BalaShakti – Serving the Needs of Rural India

* This case is based on a comprehensive business plan developed by a student group in the course entitled Sustainable Product and Market Development for Subsistence Marketplaces under the supervision of the instructor, Madhu Viswanathan. The case was prepared by Madhu Viswanathan, John Clarke and Srinivas Venugopal and copyedited by Tom Hanlon. We gratefully acknowledge the organizational sponsor of the project and the students who contributed to it.
BalaShakti – Serving the Needs of Rural India

In May 2007, Hindustan Unilever Limited (HLL), an Indian subsidiary of Unilever, is considering launch of a new software product called BalaShakti. BalaShakti entailed educational software modules designed to educate children in the rural subsistence marketplaces in India on beneficial behavior changes in areas such as hand washing, market literacy, nutrition, and water purification.

HLL launched Project Shakti, a Hindi word for ‘empowerment’ or ‘strength,’ in 2001 to create income-generating capabilities for underprivileged rural women who served as resellers of health and hygiene products. In addition to generating profits, the project aimed to improve rural living standards and increase awareness about health- and hygiene-related issues. iShakti was a pilot program that provided a computer kiosk to a Shakti entrepreneur for educational and other purposes. As an internet-based software, BalaShakti was developed for the iShakti project that had been in existence for one year.

HLL’s CEO and managing director, Douglas Baillie, views Balashakti as a good opportunity for the company to address its mission and serve the needs of children in rural areas. Because rural India has significant health problems that need to be appropriately addressed, software such as BalaShakti that aimed to educate children on health topics have a high potential for success in this marketplace.

Baillie called in his management team to discuss the potential success of the BalaShakti product initiative. He was interested in hearing their recommendation regarding the marketing strategy for this newly launched product as well as the financial sustainability of BalaShakti. He wondered if the new product would yield a positive return and whether HLL should proceed with this project. Their goal was to come up with a strategy that would allow the firm to achieve the Triple Bottom Line (TBL).  

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1 Boonthida Chinchanachokchai and Professors William Qualls, Madhu Viswanathan, and Ali Yassine of the University of Illinois at Urbana-Champaign, prepared this case as a basis for classroom discussion rather than to illustrate either effective or ineffective handling of a business situation. The case was based on a report prepared by Susan Byrd, Michael Bloem, Trent Garner, Karthik Rapaka, and Raphael Susanto, and at the culmination of a yearlong project in the course entitled Sustainable Product and Market Development for Subsistence Marketplaces under the supervision of Professors Madhu Viswanathan and Ali Yassine. We thank HLL for their invaluable cooperation in working with us on this project. All references to prospective decisions at HLL, including those that Douglas Baillie and his management team are described as considering, are fictitious.

The discount rate on the project was 10% per year.

The exchange rate was Rs. 40/dollar.

2 The Triple Bottom Line refers to a framework for measuring business performance. It captures the spectrum of values that the organization must include, i.e., profit, environmental sustainability and social responsibility.
Background

India’s Consumer Market and Demographic Data

India is a large economy and one of the fastest-growing in the world. India is endowed with enormous human and natural resources, and costs at the low end of the global average. India has increasingly become dominant in information technology (IT) industry. It is an attractive business destination due to its English-speaking population and economic opportunities.

With a population of almost 1.2 billion, India is the world’s second most populous country. According to a study jointly conducted by the World Bank and the World Resources Institute, there are 4 billion people worldwide living in what has been referred to as the Base of the Pyramid (Prahalad, 2005) or as subsistence marketplaces (Viswanathan and Rosa, 2007), i.e., on less than $2 per day (Appendix 1). A sizable proportion of India’s total population lives in subsistence contexts. Moreover, with a rural poor population of 720 million, more than half of India’s population lives in rural areas and are scattered across more than 600,000 villages.

