Project Proposal

Planning Rural Health Awareness in a Digital Age

Prepared by: Harshvardhan

Information and Digital Design,

National Institute of Design

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National Institute of Design   P.G. Campus Ext. Road, Gandhinagar, Gujarat   **T** +91-9879235052   harshvardhan@nid.edu, harshvardhan84@gmail.com

Planning Rural Health Awareness in a Digital Age

Introduction

The One Laptop Per Child project - OLPC (http://laptop.org/) is an initiative aimed at providing inexpensive laptop computers to children in the developing world as a means of bridging the digital divide. The OLPC has created the XO laptop to be very low cost, robust and powerful, beautiful and friendly. It has been designed explicitly for poor and needy children of the elementary classes, the first one of its kind.

A laptop can be transformed into a mobile school: a portable learning and teaching environment. A connected laptop is more than a tool. It is a new human environment of a digital kind. The XO is designed for the use of children of ages 6 to 12—covering the years of the elementary school—but nothing precludes its use earlier or later in life. Children don't need to write or read in order to play with the XO and we know that playing is the basis of human learning. Moreover those digital activities will help the acquisition of the writing and reading skills.

The XO has been designed to provide the most engaging wireless network available. The laptops are connected to each other, even when they are off. If one laptop is connected to the Internet, the others will follow to the web. This networked mesh of wireless laptops can be exploited to great extents, addressing various problems at hand, especially in remote areas.

OLPC Goals

"OLPC is not, at heart, a technology program, nor is the XO a product in any conventional sense of the word. OLPC is a non-profit organization providing a means to an end—an end that sees children in even the most remote regions of the globe being given the opportunity to tap into their own potential, to be exposed to a whole world of ideas, and to contribute to a more productive and saner world community."
> —OLPC Mission Statement

"To eliminate poverty and create world peace by providing education to the poorest and most remote children on the planet by making them more active in their own learning, through collaborative and creative activities, connected to the Internet, with their own laptop, as a human right and cost free to them."
> —OLPC Mission Statement

"It's an education project, not a laptop project."
> —Nicholas Negroponte, founder OLPC and MIT Media Lab

The goal of the foundation is to provide children around the world with new opportunities to explore, experiment, and express themselves. To that end, OLPC is designing a laptop, educational software, manufacturing base, and distribution system to provide children outside of the first-world with otherwise unavailable technological learning opportunities.

Context and Perceptions

The greatest wealth is health. ~Virgil

The poor rural population of the world has been suffering from common problems and not knowing how to deal with it. Even the most common of problems tend to pose a serious threat (in some cases, even terminal) to a lot of people just because they did not get the right help at the right time or they did not have proper knowledge.

In the Indian context, the scenario is even worse. Millions of people are suffering from minor diseases for weeks, not knowing how to deal with it. Caretakers do not know what to do, what to feed, what medicine to give. The availability of a doctor in these remote areas is also a rarity. The personnel in charge of dealing with these health issues is also not learned to the extent that proper care and help could be provided in time.

Demographic

India is the second most populous country of the world and has changing socio-political-demographic and morbidity patterns that have been drawing global attention in recent years. Despite several growth-orientated policies adopted by the government, the widening economic, regional and gender disparities are posing challenges for the health sector. About 75% of health infrastructure, medical manpower and other health resources are concentrated in urban areas where 27% of the population lives. Contagious, infectious and waterborne diseases such as diarrhea, amoebiasis, typhoid, infectious hepatitis, worm infestations, measles, malaria, tuberculosis, whooping cough, respiratory infections, pneumonia and reproductive tract infections dominate the morbidity pattern, especially in rural areas. However, noncommunicable diseases such as cancer, blindness, mental illness, hypertension, diabetes, unwanted pregnancy, HIV/AIDS, accidents and injuries are also on the rise. The health status of Indians, is still a cause for grave concern, especially that of the rural population. This is reflected in the life expectancy (63 years), infant mortality rate (80/1000 live births), maternal mortality rate (438/100,000 live births). The other issues revolve around timely medications and vaccinations and problems arising on neglecting these healthcare issues.

