

Social Entrepreneurship and Disruptive Innovation: evaluating the use of Rumie's free educational software in seven developing economies.

Chris Moon, Middlesex University, c.moon@mdx.ac.uk

Allison Kavanagh, RUMIE, allison@rumie.org

Jackie Jeffrey, Well-being foundation, J.Jeffrey@mdx.ac.uk

Joseph Gebbels, Independent expert, josephgeb_11@hotmail.co.uk

Karen Korsgaard. Middlesex University, K.Korsgaard@mdx.ac.uk



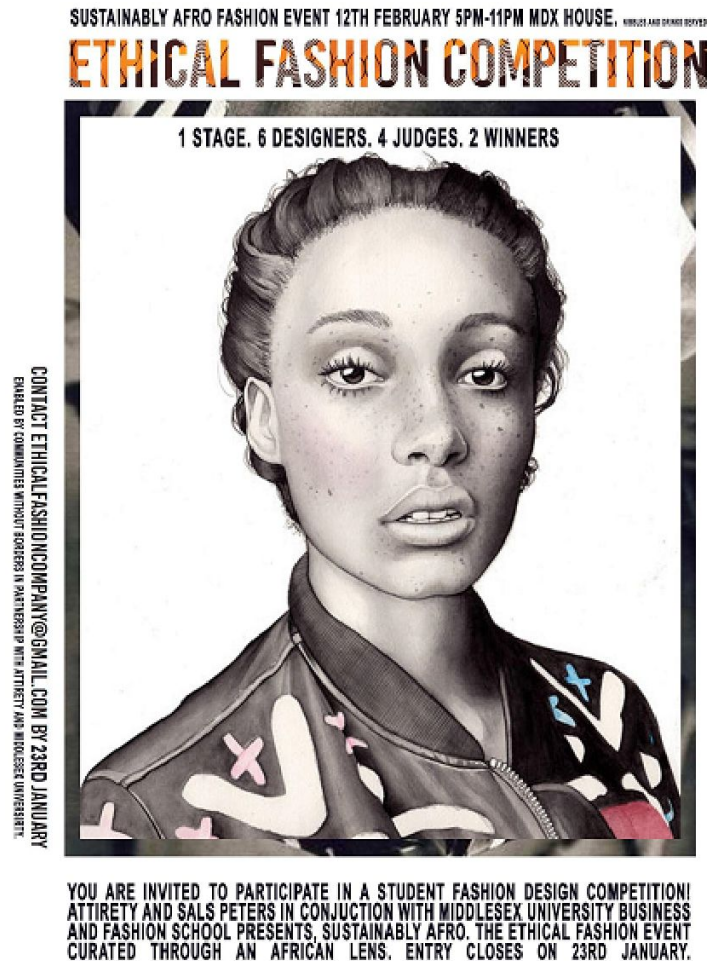
Objectives of workshop

1. Inform you about the work of Rumie (20 mins).
 - Why 'eduware' in developing economies
 - Overview of theory
 - Examples of standard content
 - Results of field pilots
2. Ask you to discuss ideas for developing bespoke software (40 mins).
 - Health (app)
 - Provide some background
 - Show examples of other projects in developing countries.
 - Consider how to apply to the Gambia.

Bio – Chris Moon, eco-entrepreneur.



New eco-business start-ups by students.



CSR Global

Ethics & Corporate Responsibility Consulting

- ▶ CSR Global, founded 2001, provides a range of services including supply chain verification. www.csrglobal.co.uk.
- ▶ Dr Christopher Moon FRSA FHEA, founder, has consulted to Pfizer, Reuters, BT and Canary Wharf Group; and a host of SMEs.
- ▶ Chris is a certified and accredited CSR consultant and Social Auditor and has consulted to 23Red (PR company for World Environment Day), GBRW (banking industry consultants) and Carat Computers (supplier to ARM the FTSE listed software company).
- ▶ CSR has acted as 'agent' for Rumie in the Gambia to supply tablets and oversee the field pilot study in school.
- ▶ CSR Global will similarly act as 'agent' to supply Rumie tablets to other schools in west Africa and oversee the verification of the project and evaluation of outcomes.

