Bachelor Assignment

"Low-cost products for India"

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Preface

On the 10th of April 2006, I started my bachelor assignment at Philips Consumer Electronics in Eindhoven. This bachelor assignment will be the final assignment for my bachelor degree Industrial Design at the University Twente.

I have chosen the assignment because of the great possibilities Philips has as a company all around the world. Next to that I am very interested in people in third world countries with very little money. So with this assignment, I would be able to do something for the people there, and maybe develop something what could make their life better.

The first phase was really difficult for me. You have to deal with a country with a complete different way of living, and especially in the beginning, hard to understand. But after a lot of information, talking with contacts, movies and books, the culture in India started to live here in the office.

The research for me has finished quite well, and I hope Philips can do something with the information. The whole research will take a lot more time then I had, so this will only be the beginning.

At last, I would like to thank all my colleagues at the Philips CE Sustainability Centre, my mentor at Philips: Mr. ten Houten and the mentors of the University in Twente: Ms. Stilma and Mr. de Boer

Eindhoven, July 5, 2006

Irene Rijkeboer

Summary

Is there a market for Philips in India? And what kind of product should there be developed to make the life of poor people in India better? Those are the main questions of this research.

The target group for this research will be people at the bottom of the pyramid in India, with an income of less than $3 a day.

To get to know a little bit more about the target group, people who know more about it where asked to fill in the interview. These interviews showed that there is a market in India that Philips could enter. The major problems given in these interviews are education and communication. With this research, a product will be designed, which could help to solve these problems. Education will contain at first the basic education, like reading, calculating and writing. Perhaps other education can put later in the product too.

There is a huge market in India. They even sell the same kind of products as in first world countries. These products are only too expensive for the target group. They would like to use the same products, so if they could be made with the same service only cheaper, this would be a great potential market.

The product cannot be too expensive (max. $25 per person) and the product should be able to use for sharing are the most important requirements. With these requirements, some concepts where developed.

With these requirements and the general information from the interviews, movies and Internet, a brainstorm session has started and concepts were developed.

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1. Introduction

India is a big country with a lot of poor people living there.
At the moment there are very little products and services developed for the poor and it is hard to find the product, which could help the people in their living.

Philips would like to know whether the market is an opportunity for the company to enter, and what kind of product they should develop to help the people getting a better life and to create a potential market for the brand.

This research will first start with a look at the market, of the people in India with low income, for opportunities for Philips. If this would be an opportunity the research will continue in a brainstorm which will end in a couple of concepts.

2. The Assignment

This chapter contains the information that has been written before the assignment started. The research will be done for the company Philips in Eindhoven, at the department Consumer Electronics (CE).

2.1 Assignment

The company, Philips CE, produces consumer electronics for people all around the world. They are very sophisticated in technology and want to explore whether there is an opportunity for them on the market in India.
The market of interest focuses especially on the poor with very little money to spend. The low-cost product that will be developed must be more useful for the local population in the slums or shantytowns. The company already developed some products for this market, but they were either too expensive or people didn't need the product for there living.

The assignment will partly be an analysis of the Indian population and partly be a beginning of ideas for possible products, which can be developed for this market.

In the analysis the following points will be checked:

- What does de Indian culture look like?
- Which group of people are best suited for the target group?
- What kinds of products, which could fit in Philips CE's portfolio, are already available in India?
- What kinds of products are needed?
- Is it possible to produce low-cost products for this market?

With the results of the analysis, a potential product and design can be chosen.

The information needed for this assignment will be gained from colleagues of Philips, on the Internet, and from articles and designs. It is possible to contact Philips in India, and perhaps information can be gained from Indian associations in the Netherlands.

All of this information is needed for a good analysis to base some designs to.

2.2 Actor analysis

Philips CE mainly develops consumer products for daily use. Besides developing the consumer products, they also offer professional products and services. The company is a well running company settled all over the world.

Philips has a big reputation all over the world for developing innovative products. Most of the products are made for consumers, which have more money to spend on luxurious products. There are some products introduced for the poor consumer but Philips would like to see more innovative products developed in developing countries. Philips' target is to increase their market share in developing countries. The company is already trying to enter a market for some products in a big country with a lot of poor people. Maybe it is even possible to expand to other poor countries.

The poor market is interesting because of the little of products they have. They would like to have more products, but they cannot afford it in the way the prices are now. So if Philips could reduce the prices by developing products with the same service but easier design, it could be a great product for poor people.

Inside the network of Multinational Corporations (MNCs), Philips has the position of developer and producer. They invent and design the product all over the world, and afterwards the product can be produced in the developing countries.

2.3 Problem frame

A major part of the population in India has very little money to spend every day. They have only money for their basic needs, but nothing left for any luxury. Nevertheless if you look at the culture and talk to people who know a lot about the target group you will see that they would like to have the same kind of things for the household as we are used to in first world countries, like a television or a radio. In spite of the lack of money there are shortages of electricity and electric points.

Philips sees that the developing market is changing in a kind of Western market; Indian people want to do and to have the same kind of products and services we have. So Philips wants to try to enter this market by developing more simple electronic products, with the same kind of service, but less expensive.

These products will be made for the target market. Because of the low incomes the products must be cheap. Philips already puts products on the Indian market, but these are too expensive for the target group. Most of the products put on the market by Philips are similar to the products they sell in first world countries, like televisions, radio's, mobile phones and products for personal use.

Goal of the research:
Recommendation will be given whether the market in India would be a possible market for the products of Philips. And if so, requirements will be given for potential products, and some concepts will be generated with the direction Philips must think of by developing products for this market.

2.4 Questions for this research

To become familiar with the target group and to investigate the possibility for Philips to put a product on the Indian market, it is important to ask several questions about the market and the people who live in it.

What is the position of the Indian population?
- How is the income distribution of India?
- How do Indian people live?
- Do they work, and what kind of work are they doing for their money?

Needed and wanted product(s):
- What kinds of products, which could fit in Philips' portfolio, are already on the market?
- Do the people want to use the products developed for them?
- Are the products used on specific places and specific time?
- Which part of the population / group of people use these products?

Possible market:
- Are there already products on the Western market possible to serve in India?
- Is it possible to make devices less complex, so it can be produced cheaper?
- Is it possible to use cheap materials?

For Philips:
- How many products have to be sold, so the market is big enough for Philips?
- How much profit does Philips want on their product? Does it need profit? Or do they only want to create a better market for in the future?
- Is it possible to develop a cheap, low-cost product, with a low environmental impact?

To understand the ideas and the way of thinking of the Indian people, it is important to get to know more about them then you can find on the Internet. There are several ways to get information, like reading books, watching movies, ask Indian people living in the Netherlands, etc.

