The Promise of Technology Platforms to Bridge the Health Literacy Divide

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Disclosures

• NK
  • I consult/work with early stage health care ventures exploring opportunities in the African market one of which I will briefly discuss today
Objectives

- Defining Health Literacy
- Relevance of Health Literacy
- Role of Technology in Health Literacy
- Learning from Existing Technology Platforms
- Joleh
- Summary
Defining Health Literacy
What is Health Literacy?

• First introduced in 1974 with a simple definition:
  • “health education meeting minimal standards for all school grade levels”

• Continuously evolving, now combining facets of education and healthcare

• Several different definitions have been proposed/adopted over the years

• Existential policy paper conundrum:
  • How to be ‘fully inclusive’ without being ‘overly verbose’
  • How to say the same thing with slightly different words
Health Literacy Defined

- European Health Literacy Consortium definition:

  Health literacy is linked to literacy and entails people’s knowledge, motivation and competences to access, understand, appraise and apply health information in order to make judgements and take decisions in everyday life concerning health care, disease prevention and health promotion to maintain or improve quality of life during the life course.
European Consortium Model


Health Literacy Defined

• Older definitions in the United States:

  • Joint Committee on National Health Education (1995): “the capacity of individuals to obtain, interpret and understand basic health information and services and the competence to use such information and services in ways which enhance health”

  • American Medical Association (1999): “constellation of skills, including the ability to perform basic reading and numerical tasks required to function in the health care environment”
Health Literacy Defined

• Most recent US definition (Healthy People 2010):

  • “The degree to which an individual has the capacity to obtain, communicate, process, and understand basic health information and services to make appropriate health decisions”

  • Important to emphasize that both individual and systemic factors contribute to health literacy
Literacy versus Health Literacy

• Literacy is a building block for context specific forms of literacy
  • Context specific forms of literacy include **Health Literacy**, Financial Literacy, etc

• Being literate does not guarantee health literacy
  • A PhD level educated individual can have lower health literacy than a person with less than a high school diploma

- Reading
- Writing
- Speaking
- Listening
- Numeracy
- Scientific
- Computer
- Cultural

Capacity to apply these skills within a given health context/system/environment

Sequential steps through functional, interactive and finally critical utilization of skills
Global Literacy Rates

But what about Health Literacy Rates?

- United States has an adult literacy rate of over 97%
  - Ghana’s rate is roughly 70% as of 2012 (UNICEF data)

- Yet, according to the Institute of Medicine 2004 report:
  - Nearly half of all adults in the United States (over 90 million individuals) have difficulty understanding and acting upon health information

  - 9 in 10 adults are less than proficient in reading, understanding and acting upon medical information
But what about Health Literacy Rates?

United States 2003 NALS Health Literacy Survey

- Proficient: 12%
- Intermediate: 53%
- Basic: 22%
- Below Basic: 13%
Relevance of Health Literacy
Health Literacy Relevance

• Health Literacy correlates with other demographic factors such as socioeconomic status and education BUT has also been shown to be an independent variable for several important aspects of health

• The major areas that have been explored include:
  • Healthcare equity/disparities
  • Healthcare costs
  • Healthcare outcomes

• Health literacy represents a modifiable factor that can be targeted with intervention
Benefit to Individual & Population

• Individual advantages
  • Better able to navigate health system
  • Make informed (& hopefully healthy) lifestyle choices
  • Better management of chronic diseases such as:
    • Medication and health recommendation adherence
    • Early detection and intervention

• Population advantages
  • Advocate for better healthcare resources
  • Design shared spaces that encourage healthy lifestyles
  • Peer to Peer influence
Healthcare Equity

• Can healthcare literacy explain much of health disparities??
  • Chandra Osborn et al (J Health Comm, 2011): Low health literacy negative the correlation between African American race and diabetes medication non-adherence.

• Utilization of preventative programs by individuals with low health literacy
  • Davis et al (Medical Care, 2002): Women with low health literacy significantly less likely to have ever had a Pap test or to have had mammogram in last 2 years

• Targeting groups that carry a disproportionate burden of diseases for health literacy may help improve equity
Healthcare Outcomes

- Bennett et al (1998 J Clinc Onc) demonstrated a relationship between advanced stage of Prostate Ca diagnosis with low health literacy and black race within the Veterans Administration system.