In 2006, the following was the demographic breakdown of India’s population: 30.8% were aged 0-14 years, 64.3% were aged 15-64 years, and 4.9% were over the age of 65. About 80% of all subsistence consumers live in rural areas. In term of spending, such rural consumers accounted for approximately $770,000 million, or about 64% of total expenditures by subsistence consumers. However, educational expenditures only accounted for 1.2% of total expenditures.

Despite the rapid growth, consumer markets in India remain largely untapped and relatively underdeveloped. This was in part the legacy of 40 years of relative isolation from the global economy, as postcolonial India attempted to build a self-reliant economy behind a high tariff wall that discouraged foreign investment. However, India’s consumer markets gradually started to look like world markets, as global brands became increasingly recognized and the share of organized retail in the market began to grow. Indian consumers became increasingly sophisticated and knowledgeable about products. The growth in media channels brought about by economic liberalization has made consumers more aware of brand values.

Even though distribution continued to improve, it was still a major inefficiency due to the large area and geographically dispersed markets that need to be reached. Reaching the fragmented and dispersed market increased the complexity of distribution for companies in India. Poor quality of infrastructure along with an underdeveloped distribution sector resulted in high logistical costs and inventory levels.

Hindustan Unilever Limited (HLL)

Hindustan Unilever Limited is a subsidiary of the world’s largest consumer product company, Unilever. HLL is India’s largest fast-moving consumer goods company with
leadership positions in Home & Personal Care Products and Foods & Beverages. The mission statement of the company is

“...to add Vitality to life. We meet everyday needs for nutrition, hygiene, and personal care with brands that help people feel good, look good, and get more out of life.”

HLL markets a wide variety of products, ranging from home and personal care goods to food and beverages. Several of the most well-known brands included Clinique shampoo, Dove soap, Vaseline, Kwality Wall’s ice cream, and Lipton Tea.

HLL Exports division is the supplier in Unilever brand home and personal care products, and food and beverages for other Unilever companies. The company is one of the country’s largest exporters. The exports division ships marine products, Basmati rice, and Castor oil. Market leadership in several product categories and across a broad spectrum of price points in each category is one of the primary objectives of the company.

Additionally, the company is strongly committed to maximize shareholders’ profits as well as provide benefits to society. Corporate social responsibility (CSR) initiatives of HLL were undertaken based on long-term benefits to the society and its stakeholders. The following were some socially responsible initiatives pursued by HLL:

1. The Lifebuoy Swasthya Chetana initiative focuses on rural health and hygiene education.
2. Greening Barrens, the water conservation and harvesting project, focuses on water management.
3. The Fair and Lovely Foundation is the company’s initiative directed toward economic empowerment of women across India.
4. Happy Homes supports special education and rehabilitation of children with challenges.
5. Yashodadham is dedicated to reconstructing earthquake-impacted homes of a village in Kutch district of Gujarat.

Moreover, the company continues to engage in many community support activities. Such involvement ranges from finance support for community and social programs, employee time for volunteer activities, and donations of products/services and equipment. One of the goals of the company is to expand the number of CSR initiatives across the country.

HLL possesses three sources of competitive advantage. The first source is its strong, well-established brands. Another is the local manufacturing capacity and supply chain network. The third source of advantage is its extensive sales and distribution system that enables HLL able to reach into Indian markets. HLL recognizes that its distribution system gives it an edge over its competitors, and that rivals would try to match it over time. Therefore, the company aggressively extended the system more deeply into India, from large to small towns, and from urban to semi-urban centers. HLL’s distribution network directly covered Indian urban centers as well as 250 million rural consumers.
Project Shakti

Being proactively engaged in rural development, HLL launched Project Shakti, a Hindi word for ‘empowerment’ or ‘strength’, in 2001 to create income-generating capabilities for underprivileged rural women, and improve rural living standards through health and hygiene awareness. HLL saw rural India as a key source of competitive advantage in the future because, whereas growth rates of urban areas had been slowing down due to increased competition, rural markets remained untapped. Historically, HLL had enjoyed the greatest reach into rural India. The competition became more intense as more competitive rivals began to penetrate the rural market. Although the company had greater access to rural markets, its current reach was only 16% of total markets.