Perception

In addition to these major diseases, there are also a lot of minor health problems, which pose a major threat and needs to be taken care of. There was a child I met who had a wart on her face and did not know what to do about it. She and her family felt helpless. There was no good doctor in their village. They had a *Hakim*, who was unable to provide any valuable help. She told me she had been suffering from that wart for weeks and desperately wanted to get rid of it. Even if she consults a doctor and gets proper treatment, this information cannot be shared with another patient suffering from the same problem miles away. It will only be word of mouth that can spread this valuable information to the needy. Such problems are very common in rural India and needs to be addressed pronto.

Progress

The Health Portal of OLPC (http://wiki.laptop.org/go/Health_portal), deals with providing the knowledge about health and related issues to its users. The XO Health Portal is still under development. The concept of the XO Health Portal is to build a content bundle using (relatively) simple HTML documents containing high-quality basic health information. The information provided is very generalized and provides the basic knowledge of the common problems related to the health of an individual. It also provides general knowledge about health. It is to be used for educating children in rural schools. There has been a lot of interest from volunteers and organizations to develop applications and tools around the XO laptop that would help the recipients of the laptop and their families adopt healthy living practices. These initiatives have largely centered on development of software and content which serves to act as a source of reference for symptoms, diseases and preventive practices and healthy living. There have also been certain efforts in the development of tele-health peripheral modules.

Vision

This Health Portal will also comprise of a lot of ideas for software, applications and accessories which when implemented will be very beneficial for the users of the XO laptops. They can also use the information and share with people around them. The plan is to make these XO laptops accessible in such remote rural areas where most of the problems are more prevalent. These laptops are cheap and deal with the problems at the grassroots level, making use of its ruggedness, price, connectivity, power and technology.

Proposal

This project seeks to exploit the technologies used in XO for improving public health in rural India by applying strategy and content design development. The scope of this project depends on the live (on field) study of health issues in rural India.

The entire OLPC project is based on open source model and hence a wiki is an apt source of providing information and sharing it with everyone else. This project will aim at certain specific objectives to deal with the current health problems at hand.

Objectives

1) Education:

The main objective of this thematic portal is to provide rural population of India with easy access to Comprehensive local health information. The portal is intended to help meet the needs of the rural population of India, even in remote areas in the field of health, it is an important instrument to positively influence behavior and promote the steady improvement of public health in the developing countries. This portal will address to common problems prevalent in rural India and also promote a better and healthy lifestyle thus being an immense help in educating children and their family members on health.

2) A Remote Healthcare Provider Computer:

This computer has incredible potential for remote areas for having a more robust electronic medical record. It could act as a repository for data until the healthcare provider could get back to a central computer and then, using its wireless abilities, beam them back into the main database (sync them up).

The information stored in the database on the server can be used by anyone anywhere. All they need is an XO laptop in the vicinity. This database can be used as a repository in remote areas where access to a medical personnel or any other kind of help is not possible.

3) Home Health Care for Rural Areas:

As above, especially with nursing modules it could bring about cheaper care and bedside documentation for nurses in the field. It will also be helpful in case where immediate help is required like first-aid and nobody with proper knowledge is present.

4) Field Database (Disaster relief):

It can also be used as a remote field command center. It can even have database server versions, using the peer-to-peer wireless, to collect data. Not just for mass casualties, but healthcare in remote areas. Valued data could be used for research, health care improvement, disease tracking, and even fundraising.

5) Personal Health Record:

It can be embedded with a module for personal health record to keep a check on health checkups, vaccination schedules, medication, etc.The use of Web 2.0 can also aid in providing real time help to patients through video conferencing with eligible doctors far away.

We would like to explore how strategy and content design development can provide digital inclusion through XO in the field of health.

Process

1. Analysis—Understand the nature of the health issue and barriers to change: listen to potential audiences; assess existing program policies, resources, strengths, and weaknesses; and analyze communication resources.
This stage would require understanding the needs, expectation and desires of 3 main collaborators- End Customers (Users), Domain Experts and Business Stakeholders, to know what is important.
Here, various data gathering techniques like Contextual Studies and observations to understand human behavior in the context of use of the product. Gathered data is minutely analyzed and converted into qualitative and quantitative requirements.

2. Strategic Design—Decide on objectives, identify audience segments, position the concept for the audience, clarify the behavior change model to be used, select channels of communication, plan for interpersonal discussion, draw up an action plan, and design for evaluation. After gathering the design requirements, an array of problems and opportunities are discovered. Then after, deep understanding of needs of Users, Business Stakeholders and Domain Experts is done leading to interesting discoveries.
Hence, an optimal strategy is created to respond to these.