भारत
India
FACTS ABOUT INDIA
AFGHANISTAN
CHINA
PAKISTAN
Tibet
NEPAL
BHUTAN
BANGLADESH
BURMA
SRI LANKA
MALDIVES
LAKSHADWEEP (India)
Arabian Sea
Bay of Bengal
INDIAN OCEAN
International boundary
State boundary
International airport
Major port of entry
Tourist centre
Other important place
National highway
Main railway
Miles
Kilometres
JAMMU AND KASHMIR
SRINAGAR
HIMACHAL PRADESH
SIMLA
CHANDIGARH
PUNJAB
HARYANA
DELHI
RAJASTHAN
JAIPUR
UTTAR PRADESH
LUCKNOW
KATHMANDU
GANGTOK
SIKKIM
THIMPU
PATNA
BIHAR
WEST BENGAL
CALCUTTA
DHAKA
AGARTALA
MEGHALAYA
SHILLONG
ASSAM
IMPHAL
MIZORAM
GUJARAT
GANDHINAGAR
BHOPAL
MADHYA PRADESH
ORISSA
BHUBANESWAR
MUMBAI
MAHARASHTRA
SILVASSA
DIU
DAMAN
(Goa, Daman & Diu)
DADRA AND NAGAR HAVELI
PANAJI
GOA
ANDHRA PRADESH
HYDERABAD
KARNATAKA
BANGALORE
CHENNAI
TAMIL NADU
PUDUCHCHERI (PONDICHERRY)
KERALA
KOCHI
THIRUVANANTHAPURAM
Tourist Regions
DELHI
EAST
NORTH
CALCUTTA
BOMBAY
WEST
SOUTH
MADRAS

3. Facts about India

India is a very big country with about 1,095 billion people living there. The whole country is almost as big as Europe, so to create an idea about the country, here a couple of numbers:

Urbanization is 30%:
- 600,000 villages with 400 million people
- 15,000 villages with population >5000
- 585,000 villages with population <5000

Work:
- 60 % of the population works in the agriculture
- 17 % in industry and trading
- 23 % in the government

Poverty:
- 35 % of the people has to live with less than $1 a day
- 80 % of the people has to live with less than $2 a day

Living in poverty:
- 84 % of the people has access to enough and healthy drinking water
- Less than 50 % of the people has access to the necessary medicines
- 46 % of the women are illiterate
- 25 % of the man are illiterate
- So about 35% of the population is illiterate, which means approximately 350 million people.

The population living below the poverty line earns a maximum of Rs. 50 a day. Looking to the prices of food:

1 kg rice	Rs. 5.65
1 kg wheat	Rs. 4.15
½ kilo fish	Rs. 15
25 l water	RS. 25

A normal poor family of six persons has every day about Rs. 75 to spend on food and drinks. Next to that you have to pay also shelter, cloths, medical costs, etc.

At least half of the population lives in villages. Most of these villages get less than eight hours of electricity every day. So, a product, which works on electricity, can almost not be used in these situations.

3.1 Infrastructure

What does the infrastructure look like at the market you want to enter?
That's a question you have to think of, before you enter a market in a complete different country. It is possible to make products in that different country, or to sell products there, but if there is not an infrastructure you can transport your products on it will be quite hard to make it all succeed.

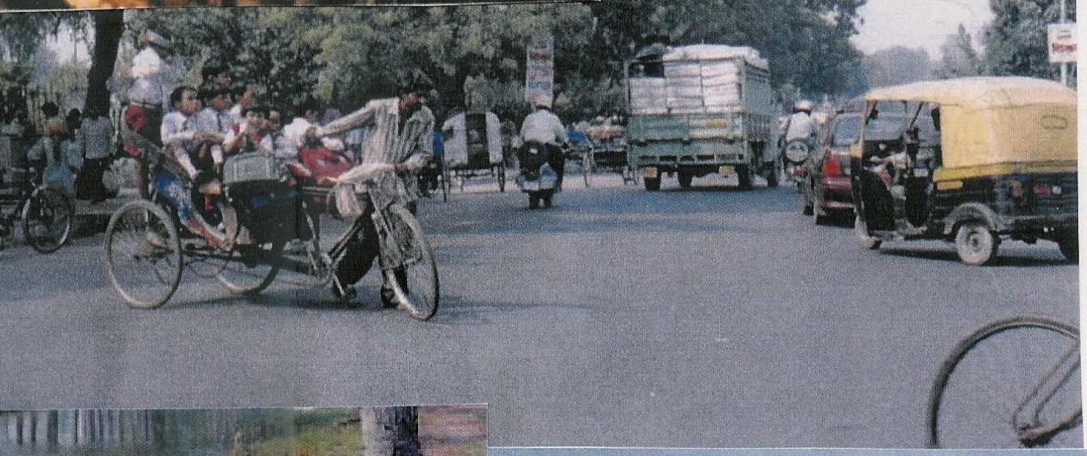
The infrastructure in India is not quite developed compared with what people in first world countries are used to have. The harbours for example are not in the way they should be: as the depth is too shallow for the big ships that sail into the country to deliver or collect the products.

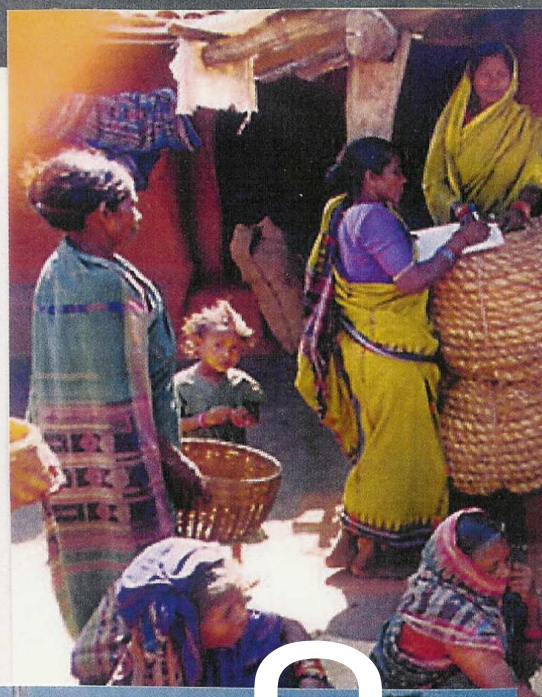
The airports are available, but still too small to use for all the transport from other countries to India and backwards. And the (high) ways from the airport to the consumer are not available.
The railways are available and good enough for India.