HLL partnered with women from self-help groups (SHGs) to extend its rural reach. Self-help groups consist of 10 to 15 women that meet regularly, with each member contributing a small amount of money to a common pool. The Shakti Project provides a microenterprise opportunity for selected participants in the SHGs, making them independent women entrepreneurs as direct-to-home distributors for the company.

The company sold products to those entrepreneurs at discount prices. The entrepreneurs then sold products to both local retail shops in their villages and directly to consumers. When the entrepreneur sold to a local outlet, they had to give those outlets a viable retail margin when the outlets in turn sold to end consumers. However, if the entrepreneurs sold directly to consumers, they could earn higher margins. In addition to selling directly to customers, Shakti entrepreneurs played a role as influencers on brand awareness as well as brand usage.

Another branded social communication initiative associated with the Shakti program is Shakti Vani, a Hindi word that means “voice” or “speech.” It is a communication initiative that seeks to improve the standard of living in rural communities. In this program, local women are selected as Vani and trained on matters relating to personal and community health and hygiene.

In rural India, penetration and consumption of products such as soap and toothpaste were significantly below urban levels. Growing awareness in this area would benefit the quality of life of people living in rural areas. Furthermore, HLL would benefit in the long run, due to the growth in the market for its products. The Vani used several social approaches, such as organizing village get-togethers and school events to communicate the best practices in health and hygiene. Other communication tools, such as printed materials using visual communications, is supplied by HLL to help Vani effectively communicate with low-literate people. (See Appendix 2 for the Shakti Training Program.)

Market Opportunities in Rural India
Social and business opportunities in the rural market in India are numerous, but offer some unique challenges. To identify products best suited to serve the needs of people living in rural subsistence markets, a new product development team visited the rural area, interviewed people, and observed their way of life. The interviews were not rigidly structured, but rather conducted in a flexible, qualitative manner. Based on these qualitative interviews and observations, a number of market opportunities were identified that were consistent with the mission of the company.

Gardens

The essence of this idea was that people would purchase seeds and other inputs from HLL to start a garden, which would yield useful and marketable produce items. Initially, community members would be educated about different entrepreneurial options related to having a garden. They would then choose the seeds or trees that they thought would be beneficial in the near future; for example, tamarind, potato, tomato, etc. Alternately, the self-help groups could come together to start a community garden.

Eventually, HLL could sell food-processing devices such as solar fruit driers to individuals or groups in the community. The company could also create business startup kits and hold classes for new entrepreneurs selling their produce. Potentially, profits from renting out the community garden could be used to benefit the community.

Key issues with this project included the willingness of individuals to take on the risk associated with starting the business and the fit of this initiative with the strategic goals of HLL.

Instant or prepared food items

Research with consumers in India indicated that there was strong demand for food products that saved time in the kitchen, even among poorer consumers. Products that entailed a laborious and time-consuming process, such as tamarind paste and papadam, were very attractive. Even though several local companies in India did produce such products, HLL had an advantage of being a nationwide firm that offered tamarind products under a trusted, well-known brand name. Other possible food products that consumers in subsistence markets suggested included pickled fish, meal kits for preparing curry, and instant oatmeal.

HLL already had some expertise in the prepared food product market. The Knorr brand included products such as meal kits, soups, and bouillons. With the market share of 70%, Knorr brand was considered successful in India’s prepared food market. Therefore, HLL could introduce new prepared food items under the well-established Knorr brand.

This idea had its own set of challenges. First, HLL would have to determine what prices market demand would support because, given the low-income levels of consumers. Another
challenge was to convince consumers to try these products for the first time. Finally, food tastes vary in different regions of India. The company would need to be careful to produce prepared food items that had a broad appeal if they chose this route.