...one billion children across the world living
in poverty



“Education is the single best investment in prosperous, healthy and equitable societies.”

– UN Food & Agriculture Organization

Tablets plus eduware



<https://www.youtube.com/watch?v=eealxbCPPeY>

Accolades

“WORLD’S BEST SOCIAL STARTUP”



“AN AMAZING STORY”



“THE TABLETS ARE INGENIOUS AND IMPRESSIVE.”



Forbes

FINANCIAL POST

Mashable

THE
HUFFINGTON
POST

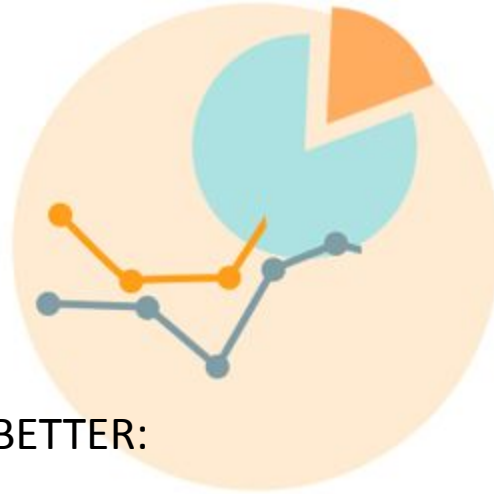
INSEAD
The Business School
for the World®

Business model



CHEAPER:

A \$50 device preloaded with learning materials that used to cost over \$5,000 to produce: innovation that multiplies the value of one dollar by over 100x.



BETTER:

Data analytics and diagnostics mean that devices get better, kids learn more, and impact is measured every step of the way.



FASTER:

Periodic synchronizations allow access to the latest, up-to-date digital learning materials.

