

Position Paper: For participation in User Centered Design and International Development, CHI 2007

Joydeep Bose, Pradeep Joseph Intel India	Sarit Arora, Beena Prabhu Human Factors International
--	---

Our Background in User Centered Design for Developing Markets

In the last couple of years Intel India (EMPG Group) and Human Factors International have worked together in developing innovative products in emerging markets using Intel's Business , technological and Design expertise and HFI's Contextual innovation process. This interdisciplinary team across HFI and Intel has used many methods in Business and User Research to create products which are affordable and relevant for these markets. One of the key results of such collaboration is the Classmate PC, which is a part of Intel's World Ahead Program, which aims to bring technology to the developing world. Classmate PC – is a portable computer designed to help under privileged school children learn, interact and develop. To develop these products, the team used a combination of ethnographic and design methods with the school children, teachers and parents in India. In the process we have realized that some methods work very well and others may not be so relevant in developing markets. We would like share our experiences and also learn from others who have been involved in some similar projects.

Classmate PC – A Brief Summary of the Process and the Findings

Education in India- Current Scenario

Education system in India is complex. There are some key challenges of lack of basic infrastructure in schools, (such as school space, playgrounds, library facilities, Power etc) , Distortions in teaching Quality and poor access to the education system (50% of the student population struggle to access schools).

Education is a very important component in the Indian household where academic excellence is a key to a better job and the educational practices are held with high esteem. However, there are only 20% of the schools which own a PC. Identifying this Gap, Intel selected Education as a focus area to develop an affordable device that focuses on educational needs of the students.

The Methodology

Once the overall opportunity space was identified, the Contextual Innovation (CI) process was applied for development of a problem statement that would result in the emergence of a solution that is based on a solid business case, user research and backed by market research. The CI process is a multidisciplinary approach for creating solutions that addresses the needs and gaps of the users while creating an excellent business opportunity via a solution that is self sustainable for a given context. The three primary streams that are integrated in the process are business research, user research and market research with technology being at the core.

- Business Research

Total Addressable Market: There are around 176 million students, 4.6 million teachers and 1 million Schools in India, of which only 20% of schools have PC's. Currently there is no device that focuses on educational needs of the students, and there is a high opportunity in this market, considering the number of schools, students and teachers. The primary push is expected to come from the low teacher to student ratio in the classrooms.

Drivers that will push implementation: Government policies and education institutions were considered as the primary drivers, and parents and teachers were considered as secondary drivers within the ecosystem. This data helped in determination of the potential motivations and

push that the drivers would provide for implementation and adoption of technology in the education ecosystem.

Market Segmentation: Based on the TAM and the trends in technology adoption and usage, the middle tier India was selected as the area of focus for the user research. Socio economic classification (which is based on education and occupation) along with income were used as the primary criteria for segmenting the middle tier. Schools were categorized into four groups on the basis of structure and dependency for funding. This was done so that a wide spectrum of primary and secondary users working under a variety of constraints, infrastructure and resources could be covered.

- User Research: Preceding the user research, secondary research was conducted to understand the existing design solutions and trends in education from the available secondary sources. User research was conducted to understand the current practices and the specific needs of the potential users (Student, Parents and Teachers) and the Drivers (School Authorities) that are present within the Domain of Education in India.

In depth interviews were conducted with students, teachers, parents and school authorities in the urban and semi urban centers. During the interviews we used “Feed forward” method for conceptualization where the interviewer can suggest design concepts and roughly discuss them with the participant.

After the analysis of data from the user research, the choke points and the pressure points of the education ecosystem were isolated. These may be breakdown in workflows, like tasks that are problematic (‘choke points’). These may also be areas of psychological need (‘pressure points’). in relation to the current practices. This helped in identifying the opportunity spaces and latent needs.

- Conceptualization: These opportunity spaces were used for further conceptualization of alternative product ideas in this domain. Initial concepts used a combination of scenarios and persona’s to illustrate the concept ideas. At this stage the user research team from HFI and the stakeholders from Intel conducted a brainstorming discussion utilizing the opportunity spaces and the concept ideas. Considering the original business objectives, technological constraints, and the user research insights, the key features of the product which will be used by the students, parents and the teachers were derived.

-Validating the Solutions: The product concepts were validated through an extensive quantitative exercise that involved feed back on concept acceptance and price elasticity from 1300 participants. The concept validation exercise offered direction towards further finetuning of the features of the product and enhancement of the value proposition for this target audience. The final product is a laptop (named as Classmate PC) which has a small form factor which can be carried around like a school bag. Parents and Teachers can exercise control over the content and the applications which can run on this device. There are applications by which the peer-to-peer communication could be enabled, extending collaborative learning beyond classroom walls. There could be interactive games involving multiple players promoting collective learning. The Classmate PC is at present being piloted in many countries, where the technology is put to test at classroom environments.

Questions that we would like to explore

- How do various approaches for User centered Design differ while developing products, services and systems for developing Markets
- What skill set a User Centered Designer must have to make it work? How do they need to change or adapt for different contexts and cultures?
- How do multidisciplinary teams work together so that the user needs in these markets gets translated into the final product?