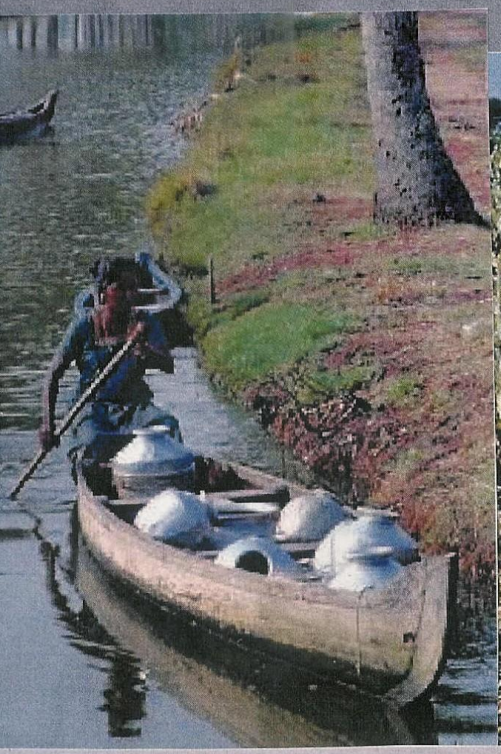
The Indian government is trying to build a better infrastructure in these areas in cooperation with the private sector. This is necessary for India to strive for a better and bigger economy. You can produce a lot of extra products, but if they cannot be transported, you cannot sell them and you will not earn your money.

The major problem is that you have to develop the infrastructure in the whole country. You cannot only develop harbours for example; the products can be delivered in the harbour, but cannot be distributed to the consumer, who is waiting for it.

So if you want to enter the market in India and you need a lot of transport by highways, airports or harbours it would not be a bad idea to investigate in the developing of this infrastructure.







TARGET GROUP

4. Target Group

The target group contains people living in India. For this research there has been chosen for people living in slums and rural areas that have very little money to spend. These people earn a maximum of $3 a day, which is almost too little if you want to save for a product more expensive. A whole family has to live from the $3 a day. If this is not enough, the mother and her children have to work too. And so on, whole families are working and there is neither money nor time for education. The living standard of these people is not very high; they often do not have clean drinking water or good nutrition.

People in India, even if they have no money, would like to have luxurious products. Status is very important in India. If the neighbour had bought a new product, the person itself will do anything to get the same product or even better too. For Philips this could be a very good potential market.
This status feeling is so strong, even if they cannot save money and have no money left; they try their best they can to get the product.

The target group falls partly to the main group of 4 billion people living around the world with less than $1,500 a year which means less than $4 a day (figure 1). This part is called the bottom of the pyramid (BoP) (C.K. Prahalad, 2006)). The research of Philips is for the market in India, but it is a good possibility if the product could be used on other markets at the bottom of the pyramid too.

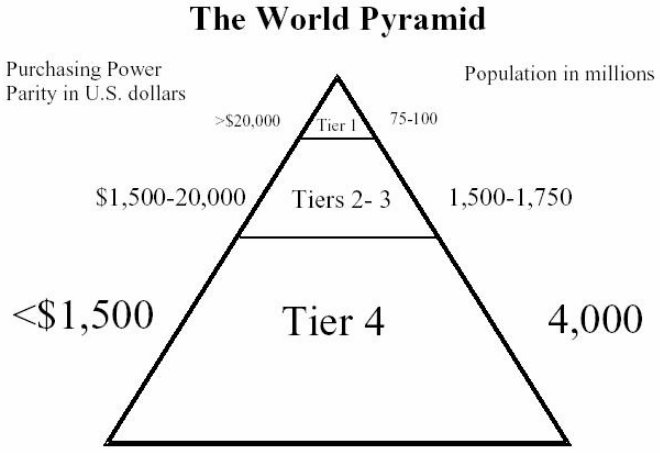


Figure 1: The world pyramid

4.1 Priorities of the Target Group

Is there a difference between the needs of people with a low-income in India and people in the Western world? And would they spend money on luxurious products even if they have no money left to spend?

Abraham Maslow (1908 – 1970) made a content that proposes that people are motivated by five categories of needs:

- Physiological
- Safety
- Belongingness
- Esteem
- Self – actualisation

(Richard L. Daft, 2000)

The content can be summarized in a pyramid named Maslov's Hierarchy of Needs. It starts with a human life at the bottom of this pyramid. There you will find the priorities you need like fresh air, clean water, food, etc.

When all the priorities of one level are fulfilled you will try to get a level higher in the pyramid.

Figure 2: Maslow's Hierarchy of Needs

If you look at Maslov's Hierarchy of Needs, the target group is in a much lower level than people in the Western society.
In the Western world, people are used to having clean air, water and food. We have shelter, safety and stability and most of us have a good social life. So if we look in the pyramid, we will find ourselves in the level "Social" or in "Ego".

The target group, who are very poor, are still in the bottom of the pyramid in the level “Physical”. They are still not sure whether they will receive enough money to buy some food and water for every day.

As told earlier, status is very important in India. So the thought of the place where the target group will stand in the pyramid will not work for everybody there. Some people find it more important to live with the priorities you have in the social level. This means that they do not have money for food because they spend their money on luxurious products to get a better social standard.

4.2 Philips’ choice of target group

Philips has chosen the target group at the bottom of the pyramid because of the market potential there will be in India. Philips has already a large market share in the sales of consumer electronics in the Western world. This market is almost fulfilled; therefore the company must look for expansion opportunities. With the market in India, Philips also wants to improve their green and sustainable image.

If the product is able to make the life of the people better, by getting better education and receiving more money, the living standard will rise. If this is going to happen, people will trust the brand Philips, and if they have more money to spend, they will buy Philips products.

Next to that, Philips is helping with the Millennium Development Goals of the United Nations. In 2000 the United Nations has formulated 8 goals for creating a better life for the poorest in the world. These goals have to be reached in the year 2015 by every individual country.

The results of this research for Philips must be helping these goals. The goals are:

1. Eradicate extreme poverty and hunger
2. Achieve universal primary education
3. Promote gender equality and empower women
4. Reduce child mortality
5. Improve maternal health
6. Combat HIV / AIDS, malaria and other diseases
7. Ensure environmental sustainability
8. Develop a global partnership for development

(United Nations, 2000)

The products that will be designed for the market in India have to contribute to these goals.

4.3 Indian story

To illustrate the target group there will be designed for, a little story has been written. The design process, to create a good sight on the situation, can also use this illustration.

“Philip lives with his wife in a township in Mumbai. Because he is the oldest son, his parents also live with them. During the day, he works at his plantation, where he cultivates cotton with his two sons. Philip’s daughter helps her mom with the household and caring of the grandparents.

A couple of years ago, Philip and his wife sent their sons to school for basic education. In those days, grandfather worked with Philip on the plantation. Now it is not possible anymore. Grandfather started to become weaker and weaker, he was not able to work at the land anymore, and he needed a lot personal care. So Philip decided that the boys should help him with all the work.

Every day, mother and daughter start at 6:00 in the morning with cooking for breakfast and lunch for the whole family. The family has some water for washing, although it is very cold. After the cooking, the men in the house are washed and dressed for another day of work. The family (mother, father and the children) have breakfast, and go to work.