Standard content vs. Play section

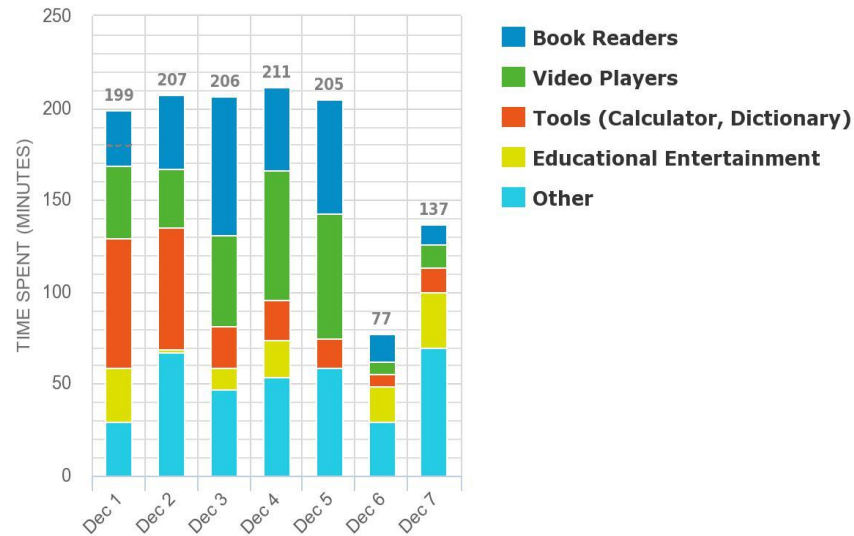
Learn Section

- **Wikipedia for Schools** - offline version of Wikipedia
- **Merriam-Webster English Dictionary** - includes pronunciation lessons
- **World Map**
- **Calculator** - standard calculator
- **Graphing Calculator** - for trigonometry, functions, and other more advanced math concepts
- **GeoGebra** - mathematics software
- **Periodic Table**
- **ConvertPad - Unit Converter**
- **Chemistry Dictionary**
- **Planets** - 3D guide to solar system
- **Human Anatomy** - guide to human body and sixteen biological systems
- **English Verb Conjugator** - 2000 verbs in 20 tenses
- **My Resume CV** - tool to write, format and create resumes
- **101 HR Interview Questions** - practice questions to help prepare for job interviews
- **Autodesk Sketchbook** - tool for drawing
- **WPS Office** - tool for creating text documents, slide presentations, and spreadsheets
- **Johnny Grammar's Word Challenge** - quizzes on vocabulary, grammar and spelling
- **Words Words Words** - vocabulary quizzes for various levels
- **Word Bucket** - language dictionary, notebook and word-learning game for English speakers for 10 languages (Spanish, German, French, Italian, Portuguese, Chinese, Arabic, Korean, Japanese and Russian)
- **GeoQuiz** - quizzes on human and natural geography
- **English Grammar Book** - grammar rules with practice quizzes

- **Sudoku**
- **Word Search**
- **Solitaire**
- **Temple Run**
- **Candy Crush**

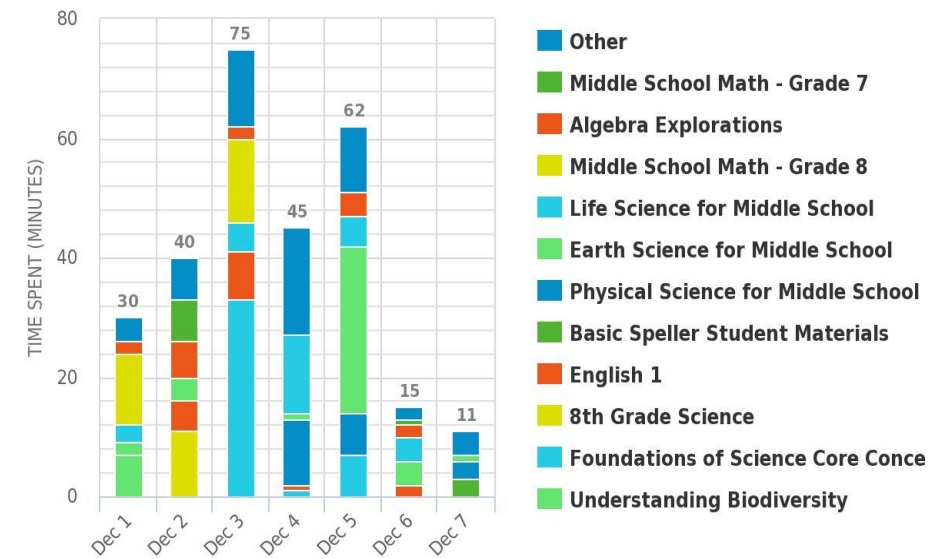
Results – phase 1.