- In this study, after correcting for low health literacy, there was no significant relationship between race and advanced stage of disease at diagnosis.
Health Literacy Stakeholders
Need a Collaborative Approach
Success Stories

• Health literacy is not just a healthcare industry problem

• Countries which have employed a multidisciplinary approach are leading the way

  • Ireland: Coalition between National Adult Literacy Agency, Ministry of Health, pharmaceutical companies and academic institutions in response to low adult literacy results in 2002 survey have promoted health literacy onto the national agenda

  • Netherlands: The National Alliance for Health Literacy created in 2010 has over 60 member organizations including patient groups, providers, pharmaceuticals, media, academics and advocate for pushing health literacy into everyday life
Health Literacy – Ghana/Africa
Literacy Rates
*however there is a correlation between higher literacy and higher health literacy*
An Opportunity…

• Majority of the world including countries like the US are only now grappling with health literacy

• Opportunity to leapfrog by building upon existing best practices

• As a nation, we cannot afford not to focus on Health Literacy
... with Unique Challenges

- Some of our *unique* challenges include
  - Relatively low literacy rates
  - Language, cultural, political complexities
  - Low healthcare expenditure
  - Limited number of healthcare workers and facilities
  - Poor healthcare infrastructure
  - Rise in chronic diseases and associated cost

- Necessity is the mother of innovation

- Can technology help address these challenges?
Role of Technology in Health Literacy
The Promise of Technology

• Institute of Medicine report in 2013 identified technology as a key facilitator in bridging the gap between health literacy and health outcomes

• Technology however is NOT a panacea

• Democratization of health vs Exacerbation of already existing disparities?
Why Technology?

• Internet connectivity across Africa
  
  600 Million Internet Users
  
  41% Penetration
  
  18 Mbps average Internet speed by 2020

• Mobile phones connections across Africa
  
  1.23 Billion Cellular Connections
  
  84% Penetration
  
  500M+ smart phone users by 2025

Explosion of available health related products
How effective?

Your year with Fitbit

From first steps to big steps, you made last year one for the books! Now let's take a step back to see how your 2015 stats stacked up.

Last year's journey, step by step.

Your Total Step Count in 2015: 3,146,118

Average total steps for Americans: 965,925
Average Total Steps, Globally: 971,726

Your strides led to this.

Your Total Distance (mi) in 2015: 1,372

Average total distance for Americans: 674 mi
Average Total Distance, Globally: 421 mi
How many people developing healthcare software have heard of the term ‘health literacy’?

“The degree to which an individual has the capacity to obtain, communicate, process, and understand basic health information and services to make appropriate health decisions”

Is producing & distributing unregulated content and collection of massive amounts of data enough?
Addressing Our Unique Challenges

• Can Technology address these unique challenges in Ghana?

  • Relatively low literacy rates
  • Language, cultural, political complexities
  • Low healthcare expenditure
  • Limited number of healthcare providers and facilities
  • Poor healthcare infrastructure
  • Rise in chronic diseases and associated cost

• YES! But maybe not the politics!
Addressing Our Unique Challenges

• Can technology be used to:

  • Reach patients during their day to day routine

  • Present content in a variety of languages & infographics in culturally appropriate ways

  • Allow access to healthcare providers/specialists across geographic boundaries

  • Help manage chronic ailments through compliance monitoring and wearables

  • Improve equity in research studies by e.g. Increasing enrollment & diversity of clinical trials
Challenges and constraints

• Privacy concerns
• Ownership of data
• Standardization
• Infrastructure
• Tailoring appropriate content
• Building capacity
• Capital & Monetization
• Culture
<table>
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<tr>
<th>Lessons from Successful Technology Products</th>
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<td><strong>Ton-a-ton</strong></td>
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<td>• Swedish owned company - currently the largest online market place in Ghana</td>
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<td>• Free to list ads for everything from houses to shoes</td>
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<td>• Clean user interface</td>
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<td>• Android and iOS applications</td>
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<td>• Aggressive online and offline marketing push</td>
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<td><img src="image1" alt="Tonaton.com" /></td>
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<td><strong>MPESA</strong></td>
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<td>• Arguably the most successful Africa first technologic innovation to date - now emulated across globe</td>
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<td>• Local solution to a market need - making financial services accessible to the masses (bankless banking)</td>
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<td>• Key: works on any mobile device linked to Safaricom</td>
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<td>• Dramatic effect on entire Kenyan economy - 43% of Kenya’s GDP flows through MPESA (Forbes 2015)</td>
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<td><img src="image2" alt="MPESA" /></td>
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<td><strong>Khan Academy</strong></td>
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<td>• Non-profit organization that aims to provide free quality education to everyone, everywhere, forever</td>
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<td>• Started by Salman Khan in response to the need for his cousin to be tutored long distance</td>
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<td><img src="image3" alt="Khan Academy" /></td>
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<td><strong>Whatsapp</strong></td>
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<td>• #1 instant messaging application in the world</td>
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<td>• FREE - $22 billion price of free-bies</td>
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<td>• Deep penetration across Africa (78% usage rate in South Africa - global high)</td>
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<td>• Will recent move to drop Nokia and Blackberry</td>
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Many are already using readily-available platforms

“Each week I spend approximately two to three hours on online consultations using technology that is readily available. Through remote-access capabilities I review imaging studies, test results and communicate directly with both patients and physicians around the globe, including several African countries.”