The grandparents are getting up from bed, and have the same programme. Mother and daughter have to take care for the grandparents the whole day, next to doing the dishes, cleaning up and taking care of getting cooking fuel, water and food for the dinner in the evening.

The daughter did not go to school. She is 14 years old, and will be arranged for a marriage in a few years. Her future will be cooking for the family of her husband, doing the cleaning work and caring for the rest of her husband’s family. So the parents of the daughter do not find it necessary to send her to school.

At 16.00 in the afternoon, mother and daughter start with cooking dinner again. Because of the lack of electricity for lighting, cooking must be finished before it gets dark. A couple of hours later, the father and the sons will come home, and the whole family is going to have dinner.

When dinner is finished, the women in the house have to do the dishes; the men are going to talk a little. And they are all going to sleep; the next day will start early again and there is no light available for reading or doing other things.

The mother, grandmother and daughter are illiterate. They did not go to school, because they did not need it for doing the housekeeping and taking care of the children and parents.”

5. Interviews

Interviews are in a design process a very important input of information. The target group itself knows the best about their problems and they can give the best sight on the possible solutions.

For this research, an interview is essential. A lot of information about problems cannot be found on the Internet, so to receive this information, you need interviews with people who know a lot about the target group. The target group self would be the best, unfortunately this is not possible because they do not have access to Internet or a telephone most of the time.

For this research I first started to look for people who have experience with the Indian culture, like organisations who work there to develop the country, people who work in Holland to collect money for developing countries and go there to check whether the money has been used properly. Next to these people I contacted Indian people living in India, and asked them about their opinion of possible solutions to the problems the poor have in India.

The main information that is needed:

- How do they live?
- What kinds of (luxurious) products are available?
- What kind of product is a need for?
- What would they buy if there would be money available?

To get a clarifying result, the people were asked to fill in a form. With this form it would be easier to compare the different answers with each other.
The interviews were sent by email, to create serious well thought answers. If you call somebody with these questions, it is hard to get the right one on the phone, and when you have found him he will be overwhelmed by the questions. By email, the person can think of the question at his own time, and does not have to answer in a minute.
Hopefully more people will take a little time for it, if they can do it at their own time.

There is not a problem with illiterate people with this interview. The Indian people have been found on the Internet of in the Philips network, so you can think they are higher educated. People with very less to no education have often little to no access to the Internet.

5.1 Results

Most of the people asked for the interview were very enthusiastic about the project. They really liked the idea of developing a product to try to get a better life for the poor in a developing country.
A couple of people did not like the idea of designing a new product for people with very less money to spend. Thinking the intention would be getting rich by selling too much unnecessary products to the poor.

For the results, a couple of questions of the interview were lifted out.

- Do they have luxurious products? And what do they have?
- What are the biggest problems of the target group?
- What are the main needs they have?
- What would people buy if there would be money available?

These questions where lifted out, because they give the best sight on the target group and what kind of product they would need. The rest of the questions were asked to get a better idea of how they live and what they do for a living. This is to create a good sight of the target group.

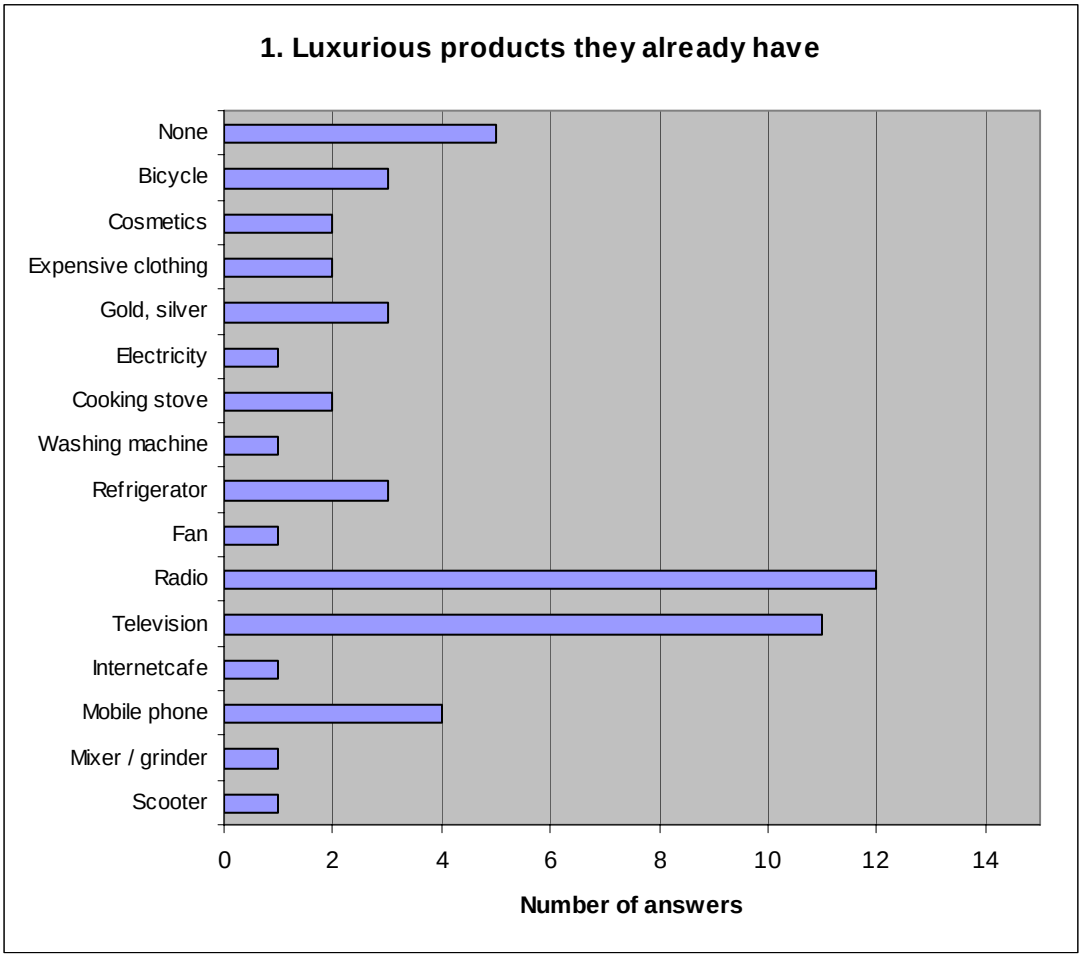


Figure 3: A graphic about the answers to the question: "What kind of luxurious products do they already have?"