3. Structural Design—A Design Strategy sets overall goals, directives, expectations and approach for design. Structural Design converts this strategy into a conceptual blue print of the design, with definitions of all its major functional components, categories and relationships. This proposed Structural Design is tested on end users and iterated for how well it fits their Mental Model.

4. Development, Pretesting, Revision, and Production—Develop message concepts, pretest with audience members and gatekeepers, revise and produce messages and materials, and retest new and existing materials.

5. Skeletal Design—At this stage a Skeletal Design is created i.e. literally creating a 'bones and stick-figure prototype' based on the Structural Design. This phase is a rapid prototyping phase. A lot of ideas are created, discussed, iterated, accepted or rejected.This 'alpha' prototype can be tested and iterated with help of users by conducting Usability Tests.

6. Management, Implementation, and Monitoring—Mobilize key organizations; create a positive organizational climate; implement the action plan; and monitor dissemination, transmission, and reception of program outputs.

7. Impact Evaluation—Measure impact on audiences, and determine how to improve future projects.

8. Planning for Continuity—Adjust to changing conditions, and plan for continuity and self-sufficiency.
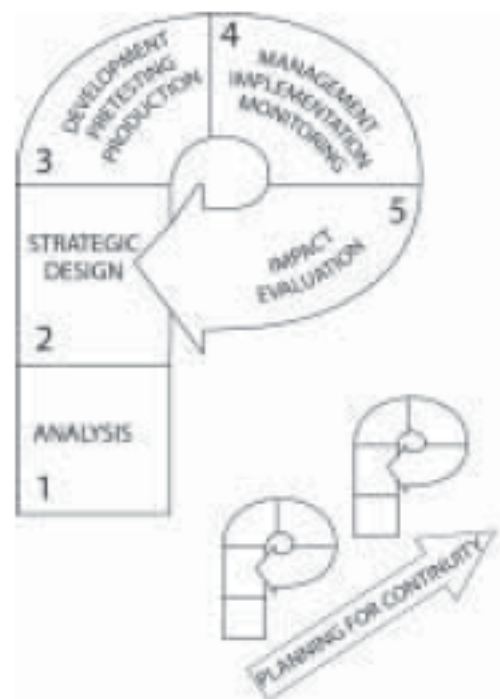
Target Behavioral Change

The project would facilitate people behavioral change and the transition amongst the targeted audience would occur in the following manner:

Stage 1
Preknowledgeable—Is unaware of the problem or of their personal risk. This comprises of the rural population of India, unaware of the modern technologies and advances, the main target audience for this project. They do not know about a healthy lifestyle and solutions to common problems faced in a day-to-day life.

Stage 2
Knowledgeable—They become aware of the problem and knowledgeable about desired behaviors. They get educated in the field of health through meetings with eligible doctors, medical personnel or through video conferences, online lecture videos, prerecorded pod casts, etc.

Stage 3
Approving—They become approving of the changes that needs to be brought in their behavior and become in favor of the desired behaviors. We need to take care of socio-cultural issues in explaining these health problems and their solutions. We would not want the rural population of India to reject the ideas provided by the qualified officials. These solutions should be acceptable to the mass.

Stage 4
Intending—Intends to personally take the desired actions. We need to arouse people's interest in the topics related to health problems and issues and get them to work towards promoting a healthier lifestyle.

Stage 5
Practicing—Practices the desired behaviors. We need the masses to work on their own even in the absence of any medical official. They should be educated and knowledgeable enough to perform the necessary steps to help themselves.

Stage 6
Advocating—Practices the desired behaviors and advocates them to others. We need to make the final model self-sustainable. People upload their problems and solutions in a database on the server for future reference by themselves and also by others who might need it sometimes somewhere.

Behavior Change Model for the Framework

Summary

We plan to exploit the technologies used in XO laptops for improving public health in rural and remote areas of India. This Live (on field) study and research will result in valuable data pertaining to local health issues and tackling the basic day-to-day health problems in rural India where proper medical facilities are yet to come.
We would like to explore how strategy and content design development can provide digital inclusion through XO in the field of health.