AVERAGE APP USE PER STUDENT PER DAY



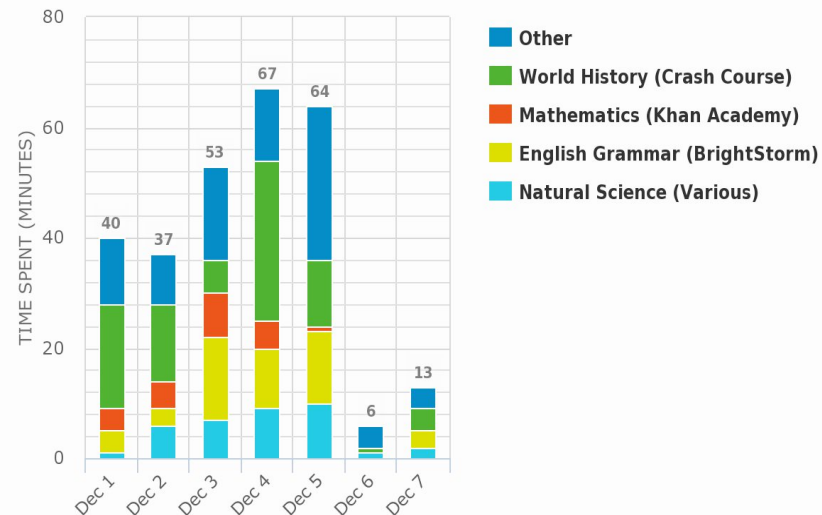
Highcharts.com

BOOKS / PDFS READ



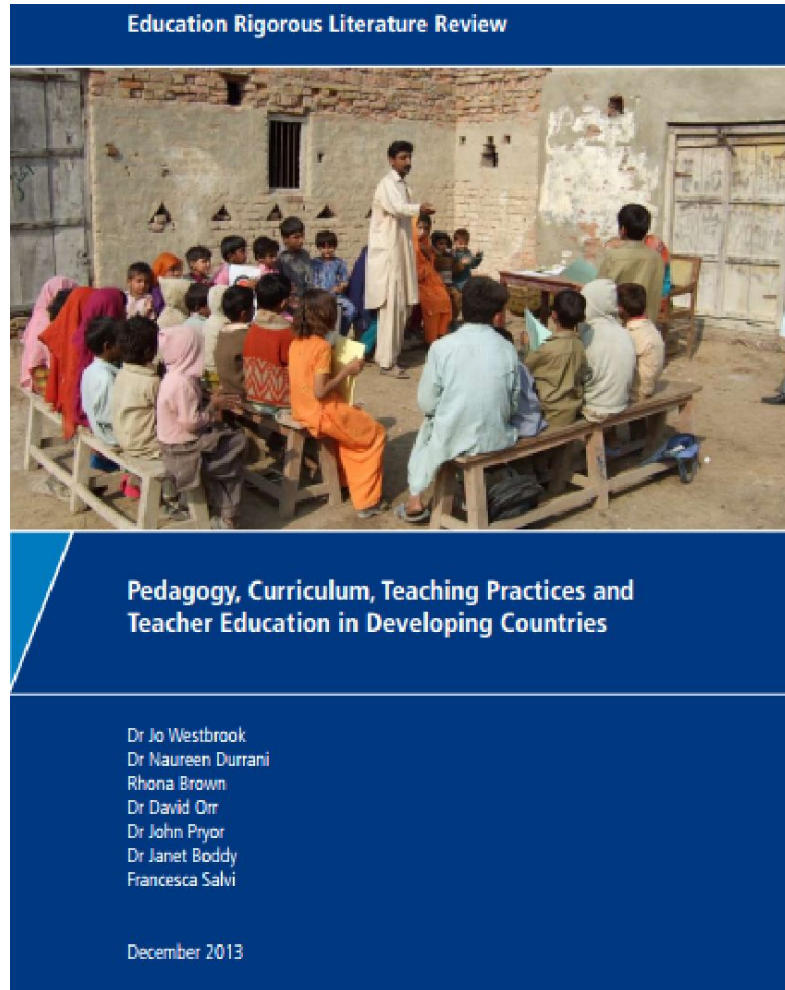
Highcharts.com

VIDEOS WATCHED



Highcharts.com

Theoretical background – 2013.



six effective teaching practices:

- flexible use of whole-class, group and pair work where students discuss a shared task;
- frequent and relevant use of learning materials beyond the textbook;
- open and closed questioning, expanding responses, encouraging student questioning;
- demonstration and explanation, drawing on sound pedagogical content knowledge;
- use of local languages and code switching;
- planning and varying lesson sequences.

although not all of these needed to be simultaneously present.

Theory building

- Disruptive innovation. Founded on the theories of Harvard professor Clayton M. Christensen (ranked as the #1 management thinker globally in the Thinkers 50 ranking).

cf. Christensen, The Innovator's Dilemma, 1997.

- In May 2015, the Christensen Institute highlighted Rumie as an example of a disruptive technological innovation.

cf. Thomas, The Economics of Educational Nonconsumption in the Developing World, 2015.