--- CNN, “How African doctors can cure medical brain drain” Dr. Kofi Boahene (US-based Ghanaian Surgeon)

“I currently serve as de facto primary care doctor for patients in Ghana via WhatsApp. I don’t get paid for it. These are usually family members of my friends in Ghana”

--- Dr. Avril-Linda Prempeh (US-Based Ghanaian Physician, Internal Medicine)
Readily Available Platforms

Messaging Platforms
- Viber
- WhatsApp

Social Media
- Facebook
- Twitter

Video Platforms
- Skype
- Hangouts

Non-Traditional Media
- Blog
- Podcast
- Periscope

Content Providers
- Dr. Google
- WebMD
Building an Integrated Healthcare Platform

• Joleh™ is a secure cloud based integrated platform focused on improving access to quality healthcare content and services for Ghanaians

• Currently in the early stages of an iterative development process

• Applying lessons learned from both successful and not-so-successful products across the globe
Joleh: Project Goals

Facilitate Customized Medical Advice
- 24x7x365 On-demand Access
- Text, Call and Video
- Local Languages, Context and Experience
- Physician ratings and referrals
- Patient Medical Records

Personalized Health Education
- Medical Forums / Q&A
- Medical Podcasts / Videos
- General Health and Wellness Tips

Provider Portal
- Collaborate/share interesting cases
- Build Provider & Patient Network
- Facilitate Clinician Referrals
- Promote Physician Practice

Social Enterprise Mission
- Key partnerships with local & international governing bodies and philanthropic organizations
- Contribute to capacity building to further improve health outcomes

HIPAA Compliant & Highest Data Security Standards
Joleh: Project Goals

- HIPAA Compliant & Highest Data Security Standards
- Patient Medical Records
- Verified Healthcare Provider Data
- Healthcare Information Content Management
- Anonymized Population Level Health Data
Dr. Samantha Williams

Medical Profile

- Joined: August 28, 2015
- Last Active: 2 days ago
- Upvotes: 2,985
- Member Level: Intermediate

Support in:
- #severedepression
- #anxiety
- #panic

Recent Answers

1. I have severe depression and anxiety and panic disorder along with PTSD. I also have a...
   - Posted March 25th, 2016
   - #ptsd #severedepression #anxiety #panic #disorder

2. I have severe depression and anxiety and panic disorder along with PTSD. I also have a...
   - Posted March 25th, 2016
   - #ptsd #severedepression #anxiety #panic #disorder
Web Portal - Forums

I have severe depression and anxiety and panic disorder along with PTSD. I also have a...

Posted March 25th, 2016

Bipolar Disorder - I've recently stop taking my meds due to high cost of prescription and no?

Posted March 22nd, 2016
… and Mobile Platform

Welcome Afua Kufuor

FIND Care
ASK question

Medical Records
My Appointments

Health Packages
Health Tips

Podcast
Manage Account

Available on the App Store
Joleh | Health Literacy

“The degree to which an individual has the capacity to obtain, communicate, process, and understand basic health information and services to make appropriate health decisions”

• Technology products like Joleh can improve ACCESS to quality, culturally sensitive and personalized health content & services

• Improving access provides the potential to OBTAIN and COMMUNICATE health information

• Improved access also allows the ability to ASSESS and INTERVENE as part of a broader initiative with all stakeholders
Conclusion
Summary

• **Health Literacy** is the single most important modifiable factor to improve systemic health outcomes
  - Developing nations like Ghana can leapfrog into the 21st century on this front by focusing on this key variable
  - All stakeholders from public and private arena need to be involved

• **Technology** is NOT a panacea BUT can be a powerful tool in efforts to improve health literacy
  - Existing technology can be used to effectively address health literacy
  - A sword is only as good as the person wielding it
Thank You
nii@joleh.com
Rating Readily Available Platforms

Health Literacy Impact Score??
## Rating Selected Platforms

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<thead>
<tr>
<th>Social Media platforms</th>
<th>Mobile-based platform</th>
<th>Ability to overcome multiple language barriers</th>
<th>Ability to connect providers and consumers</th>
<th>Privacy &amp; Security</th>
<th>Ghana market penetration</th>
<th>Health Literacy Impact Score (n-1)</th>
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