Teaching and Learning Materials Development Project

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Location - Akyem Dwenase, Ghana

- Ghana Interactive Qualifying Project Site
  - Eastern Region
  - Rural farming community

- Project Site
  - Dwenase Presbyterian primary School
  - Grades 1-6
Background - Major Problems

- Teaching methods are abstract
  - Focuses on:
    - Memorization
    - Textbook reading
  - Lack of:
    - Visual tools
    - Physical materials
    - Pre-made, government provided made tools

- Lack of Funding
  - Government allocation per student for 2017-2018
    - 4.5GHC = $0.80
  - Spent during 2017-2018 school year
    - 420.65 GHC = $84
Design Process

- Emphasis on the principle of co-design
  - Working alongside the community and building authentic relationships
  - Designing solutions that benefit and suit the community
Building Trust

● Enabled co-design
  ○ Allowed us to understand our collaborators
  ○ Allowed our collaborators to fully engages with our ideas
    ■ Ghanaian culture is very polite, wanted to encourage collaborators to be open with us

● Engaged in community activities
  ○ Watched soccer matches at home and neighboring villages
  ○ Taught mini-lessons at the primary school (with teacher supervision)
  ○ Volunteered during community work days
Observation

- Observed each classroom for 2 class periods
- Observations:
  - Community based learning
  - Extremely interactive classrooms
  - Brand new curriculum
  - Students owned various, inconsistent school supplies
Ideation

● **Step 1: Listening to collaborators**
  ○ Integral Takeaways:
    ■ Needed to reexamine curriculum
    ■ Focus on locally available resources
      ● Cassava plants to make glue
      ● Re-using cardboard boxes to make posters
      ● Purchasing materials from markets only in neighboring towns
    ■ Focus on needs of the individual teachers
    ■ No ‘one-size-fits-all’ solution

● **Step 2: Physical Ideation**
  ○ Used paper and pencils
  ○ Real-time editing and idea formulating
  ○ Equal participation for all involved parties
Prototyping

● Creating tools for specific lessons

● Refining the design
  ○ Multiple iterations of the same design

● Defining the purpose of the design
  ○ Alongside the teachers
  ○ In the context of the Dwenase Primary School

● Using exclusively local and cheap materials
  ○ Each TLM was < 5GHC = $1
Testing

- Observed teachers using the tools
  - Improved interaction between students
  - Improved student engagement
  - Teachers enjoyed the using the materials
  - Materials were easy to adapt to a variety of grade levels
  - Teachers immediately wanted to make more!
Sustainability and Build Session

- **Sustainability**
  - Used locally available materials
  - Created a mutual exchange of knowledge and long-lasting partnerships

- **Build Session**
  - Tutorials for building the new tools
  - Share new methods
  - Utilized local methods
  - Teachers confidently created multiples of tools
  - Began collecting bottle caps and cardboard
Final Products
And More!