Theory testing

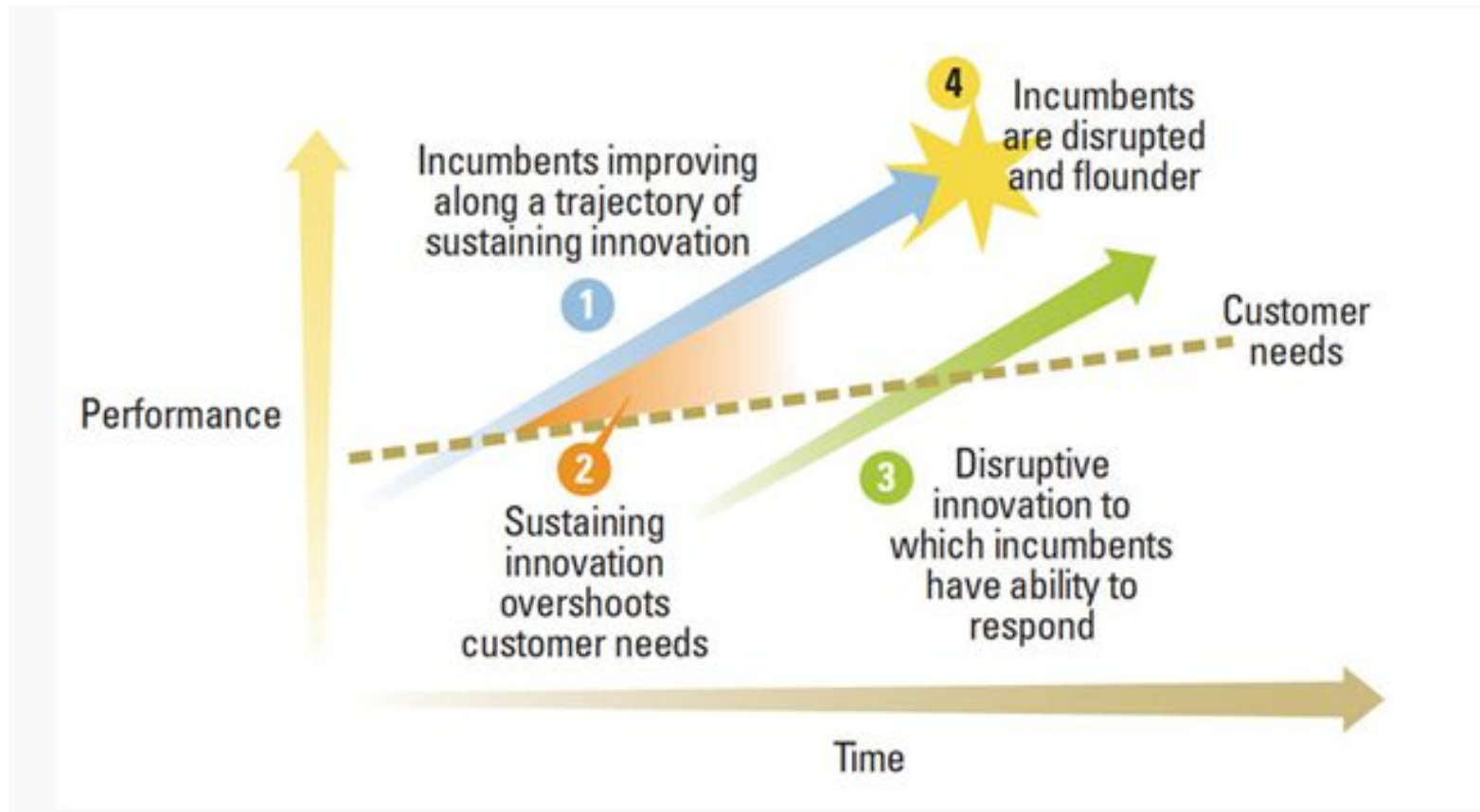