Biodegradable plastic bags

Several ideas surrounded the use of plastic in India. HLL could consider a recycling system in which the company offered compensation for every bag returned to the dealers. This allowed for the addition of other recycling products in the future such as glass, metal, paper, etc. Another related idea was the development of biodegradable plastic bags, to be sold by the dealers to local companies, positively impacting the environment. HLL could place a logo and other visuals on the bags, raising awareness of the environmental issues as well as Unilever’s role in confronting them.

Though the biodegradable bag was a good idea, the company was concerned about the cost-effectiveness of plastic bags. Potentially, HLL could subsidize the use of biodegradable plastic bags, but this might not be a sustainable solution.
**Education of children on iShakti or another technical device**

Mothers, who were interviewed during the research phase of the project, expressed the desire to increase the exposure of their children to computers. In small villages, if a household had access to computers, it was known throughout the community. Of equal concern to consumers was a child’s education, especially on such issues as health. One possibility was to develop the software targeting children for use on the iShakti terminals that HLL had placed around rural India. This software could teach issues related to health and hygiene. However, schools and Shakti dealers in the rural areas had computers, but lacked the square footage in the school and the quantity of computers to accommodate all of the students. A number of questions and concerns surrounded this idea as well. Was it a cost-effective solution? HLL also had to decide their level of involvement in this area since it was very different from their normal business activities.

**Making decision on BalaShakti**

The new product team evaluated each alternative by applying a decision matrix on four equally-weighted criteria: social responsibility, benefit to HLL, likelihood of implementation, and feasibility. The social responsibility required answering the question as to the extent to which the product or service helps develop Indian society. The benefits to HLL referred to the profit or product/brand awareness. Likelihood of implementation referred to the likelihood that the company would be able to implement the product or service. Finally, feasibility referred to whether or not the product could be developed in one year. HLL senior management was also brought in to provide feedback and opinions. The team then created conceptual designs that helped them make a more specific decision relating to the technical solution to be employed. Ultimately, they all agreed on the BalaShakti educational software product.

**iShakti: the Gateway**

iShakti is the initiative that related to the Shakti program. The initiative that is currently in the pilot phrase involved internet-connected computer terminals, which are placed in the homes of Shakti dealers. iShakti provides information and services to meet rural needs in such areas as health and hygiene, agriculture, and education. This information addresses a gap that exists in villages. Once the iShakti terminal is connected to the centralized server by a dial-up connection, the content could be updated daily.

To eliminate literacy and language related problems, users could submit questions via the audio recording function that was a part of the software. These questions would be answered by experts and available to the consumers who submitted them whenever they next logged into the iShakti portal.
Users were required to register before they were given access to the iShakti terminal. Once registered, users would get a small identity card with their photo, log-in identification, and password on it. Certain computer programs were only available to those who paid a monthly subscription fee. iShakti also provided a platform for advertising the products and creating awareness on the benefits of their use, apart from generating revenue through selling spaces on the portal to other companies. Currently, there are 17 terminals deployed in rural India.

**BalaShakti: the Software**

BalaShakti is an educational software aimed at causing beneficial behavioral changes among rural subsistence consumers, particularly children ages 5 to 12. Because of the diversity of rural India, the program was designed to be adaptable to different cultures by having multiple languages, icons, and behaviors of the main characters. Currently, the program covered various educational areas such as nutrition, personal sanitation, first aid, emergencies, and other school subjects. HLL would continue to add more content to the program. The program development team decided to limit the software content to 10 minutes, given the age of the consumers and their limited exposure to computers.

The software was divided into five parts: *Introduction, How To, Why To, When To* and *Review* (see Appendix 3). The program starts out with the *Introduction* section and uses an attention-grabbing introductory video, which provides an opportunity for children to get to know the main characters and the setting. The main characters are a boy and a girl depicted with realistic cartoon images.

The second part was the *How To* section. The majority of the time was directed toward this part, as the proper procedures were the main focus. The *How To* portion was composed of three parts: animated lessons where viewers watched the main characters and learned the material through a series of realistic images, sing-along parts that used a song to reinforce the procedures, and an interactive part including games and quizzes.

