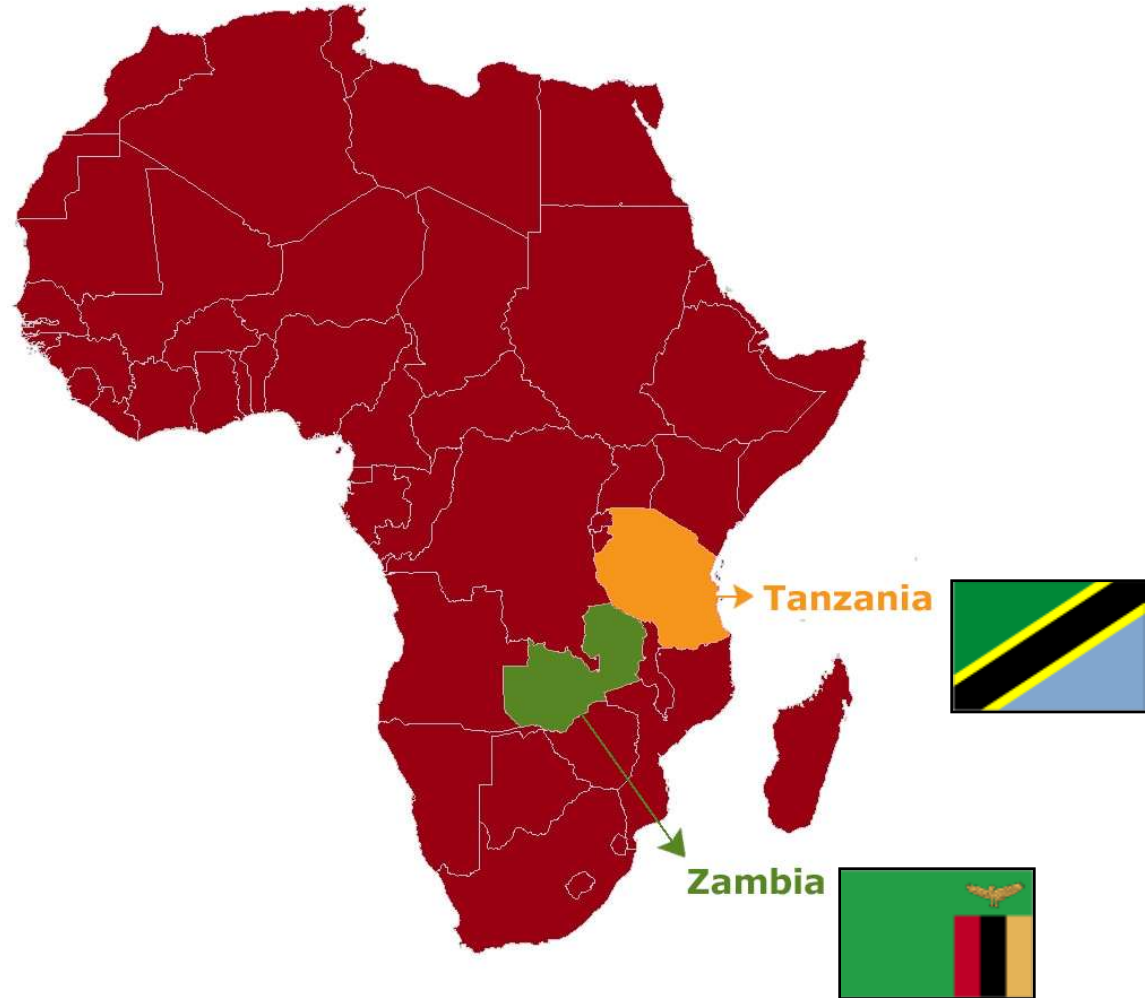
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# Our Goals

- ❖ Spend 1 week in Tanzania exploring new partnerships and 3 weeks in Zambia launching new projects with schools
- ❖ Build on existing contacts in the region
- ❖ Lay groundwork for new research opportunities and future work
- ❖ Evaluate field work conditions in Mongu, Zambia

# Where We Went



# Where We Went

## Country of Zambia:

Landlocked nation in Southern Africa,  
with a population of 11.7 million

*Primary language*

English

*Literacy*

80.6%

*Population online*

2.8% (334,800 Internet users)

*Number of mobile cellular telephones*

1,663,300

## Mongu, Zambia:

Town of approximately 50,000  
people in the Western Province

## Lusaka, Zambia:

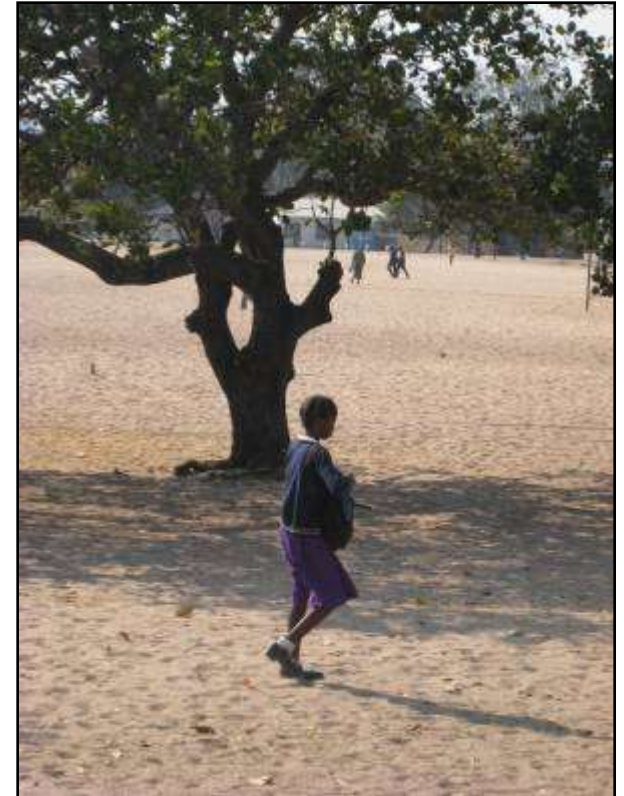
Country capital of over 1 million people;  
our transit stop to Mongu