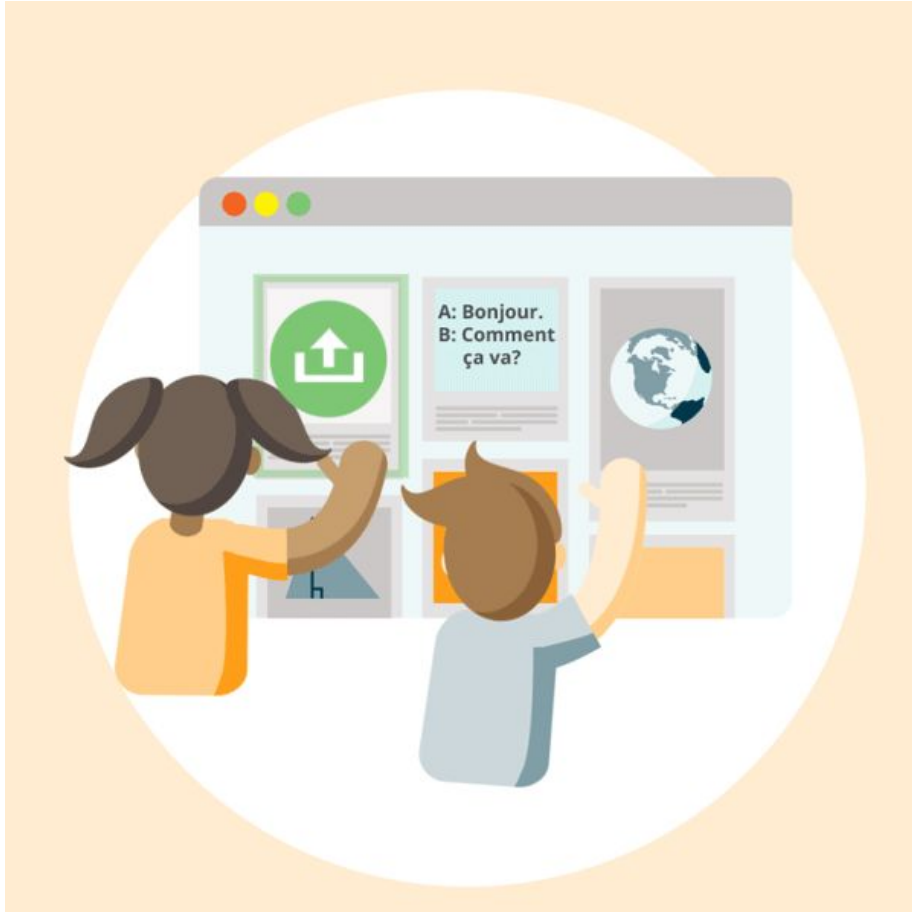


