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
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 Costs

Annual Medicaid Cost by Reading Level

<table>
<thead>
<tr>
<th>Cost Per Beneficiary Per Year</th>
<th>Low Literacy (3rd grade or below)</th>
<th>High Literacy (4th grade of above)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total cost</td>
<td>$10,688</td>
<td>$2,891</td>
</tr>
<tr>
<td>Inpatient cost</td>
<td>$7,038</td>
<td>$824</td>
</tr>
</tbody>
</table>

Weiss et al. J Am Board Fam Med. 2004
Healthcare Outcomes

• Bennett et al (1998 J Clin 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

Global Literacy Rates

Source: UN Human Development Report 2011
*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

Last year’s journey, step by step.

Your Total Step Count in 2015

3,146,118

Average total steps for Americans

955,925

Average Total Steps, Globally

97,126

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
Health Literacy & Technology

• 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>
<thead>
<tr>
<th>Lessons from Other Technology Products</th>
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<tbody>
<tr>
<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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<tr>
<td>- <strong>Android and iOS applications</strong></td>
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<td>- Aggressive online and offline marketing push</td>
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<td>- Have they been able to build enough customer trust?</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><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>- Relied heavily on existing products at the time, particularly YouTube and now has over 10M users</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-ness thanks to FB</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 devices affect its reach??</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
- Google
- WebMD

**Video Platforms**
- Skype
- Hangouts

**Non-Traditional Media**
- Blog
- Podcast
- Periscope
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

- Patient Medical Records
- Healthcare Information Content Management
- Verified Healthcare Provider Data
- Anonymized Population Level Health Data

HIPAA Compliant & Highest Data Security Standards
Web Portal - Profile

Dr. Samantha Williams

Recent Answers

Post: 289

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

Post: 289

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

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Medical Profile

Joined
August 28, 2015

Last Active
2 days ago

Upvotes
2,983

Member Level
Intermediate

Supports
Anxiety #panic #disorder

Joleh Statistics

Recent Answers

Most Upvoted

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

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

- FIND Care
- ASK question
- Medical Records
- My Appointments
- Health Packages
- Health Tips
- Podcast
- Manage Account

Available on the App Store

Android App on Google Play
“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 21\textsuperscript{st} 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
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