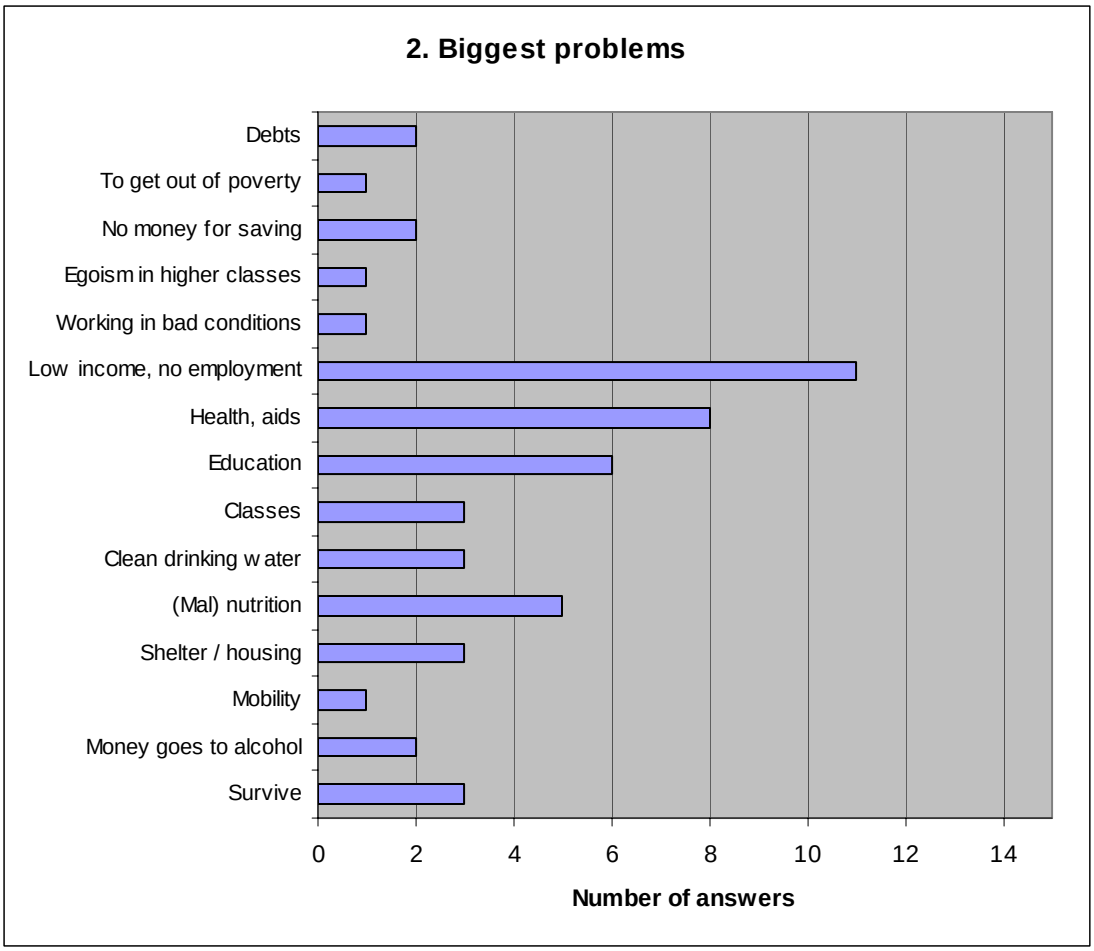


Figure 4: A graphic about the answers to the question: "What are the biggest problems?"

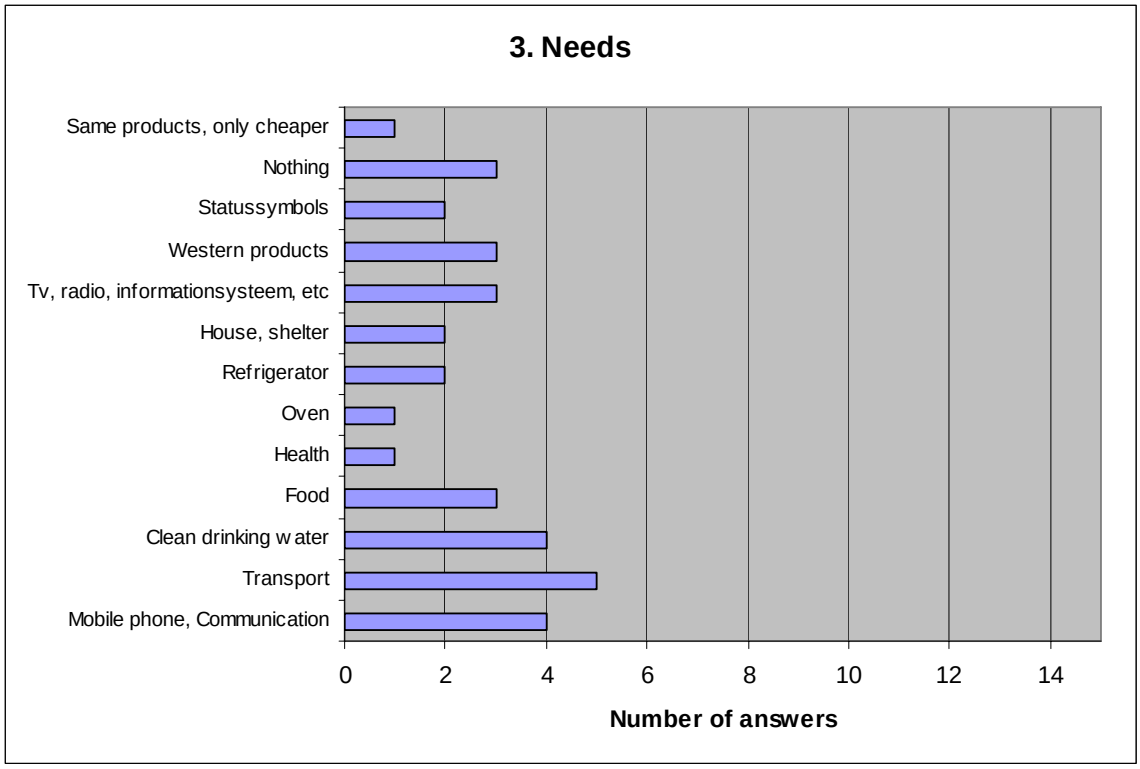


Figure 5: A graphic about the answers to the question: "What are the biggest needs for people at the BoP in India?"