Figure 1. Four Elements of the Theory of Disruptive Innovation, King and Baatartogtokh, 2015.

The future of learning?



LearnCloud



...the Rumie LearnCloud:
the world's largest
crowdsourced open
repository of free learning
content.

Phase 2. Developing bespoke content e.g. an App (Health).

WHO – school health and youth health promotion

WHO/NMH/HPS/00.3
WHO/SCHOOL/00.2
Dist.: General
Original: English

The World Health Organization's
INFORMATION SERIES ON SCHOOL HEALTH

Local Action Creating Health Promoting Schools

WHO gratefully acknowledges the generous financial contributions to support the printing of this document from: the Division of Adolescent and School Health, National Center for Chronic Disease Prevention and Health Promotion, Centers for Disease Control and Prevention, Atlanta, Georgia, USA.

An effective school health programme can be one of the most cost effective investments a nation can make to simultaneously improve education and health. WHO promotes school health programmes as a strategic means to prevent important health risks among youth and to engage the education sector in efforts to change the educational, social, economic and political conditions that affect risk.

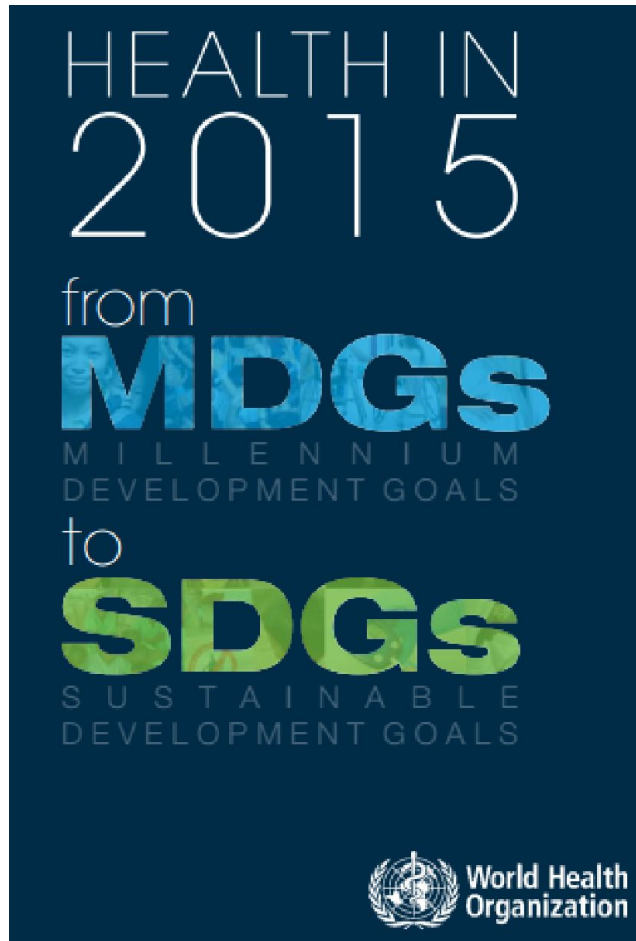


World Health Organization



Education Development Center, Inc.

Phase 2. Developing bespoke content. App (Health), cont'd.



RABIES: THE FACTS



VIRUS TRANSMISSION



Saliva of
infected
animals



of human cases
are caused by
dog bites

The virus attacks the brain
Rabies is **fatal**
once symptoms appear



FATALITIES

Rabies affects
poor rural communities
mostly in Asia and Africa

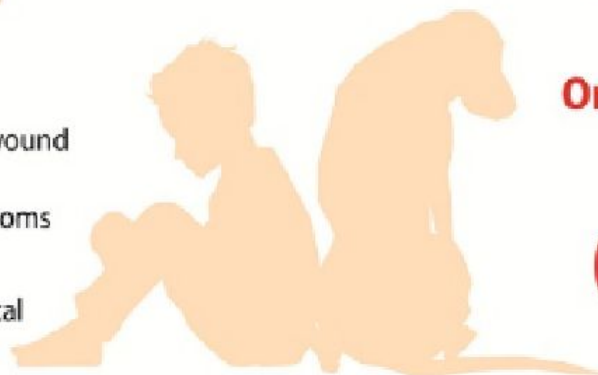


TREATMENT



Thorough washing of the wound
with soap, and, vaccine
injections can avoid symptoms
and **save lives**.

Seek immediate medical
care if bitten.



One death
every:



40%
of the victims
are children
younger than 15

HOW TO PREVENT RABIES TRANSMISSION FROM DOGS?



Raise public
awareness

Learn **dog body
language**



NO DOG BITE = NO RABIES

VACCINATING DOGS SAVES HUMAN LIVES

Rabies is 100% preventable



Vaccinating **70%**
of dogs **breaks rabies
transmission cycle**
in an area at risk

Every dog owner
is concerned



Water, Sanitation and Hygiene (WASH)

for accelerating and sustaining progress on Neglected Tropical Diseases



Neglected
Tropical
Diseases

affect more than 1 billion
of the world's poorest
people in 149 countries



2.4 billion
people
lack access
to improved sanitation
facilities



663 million
people
lack access
to improved water
sources

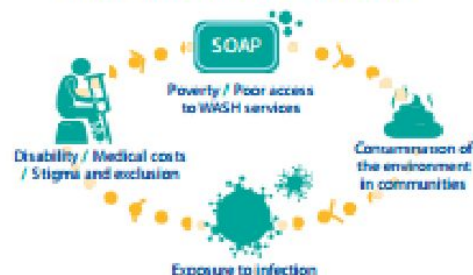


946 million
people
practice
open defecation

WASH is critical in the fight against Neglected Tropical Diseases

NTDs and poor water, sanitation and hygiene conditions
contribute to a

vicious cycle of disease and poverty



WASH play a critical role in preventing
and caring for NTDs

Prevention

- ✓ sanitation to reduce contamination of the environment
- ✓ safe water supply for consumption, enabling hygiene practices, and reducing contact with surface water
- ✓ water resource and waste management for vector control and contact prevention
- ✓ hygiene practices

Treatment and care

- ✓ water for treatment and care at home and in healthcare facilities
- ✓ accessible WASH services for individuals with physical impairments
- ✓ prevention of stigma-based exclusion from WASH services

A Global Strategy 2015 - 2020



Improve
awareness
of the co-benefits
of joint WASH
and NTDs action by sharing
experience and evidence
from improved delivery.