The reasons why it was important to carry out the desired behavior were mentioned in the *Why To* section. In this part, a doctor is introduced to provide credibility to the lesson. Although this part is important, it is less important than the other sections in changing the actual behavior. Therefore, it was placed in the middle.

Following the *Why To* section was another key part, *When To*. This section presents to the audience the appropriate time to carry out the behavior. It consists of animated lessons followed by interactive games and quizzes.

The software ends with the procedural review section that includes a conclusion and a review. This gives time for the main characters to say goodbye, encourage the audience to visit other learning modules, and, most importantly, enforce the lesson one more time by replaying the song and encouraging the viewers to sing along. However, children were also given the
option to review and replay any lesson again. By reinforcing the procedures, the children were able to retain the knowledge after the program ended. (See Appendix 4 for the prototype.)

In terms of the technical aspects of the software, it used the same specifications as other iShakti software. The iShakti system was a user-friendly, “talking” voice-based system that played audio in the original languages. The content of existing iShakti terminals was based on an interactive dialogue technology developed by the Unilever research team in the U.K. This technology worked well in the rural Indian area, where most areas had poor internet connectivity. However, in areas where the Shakti dealers could not continuously connect to the Internet, iShakti also offered an informational service to those dealers at a low cost of operation via media-rich content CDs, which were distributed by the iShakti operational team. The team visited the iShakti centers once a month.

Projected Financial Forecast

To date, there are 17 iShakti terminals installed in rural India, with an average of 100 users per terminal. The new product development team estimated the initial investment of BalaShakti to be Rs. 200,000, to be incurred at the beginning of the project. Adding BalaShakti to the system would generate more interest in the iShakti initiative.

Even though HLL had received positive feedback and strong interest from potential Shakti entrepreneurs, they remained uncertain about market response. The team estimated that the monthly growth rate could be from 1% to 10% for the number of iShakti terminals, depending on the perception of potential dealers on the iShakti initiative. BalaShakti could draw more attention from potential subscribers, which could lead to a growth rate anywhere from 0.5% to 5% per month. However, the affordability of customers was still a major concern.

iShakti Revenue

Currently, the source of revenue for the iShakti program is from subscription fees. The subscription fee is paid monthly by customers in order to get access to the iShakti terminal. Coming up with an appropriate fee was another important managerial decision because the target customers would not be able to afford a high-priced service, whereas too low a subscription fee would yield a loss to the company. In addition, the subscription fee had to be attractive enough to draw more subscribers. Therefore, the team had to carefully set a price that met both customers’ and the company’s goals.

Furthermore, HLL had planned to sell advertising display space on the iShakti program to other companies as another source of income. Due to the readiness of the system, HLL was able to sell the advertising space at the end of the 2nd year of the BalaShakti’s project operation. Selling the ad space by that time would draw a certain number of advertisers, because the program would have reached a critical mass of subscribers. Using past experience and HLL’s
history, the advertising income growth rate was expected to be from 2% to 10% per month, depending partly on the company’s marketing efforts.

At a minimum, Douglas Baillie wanted to hear ideas regarding how the product should be marketed and launched throughout India and the potential success of the initiative both financially and socially. He expected a complete analysis of the market situation and a specific marketing strategy, which included a detailed statement of the value proposition; a projected financial forecast of the required investment for a country wide product launch; and the potential payback from the investment.

**Ishakti Expenses**

There were several expenses associated with the iShakti project. Normally, the iShakti operating cost per dealer was Rs. 3,500. This number was expected to grow by 5% per month, due to the increasing number of dealers and users. Other one-time costs for launching Balashakti were for testing and market introduction. The project manager estimated that HLL would have to pay Rs. 3,000 for testing for four months after the initial launch. The market introduction cost was the company’s effort to make BalaShakti well-known in the market. The introduction period would last about eight months at Rs. 8,000 per month.