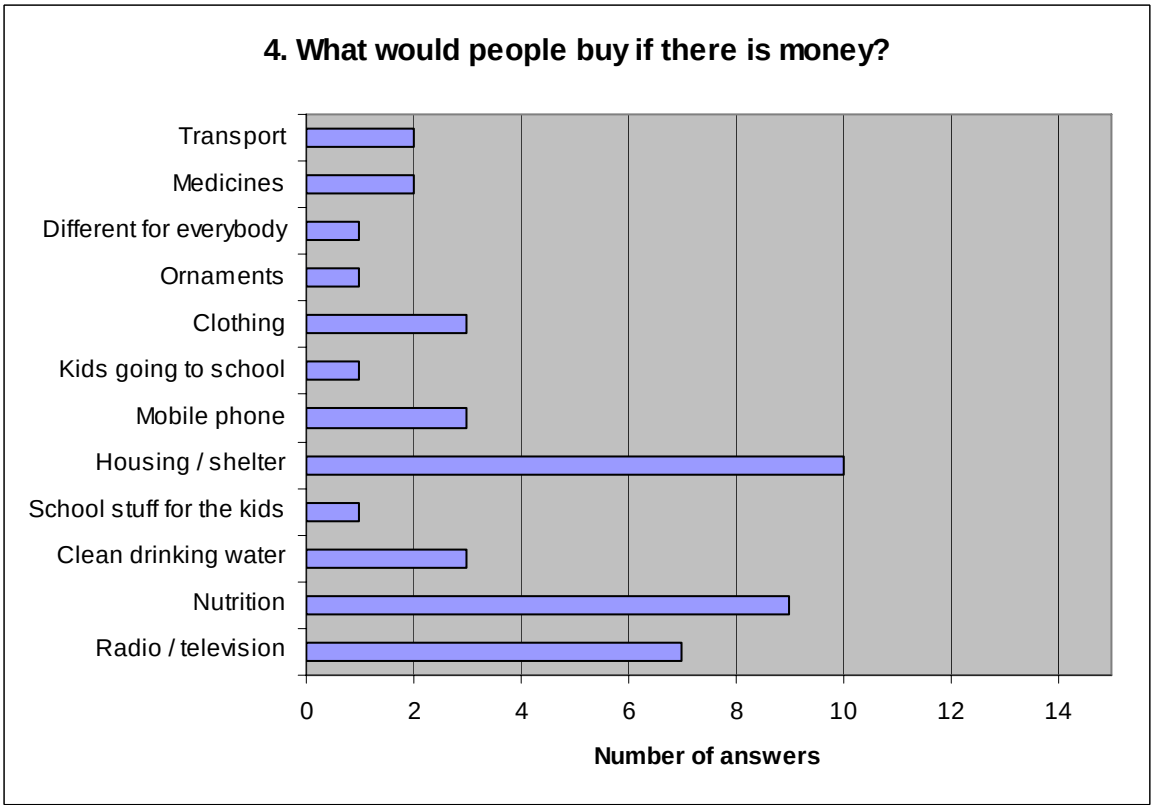


Figure 6: A graphic about the answers to the question: "What kind of products would people buy if there was money?"

In figure 3 it is clearly to see the television and radio are quite normal to have for people with a low income in India.
Figure 4 shows the biggest problems: low income and no employment (or very changeable), health, education and nutrition problems.
The biggest needs (figure 5) are mainly clean drinking water, transport and communication.
The last graph (figure 6) tells what people would buy if money was available. They would buy shelter, food or a television or radio.

These answers seem to be the opposite of each other. That is one of the major problems of such a research. India is a very big country, and every part of it, has it own sort of living. So it is very hard to get a standard for this. The television, which would be bought if there were money, would perhaps be a better television than they have now.

These results do not give a clear answer of what type of product is needed by the people at the bottom of the pyramid in India. To get a better insight in the situation of the results, they have been classified in seven groups: Communication, Food / Housekeeping, Transport, Personal Care, Education, Health and Shelter. These groups give a better insight in the results.

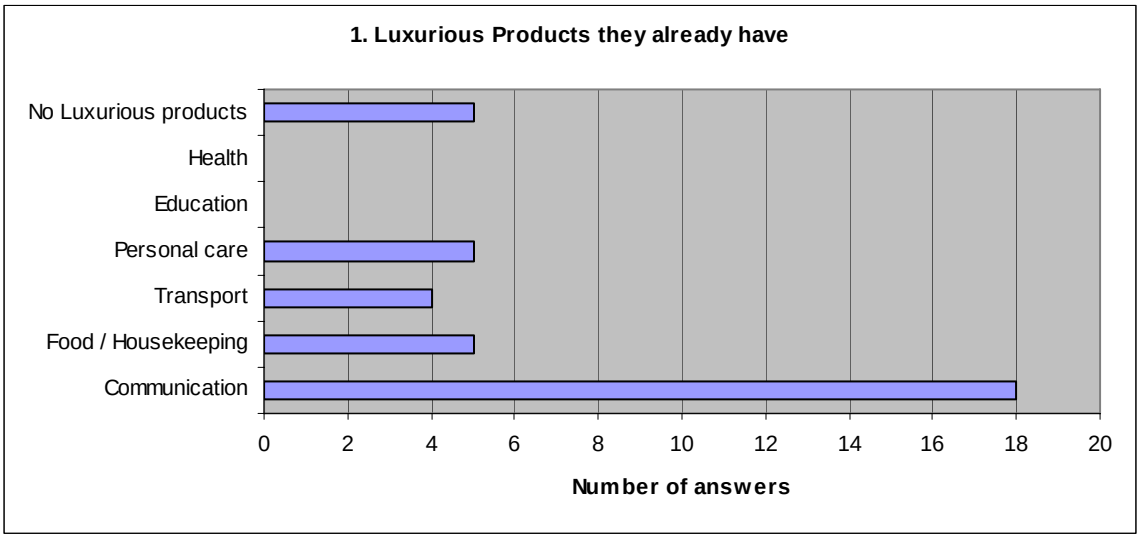


Figure 7: Composition of the answers to the products they already have.

