

Tech Talk @ Google Zurich 13 September 2013

# Helping Teachers

By using technology,  
in Kenya, India, and beyond  
<http://kusaidiamwalimu.org>

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# Background

## To Me

- 0 Impassioned to help improve lives through (mobile) technology
- 0 Googler 2006-10
- 0 Conference speaker
- 0 Helped support ->

## To the Schools

- 0 Rural
- 0 Under-resourced
- 0 No books
- 0 Few classrooms
- 0 Few teachers, qualified or otherwise
- 0 Part of the 'bottom billion'

# The catalyst

- 0 My first visit to Kenya in October 2012
- 0 High-tech
  - 0 iHub, mLab, and entrepreneurs in Nairobi
- 0 Low-tech
  - 0 Visiting schools in Oyugus, W. Kenya
  - 0 Travelling with school teachers from UK...
  - 0 With 3G Kindle
- 0 Q: What should be spend our money and time on?

# The germ of an idea...

- 0 Could e-readers help the teachers to teach better?
- 0 Would the technology work?
- 0 How could we design against common failures e.g.
  - 0 Theft?
  - 0 Possessiveness?
  - 0 Lack of use?
  - 0 Misuse?
  - 0 Unsustainability once donors depart?

# Engineering a possible approach

- 0 Power, including solar
  - 0 Devices + protective covers + lighting
  - 0 Connectivity
  - 0 Content in Swahili and English
  - 0 Amazon accounts
- 
- 0 Encourage use, discourage lack of use
  - 0 A pilot project with 6 schools of 20 we work with
  - 0 Agile & Lean practices applied to the pilot project

# Second Kenya visit – Feb '13

More high-tech in Nairobi, met many including:

- 0 ekitabu: online & mobile ebook store
- 0 eLimu: Android tablet app, multimedia content, feedback

## **Inaugural workshop with 6 schools: Valentine's Day**

- 0 Launch pilot project
- 0 Heads and deputies from each school
- 0 Governors, elders, chief of the valley, education minister
- 0 Helpers, and me

# Start small & inexpensive

- 0 1 device per school
- 0 Small budget, enough for 4 curriculum texts

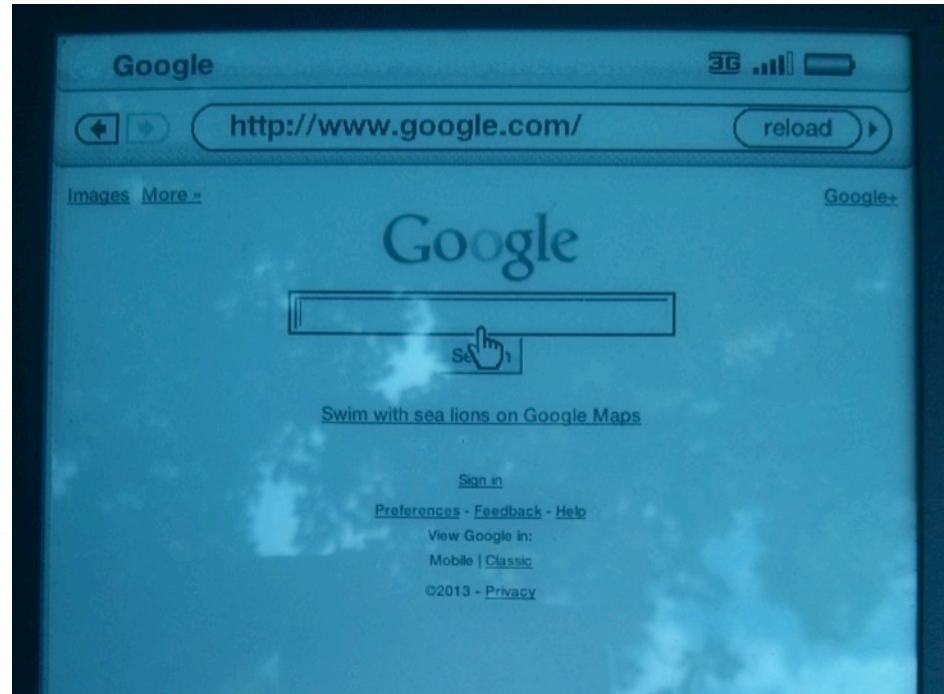
Diverse from the start

- 0 2 schools received wifi-only devices<sup>[\*]</sup>
- 0 Mix of solar and mains charging

[\*] they were walking distance from the local Internet Cafe



# The world of Google\* on a Kindle



Imagine access to Google, wikipedia and the internet for the first time... Transformational