In addition to the one-time costs, iShakti also would also incur other ongoing costs. After the market introduction period, if HLL decided to keep the marketing program running to endorse BalaShakti and increase penetration, the company would have to allocate Rs. 1,500 per month as an ongoing marketing cost. Moreover, there was a maintenance cost once the project rolled out to keep both hardware and software updated. The monthly maintenance cost, which was approximately Rs. 1,000, would begin the 4th month after the start of the BalaShakti project. Besides these costs, there would be other expenses associated with the project of approximately Rs. 1,000 per month[2].

**Concerns**

There were a few concerns regarding the launch of Balashakti. The low disposable income of rural subsistence consumers was a key issue. In addition, there were not enough operational iShakti portals. With only 17 existing terminals, each operated at an average of 100 users per terminal and, on average, a user visited the terminal four to five times a month. The other concern related to the unreliable infrastructure in the rural Indian areas. Because iShakti relied mainly on dial-up internet connectivity, poor facilities, such as electricity and telephone lines, could add to the difficulties in operating the program.
Conclusion

With the new product, HLL would preempt its competitors in the rural markets. Baillie saw this as the right time to finalize the project. Because other competitors might also consider penetrating these markets, the sooner HLL acted on this idea, the better the chances that the company could gain market share.

If the company decided to go with the BalaShakti idea, Baillie asked his marketing team to come up with an analysis of the marketing mix for the new product. The challenge here was to set the most appropriate fee for the software that could attract the highest number of customers, at the same time creating a sustainable profit to HLL. It was also crucial to design a well-planned promotional strategy for BalaShakti that embedded its positive social impact into the program. Moreover, he needed to review the financial appraisal of the project, i.e., the NPV of the project and its payback period. Baillie wanted to be sure that this program would make HLL successful on the Triple Bottom Line. Given that there were not many players in the market and BalaShakti was an initiative that targeted new segments, Baillie believed that the product would be highly successful once it was rolled out.

But Baillie had another option of abandoning the BalaShakti idea and taking up other ideas that the team had generated during the development process. If this was the case, he needed to see why other ideas would be better to take on. The decision matrix based on the four criteria, i.e., social responsibility, benefit to HLL, likelihood of implementation, and feasibility, could be applied to compare all the alternatives. The team would then need to create a new concept of that product to present to the HLL management team.
Appendix 1

The World Economic Pyramid

Individual annual income
(2005 USD in Purchasing Power Parity)

0.5 billion  Mature markets: >$20,000
2 billion  Emerging markets: $3,260 to $20,000
4 billion  Survival markets: <$3,260

Population

Most companies focus on mature and emerging markets, while the huge market of 4 billion people living on less than $3,260 a year goes largely untapped.

Source: World Resource Institute
Appendix 2

Shakti Training Program

The iShakti dealers would play the role of sales representative, accountant, maintenance person, customer service representative, and teacher. Therefore, it was important that they were equipped with training in all aspects. This training would occur during the regional Shakti and iShakti dealer meetings that already occurred regularly. At these meetings, representatives of HLL would discuss the importance of the educational software as well as the benefits the software would have for communications. The dealers would learn the pricing schedule and would be provided with the bookkeeping paperwork. Also, basic computer maintenance would be reviewed (e.g., troubleshooting software issues). The dealers would also be provided with answers to frequently asked questions that might arise from the customers. HLL representatives would also teach the dealers the principles covered in the software program (for instance, the basics of hand washing). Finally, the dealers would also be given the opportunity to experience the software hands-on when the representative was present to answer any questions that might arise. By thoroughly training the dealers, informed representatives of the software program would enable overall customer satisfaction.
Appendix 3

Product Blueprint

INTRO
Introduction

HOW TO
Animated Lesson → Karaoke
Interactive Game → Interactive Quiz

WHY TO
Animated Lesson

< 3 Viewers
> 3 Viewers

WHEN TO
Interactive Game
Interactive Quiz

REVIEW
Procedural Review → Content Review
Appendix 4

Description of Prototype

One of the BalaShakti programs focused on hand washing, since illnesses such as diarrhea have been a serious problem throughout India, affecting 10% of the population at any given time. Simply washing one’s hands correctly can lead to a 44% reduction in the occurrence of diarrhea.