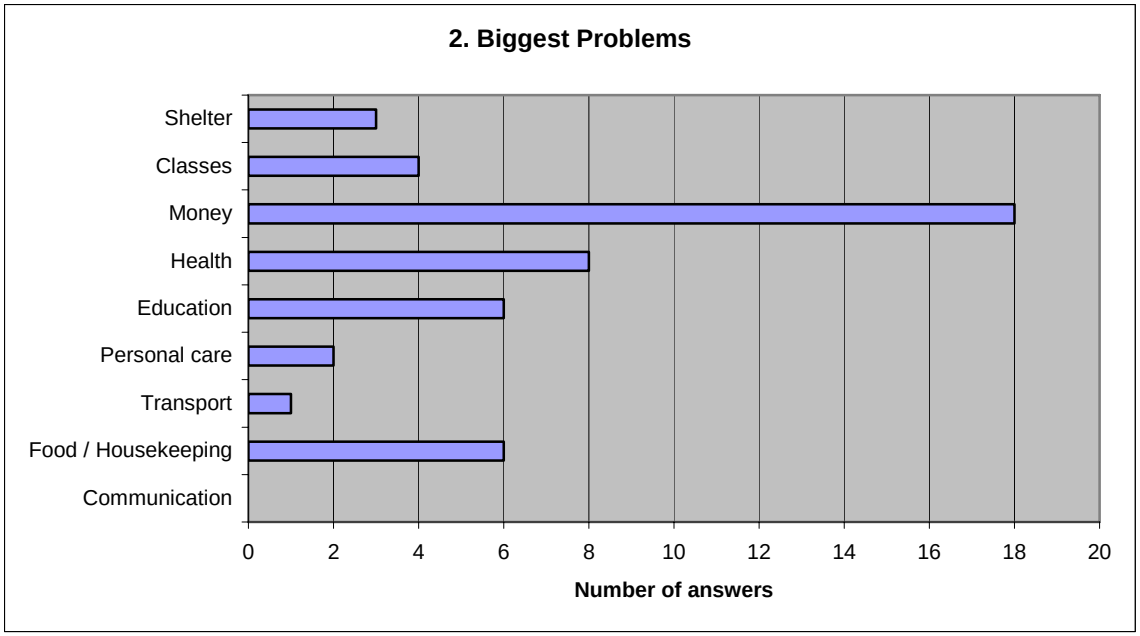


Figure 8: Composition of the answers of the biggest problems they have.

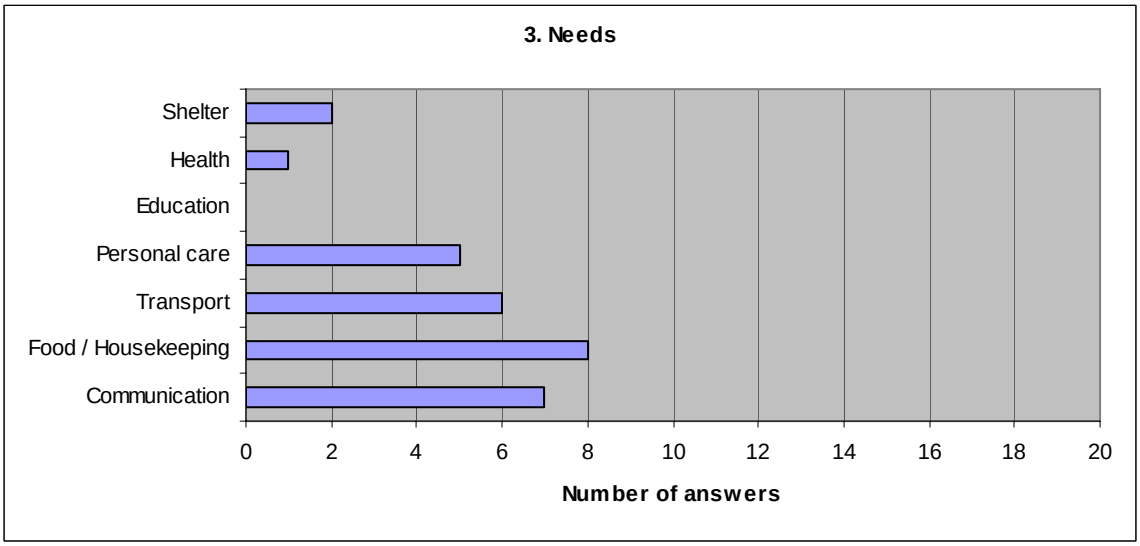


Figure 9: Composition of the answers to biggest needs they have.

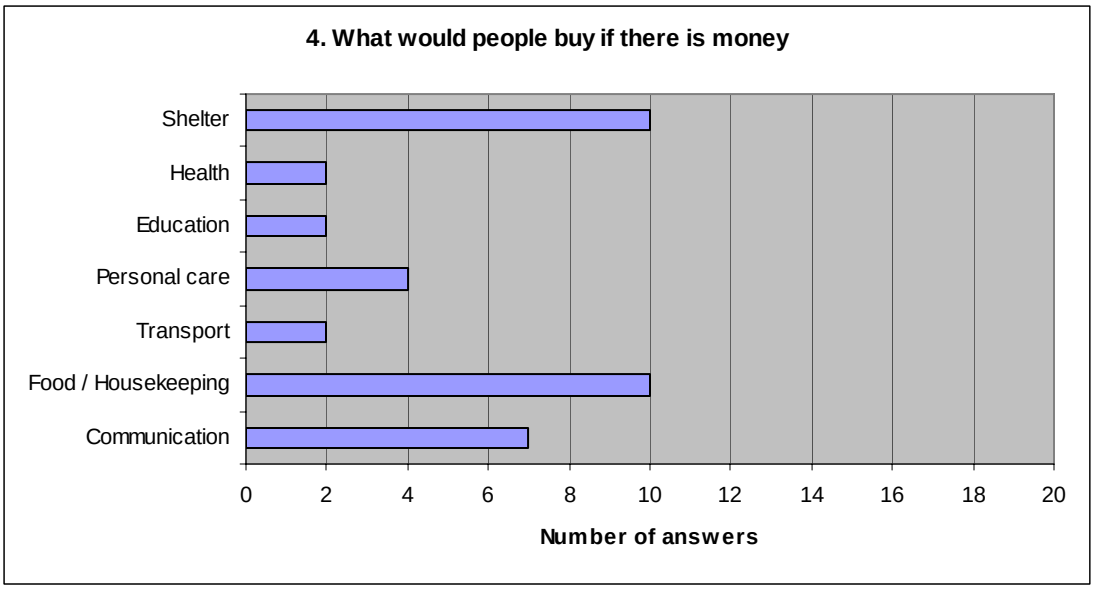


Figure 10: Composition of the answers of what they would buy if there was money available.

With these groups, the major problems are:

- Money
- Health
- Education
- Food / housekeeping

The biggest needs are:

- Food / housekeeping
- Communication

5.2 Conclusion Interviews

On base of this information, education and communication have been chosen as the target for product developing. This choice has been made because communication was a big need in the poor areas. Next to that, education was said to be a major problem, and was also said on information on the Internet, in articles, in movies and in books about India as a really huge problem.

The combination communication and education is also not very strange. Education can be made easier by developing more communication tools. People are then able to use a computer, even if they are illiterate. By using more and more these kinds of tools, they will get a little bit education piece by piece. Not directly the education we are used to, but they can manage themselves.
Philips CE's does make a lot of products for communication programmes, so they have a lot of knowledge about it.

6. Business at the bottom of the pyramid

The interviews showed that there are opportunities to develop products for the market at the bottom of the pyramid. Before you enter this market it is important to check out whether it is possible to create a market in a third world country, when you are a company developing products for first world countries.
A couple of questions you have to think of:

- Is it possible to create a market at the bottom of the pyramid?
- Will the bottom of the pyramid have money to spend?
- Are there needs, which could be fulfilled by designers in the western world?
- What kind sort of target group should be chosen?