\* And wikipedia & other web sites ☺

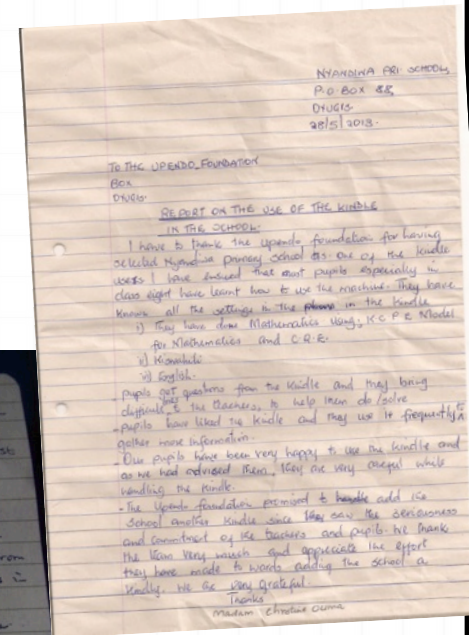
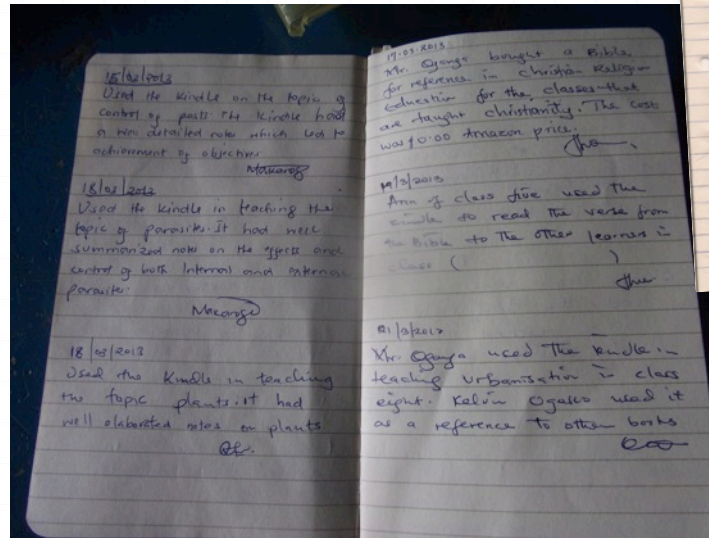


# Ebooks on demand

- 0 Swahili & English
- 0 Classics, curriculum, a galaxy of choices
- 0 Using Wishlists
- 0 Download a Sample
  
- 0 1 account, several devices
- 0 £25 seed funding per account
  
- 0 Able to send content to devices using whispernet

# Evidence-based

- 0 Notebook & pen
- 0 In-school interviews
- 0 Amazon account data
- 0 Emails
- 0 Video



- 0 We rewarded good practice & allowed for teething problems
- 0 Teaching & technology support provided in-situ
- 0 Integrate with Governance for the project

# Key aims

## **Cell-based & scalable**

- 0 Hub (the account) & Spokes (devices)
- 0 Wishlists: public buy-a-book, give-a-gift-certificate

## **Resilience & Availability**

- 0 Adequacy of power & connectivity in an unreliable environment
- 0 Mass market equipment over specialist stuff

Encourage responsibility & self-sufficiency

# Wastage

- 0 1 watt from a 3 watt panel
- 0 Useless integral solar chargers
- 0 Exploding batteries
- 0 Unused equipment at Kalando school

Not suitable

- 0 Nook, Kobo
  - 0 lack content distribution or a web browser



Testing solar panels in  
Nairobi, Feb 2013 @iHub

How much power do we need  
to establish sufficient reserve?

Sufficient first,  
then optimize

Reserve

How much power does the  
device use & when?

**Power**

Kindle  
keyboard

Android  
tablet

**Bandwidth**

Kindle Keyboard

Android tablet

# Bangalore

- 0 Invited to speak at a software conference in July 2013
- 0 2 weekends to fill
- 0 Introduced to:
  - 0 Cognizant (170,000 employees)
  - 0 The Fishermen Trust (6 employees)
- 0 Schools have ex-corporate desktops computers
  - 0 Lack software, support, training, or the where-with-all
- 0 Can I help?



# Zoombinis software

- 0 Educational game from 1990's
- 0 Learn logic and problem solving skills
- 0 Game adapts to competence of user

- 0 5 variants
- 0 100 copies bought on eBay





# School visits

- 0 2 schools near Bangalore
  - 0 State schools
  - 0 1 mainly for orphans
  - 0 1 supported by Cognizant team
  - 0 Both had borrowed a teacher
- 0 Tamil Nadu
  - 0 Private Christian schools: high-tech & well resourced
    - 0 Help nearby state schools
  - 0 4 Protected schools for 16+ girls

# Main findings

- 0 Teachers lack training, time or confidence
  - 0 Teachers I met care passionately & want to help
  - 0 Much equipment faulty, broken, missing
  - 0 Local languages need better support
  - 0 Power unreliable
- 
- 0 Mobile broadband no longer used, too expensive
  - 0 Nationwide and state plans to provide a computer/  
tablet per child mired in delays

# Agreed next steps in India

- 0 Cognizant to assess faulty kit and help schools to get them working
- 0 Train staff, students, etc. to support themselves & others
- 0 Edubuntu will be used more
- 0 Establish informal help between Cognizant & The Fishermen Trust
- 0 2 Aakash tablets provided to Fishermen Trust
- 0 Early results are positive  
(see project web site)  
<http://kusaidiamwalimu.org/>



## Collaborations so far...



<http://www.amaniuk.org.uk/>

## church charities



<http://www.thefishermentrust.co.in/>



<http://www.ashirwaad.org/>

## schools



<http://www.diyafoundation-india.org/>



<http://worldreader.org/>



<http://www.cognizant.com/>

## projects



<http://www.ekitabu.com/>



<http://e-limu.org/>

# My wish list

- 0 Reduce power & resource needs  
(at least until they are abundant)
- 0 Use caching for content
- 0 Better more scalable digital evidence  
(providing & protecting privacy)
- 0 Good content and apps in local languages