Use WASH
and NTDs
monitoring
to highlight
inequalities, target
investment, and track
progress.



Strengthen
evidence
on how to
deliver effective
WASH interventions for NTD
control and elimination and
embed findings in guidance
and practice.



Plan, deliver
and evaluate
WASH and NTDs
programmes
with mutual inputs from
WASH, health and NTDs
stakeholders at all levels.



World Health
Organization

VECTOR-BORNE DISEASES

VECTORS MAY BE A THREAT TO YOU, AT HOME AND WHEN TRAVELLING

VECTORS ARE SMALL
ORGANISMS
THAT CARRY SERIOUS DISEASES



COMMON
VECTORS



WITH JUST 1 BITE they can transmit
diseases such as:

- Malaria
- Leishmaniasis
- Yellow fever
- Dengue
- Lyme disease
- Japanese encephalitis



Diseases spread by vectors **kill a million people** every year and
more than half of the world's population is at risk

TAKE SIMPLE MEASURES TO PROTECT YOURSELF AND YOUR FAMILY

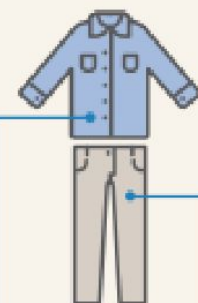
Get vaccinated against
yellow fever and
Japanese encephalitis



Install



window screens



Wear light-coloured,
long-sleeved shirts
and trousers



Use insect
repellent

Sleep under an
insecticide-
treated
bed net



Get rid of stagnant water
from places where
mosquitoes breed,
such as in old containers,
flower pots and used tyres



For more information, contact your health-care professional
www.who.int/world-health-day



World Health
Organization

App (Health) content or process? Case example 1.

Children Solving Problems: Participatory Epidemiology in Bolivia

Bolivian students aged 8–12 are often caretakers for their younger brothers and sisters. To develop their understanding of health issues, third-grade teachers asked students to make a calendar and record for 30 days the health of a sibling, cousin, or neighbour who was under five years old. If the child was well, they drew a smiling face. If the child was ill, they drew a frown and wrote underneath why the child was ill. At the end of 30 days, the teacher reviewed the calendars, analyzed the information, and invited district personnel into the classroom to discuss ways in which older children, families, and schools could respond. These activities built children's skills in gathering information and applying math and reasoning skills, as well as their perception of themselves as active participants in their family's health status.

Case example 2.

Children Versus Mosquitoes

Mosquitoes that transmit dengue thrive in rubbish dumps. So leaders at the Lawrence T. Gay Memorial Primary School in St. Michael, Barbados, set this goal: Reduce the amount of garbage left for daily collection. Adopting the theme “Reduce, Recycle, and Reuse”, the school set apart plastics, paper, and non combustibles. Combustible materials were incinerated and the ashes were applied to the garden beds as fertiliser. Plastic drink bottles were reused as vases, aquaria, candle holders in the crafts programme, and funnels in the school garden.

Students assumed the role of health inspector, searching their surroundings and looking for mosquito-breeding places, collecting larvae for study, informing the local authorities, and eliminating breeding sites. Parents reported that their children had taught them some new habits at home. District public health inspectors arranged visits to the local neighbourhood. They gave the students first hand knowledge of healthy practices and instructed the janitor and school-meals staff about vector control and safe food-handling methods. In addition, the school integrated health concepts and strategies with social studies, mathematics, and agricultural science, and encouraged pupils to express themselves through art, poetry, composition, and craft.

Health issues on the ground in the Gambia

- Malaria and Anaemia big issues in the Gambia so anything around water and food would be fab. Self-employment also a big issue as is food security and growth
- The food stuff would need to be sensitive to what exists in the local diet as money is tight.