Sources: CIA WorldFactbook and Wikipedia

# Why We Went There

- ❖ Partner interest and local contacts
- ❖ New opportunities for projects
- ❖ Largest proportion of people living in extreme poverty
- ❖ Demand for innovation
- ❖ Lack of access to infrastructure and information to benefit from technological advances
- ❖ Lack of human resources and technical expertise
- ❖ Few locally-grown initiatives related to technology and development



# Who We Worked With

- ❖ Project LISTEN at Carnegie Mellon
- ❖ ProjectEDUCATE
- ❖ Sefula School for the Visually Impaired
- ❖ Mulambwa Basic School
- ❖ Imwiko Basic School
- ❖ Mongu District Education Board Secretary, MOE

# What We Did

- ❖ Sought support from district educational officials
- ❖ Visited three schools to see current access and use of computers
- ❖ Discussed and demoed potential technology projects
- ❖ Determined feasibility of long-term work
- ❖ Trained local contacts



# Braille Writing Tutor

- ❖ Discussed, demoed, and set up braille tutor technology
- ❖ Introduced teachers to basic computer components and skills
- ❖ Collected feedback and suggestions for improvements
- ❖ Discussed plans for a feasible long-term research study



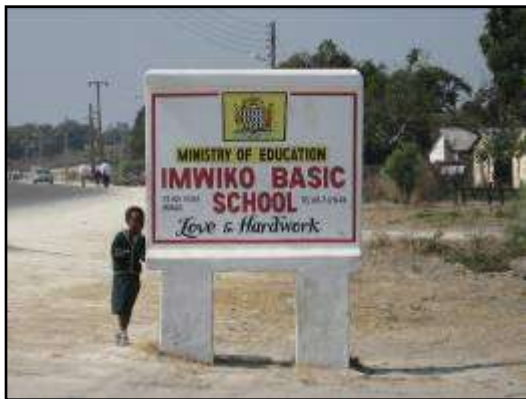
# LISTEN Reading Tutor

- ❖ Explored feasibility in two school environments
- ❖ Provided teacher training
- ❖ Tested with a small number of students
- ❖ Observed teachers assisting students
- ❖ Discussed plans for a feasible long-term field study



# Computing Curriculum Guides

- ❖ Created based on school's request
- ❖ Wrote sample lesson plans and activities customized to teachers' needs
- ❖ Collected initial feedback in content discussions with teachers
- ❖ Trained teachers initial computer skills
- ❖ Observed teachers training each other
- ❖ Discussed plans for a feasible long-term field study



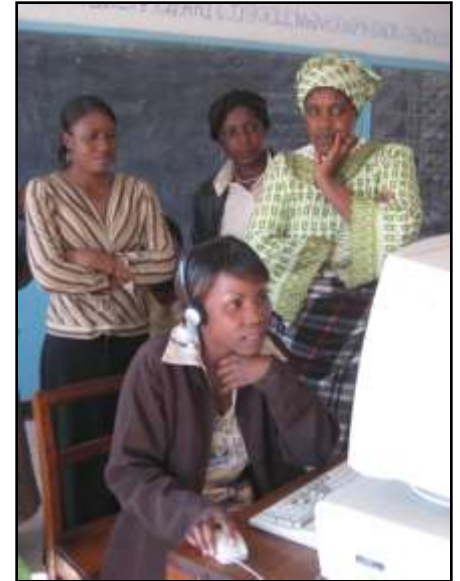
# Outcomes

- ❖ Signed a formal MOU with the Sefula School for the Visually Impaired
- ❖ Increased utilization of computing resources at Mulambwa and Imwiko Basic Schools and introduced computing resources to Sefula School for the Visually Impaired



# Outcomes

- ❖ Teachers organized training sessions to train their colleagues on use of computers
- ❖ Established local buy-in to ensure sustainability of projects
- ❖ Positive responses from local partners



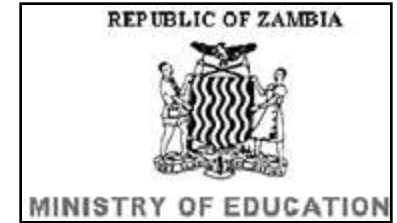
# Lessons Learned

- ❖ Understand barriers for local transportation and communication



# Lessons Learned

- ❖ Identify hierarchy of authority and understand how to deal with obstacles
- ❖ Have backup plans in place for situations where expected resources are unavailable



# Lessons Learned

- ❖ Allow flexibility in scheduling and planning
- ❖ Focus on developing partnerships to ensure sustainability



# Next Steps

- ❖ Launch year-long research project on braille writing tutor
- ❖ Incorporate feedback and launch year-long research to measure use and effectiveness of computing curriculum guides
- ❖ Incorporate local stories and launch year-long research to measure the impact and effectiveness of Reading Tutor
- ❖ Continue work remotely through collaborations
- ❖ Continue discussions to address sustainability of these planned projects.

# Special Thanks

We thank our friends and colleagues at TechBridgeWorld, the Field Robotics Center, and throughout Carnegie Mellon for their support during our recent work in Africa.

We also thank our contacts in Tanzania and Zambia who helped facilitate our meetings and projects.

**Carnegie Mellon**





# Thank You!



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