The prototype began by introducing the host characters, Indu and her brother Chandu. These children welcome the viewers to the village and introduce them to the four main content categories (home, market, school and hospital), as seen in Figure 1. In each of the initial access points a different but similar lesson plan is presented.

- Market: Nutrition, Stranger-Danger, Marketplace Literacy
- Home: Hand Washing, Teeth Brushing, Water Purification
- School: English, Math, Computer Literacy
- Hospital: First Aid, Emergency/Ambulance

Figure 1: Village introduction scene

In the prototype, the children select the “home” content category. The children were shown entering the house and meeting their mother. She then introduced several content areas
that fall into the home category. The children chose hand washing for the prototype, although any content area could be chosen. This introductory screen was shown below.

*Figure 2: Home introductory scene*
The first element of the hand-washing content area was the animated “how-to” lesson. For this lesson, a video of an actual human washing her hands was shown while the mother’s voice discussed the steps. When each step began, an icon symbolizing that step grew to cover part of the screen. This served to demarcate where one step begins and another ends, as well as to provide a graphical list of the steps. The screen that was shown while this video was displayed could be seen in Figure 3.

*Figure 3: Hand-washing video screen*
The next step in the lesson was the song. As the song was being sung, the icons introduced in the last section of the lesson were shown again to emphasize the steps.

*Figure 4: Song screen*
Following the song, there were two options: playing an educational video game for three or fewer players or taking an oral quiz on the material. In the actual product, the number of children using the program determined which of these options were chosen, but for the prototype the selection needs to be made manually. The screen for the oral quiz is shown in Figure 5. In the oral quiz, the mother asked a question about the steps in hand washing and paused to give time for the children to answer. Eventually, Indu and Chandu answered. As they answered, the icon corresponding to the correct answer enlarged on the screen.

*Figure 5: Oral quiz screen*
If instead, the game was selected, then the users got to play a prototype version of the “how to” game. In this game, there were three characters whose motions were controlled by three different areas of keys on the keyboard. These characters were water, soap, and towel. They moved around on a picture of a hand that was to be washed. Each section of the hand must have all the steps of hand washing applied to it: first the water must make it wet, then the soap must scrub it, next the water must rinse it, and finally the towel must dry it. After each of these steps were done, the image of the hand changed to indicate that the step had been completed. For example, the hand turned partially blue after it had been made wet and bubbles appeared on it after it had been dried. This game forced the users to recall and discuss the steps in hand washing. A screen shot of a partially washed hand in this game can be seen in Figure 6.

Figure 6: How-to game screenshot
After the quiz game, it was time for “Why to” and “When to” sections. In this case, the authority figure that taught these lessons was a doctor named Dr. Madhu. A screen shot of Dr. Madhu teaching the children why and when to wash their hands is shown in Figure 7.

*Figure 7: Why and when to screen*
After this lesson, the children played another quiz or game. The quiz showed Indu and Chandu in various scenarios where they had learned that they should wash their hands. Indu and Chandu asked the users if they had forgotten anything and paused for the users to shout back their reply. Indu or Chandu then reiterate that they had forgotten to wash their hands. A screen shot from the quiz is shown in Figure 8.

Figure 8: When to quiz screen
The game that went with the when to wash hands part of the lesson also showed Indu or Chandu in several situations where they should wash their hands. The users were asked whether Indu or Chandu should wash their hands before or after the task that they were doing. The users each controlled a circle on the screen that they need to move to the column corresponding to the correct answer. If the users were unable to get the correct answer for some time, they were prompted to reconsider their answer. If all players got the right answer, then the next scenario was shown.

Figure 9: When to screen shot
Finally the song was sung one more time with the icons growing large at the appropriate times. At the very end of the prototype, the players were given the option to go back and revisit certain portion of the lesson. Figure 10 offers a screen shot of this final scene.

Figure 10: Final scene screen