These are questions you can think of, when you want to create a market for the bottom of the pyramid in for example India. It is not the easiest way, trying to create a market there. It is actually quite a difficult market to understand and to deal with. Especially when you are used to first world countries.

The only thing you know sure; there is a market at the bottom of the pyramid. The people living in this situation do not make much money, but they do spend money on luxuries. They want to experiment, learn and change things in their lives.
"The BOP can be source of surprises on how rapidly new technologies are accepted and assimilated." (C.K. Prahalad, 2006)
BOP consumers are not silly. They do know what is happening in the rest of the world, and they want to be a part of it. So if it is possible to use communication for an affordable price, they will try to get access to it.

People at the bottom of the pyramid do not have the same priorities as the people in first world countries are used to. They would buy traditionally considered luxuries instead of better homes and clean drinking water for their disposable income.
This could become a great opportunity for companies.

The way of developing and selling products is also very different.
"BOP consumers are value buyers. They expect great quality at prices they can afford. The challenge to large firms is to make aspirational products affordable to BOP consumers." (C.K. Prahalad, The fortune at the bottom of the Pyramid)
For BOP consumers it is very important that a product is not too expensive to buy and it must be of good quality, that it can be used for a very long time. Most of the products made in the Western world have to be replaced after a couple of years use. Quality is a very important thing, a company should think of before entering the market. If you put a very good product on the market, people will gain trust in the brand. Especially if they have less money to spend, they spend it on a product of a company they trust. And they have only got one time to buy such a product, so it is better if it is your product.

The distribution in developing countries is most of the time not well developed. For a company this could be very painful. By distributing materials there are already many differences in time for example. So you must take time for starting the whole process. Even with transporting the products. It could be 2 days; it could be 4 weeks until it will arrive at the destination planned.

Getting a market better will start by giving education to the people. Education is the main word in getting a better market and getting a better life. Start with the

children. It will cost some time before you get your investment back, but in 10 – 15 years from now or maybe earlier it will work out. It is also possible to start with adults, unless they do not have time to spend on education, and they do not see what they will get back for it.

And by trying to enter the market it is not only the individual you have to look at, also a whole village or a society for women could be the target group.

6.1 Conclusion

For Philips the market in India would be a great opportunity. There are already some other companies on the market in India, so it would be a logical step for Philips to check the market there too. Next to that, Philips has a lot of qualities they could really use in India.

The most important thing to get success on the market at the bottom of the pyramid, will be by convincing the target group that the product offered would help them by get a better life and receive more money to life of.

MARKETING IN INDIA

7. Market in India

Before you are going to start the design-process, it is important to have an idea about the products already available for the target group and the products available which can fit in the portfolio of Philips. This chapter will first compare the products of Philips in the Netherlands with the same kind of products they sell in India.

7.1 What kinds of products are already available?

In India almost every product that is used in first world countries is available. Even the prizes are quite similar. This makes it difficult for people with a low income to buy these products. That is why this market is only for the rich people and is small compared to the complete market of all existing sold products.

Products of Philips available in the Netherlands:

Products of Philips available in India:

Figure 11: Comparison of a couple of products from the Philips portfolio of Consumer Electronics.

There are not very much products available for the target group, because of the high prices. More and more companies discover the market of the bottom of the pyramid (BoP) and develop products, which can help the people with a low income creating a better living.
It is presumed that the target group does use products like rich people have; they only have to deal with the older version or one found in the garbage.

Nevertheless it is hard to determine what kind of products the target group exactly uses. For the target group it is not possible to afford a computer or PDA. But with some help of Non Governmental Organisations (NGOs) there can come some computers to a village, so with some sharing with other people you can afford a computer, television or radio.

The target group does know there are products and services like said before; they do only not have the money to afford that type of service for themselves. But with some help from the NGOs and some teamwork in the village, they can use that kind of products like a television, Internet and telephone.

So most of the services and luxurious products are brought together with a big group, and they use it also all together. That makes it affordable.

7.2 Products developed for the BoP

The new products from Philips shown earlier in this chapter are most of the time not affordable for the poor people in India. They have to do it with second-hand products or with very old ones.

To help the target group in their way of living, some products have already been developed by other companies. Selections of these products are shown in the next chapters. These products are chosen because they could fit in the Philips portfolio. They will be a competitor of the products developed in this research.

7.2.1 The Simputer

The Simputer is a simple and affordable portable pocket computer developed for the rural Indian poor and city dwellers. The products cost Rs 9000, that's about $150 - $200.
The Simputer has been developed by a small group of scientists of the Indian Institute of Science in Bangalore and some engineering professionals from the firm Encore Software.
The Simputer is a small computer; looks like a PDA, but the specifications are much more than a PDA has. The specifications correspond with a simple personal computer.

The Simputer

7.2.2 Internet: Hole-in-the-wall

Computers have been built in the wall of bathrooms of the slums for example. This makes it possible for the citizens to have contact with the rest of the world. This idea is also used for children, to give them a little education.

7.2.3 Tata literacy

Tata literacy has developed a computer, which can do something about the illiteracy in India. With this computer adults can learn reading in 40 hours. The project is meant for people that work during the day and do this study in small groups in the evening.

More information: http://www.tataliteracy.com

7.2.4 Voices in your hand

"Voices in your hand" is an initiative of students of the Stanford's Learning, Design and Technology program together with Philips Research Laboratories. People can send a voice message to somebody else they need information from or they want to contact, and they can get their information or contact needed. This is a project in Brazil, also for the people at the bottom of the pyramid.

7.2.5 Unilever

Unilever gives out all kinds of cleaning products. They want to learn the population about washing your body, brushing your teeth, cleaning and preparing good and healthy food.

To get the people far enough to get used to this way of living, Unilever sells their products in small packaging, which contains an amount of the product for a single use. This makes it possible for the population to buy the product only when they need it for very little money.
For the company it is not cheaper to make small packaging, and it is even worse for the environment than normal packaging. So the only good thing is the spread of the money available at a specific moment. Is there much money, you can buy much packages, is there less money, you only buy one.

7.3 Other projects

Next to the products developed for the poor described earlier, some other Dutch companies are trying to create a better life for them.

Company:	Project:	Cooperation with:
Unilever (HLL)	Unilever is trying to give nutrition to poor children and their families with the meaning of getting a good health.	- World Food Programme
Procter & Gamble	P & G are trying to collect money to give children education, which are unable to access education otherwise.	- Child Relief and You, India's premier child rights organisation. - Sony Entertainment Television
Philips	Disha, a project of Philips, is a tele-clinical with all kind of medical instruments. The van with dedicated doctors and medical staff has a satellite for support from specialized doctors.	- Indian Space Research Organisation - Apollo Hospitals - DHAN Foundation

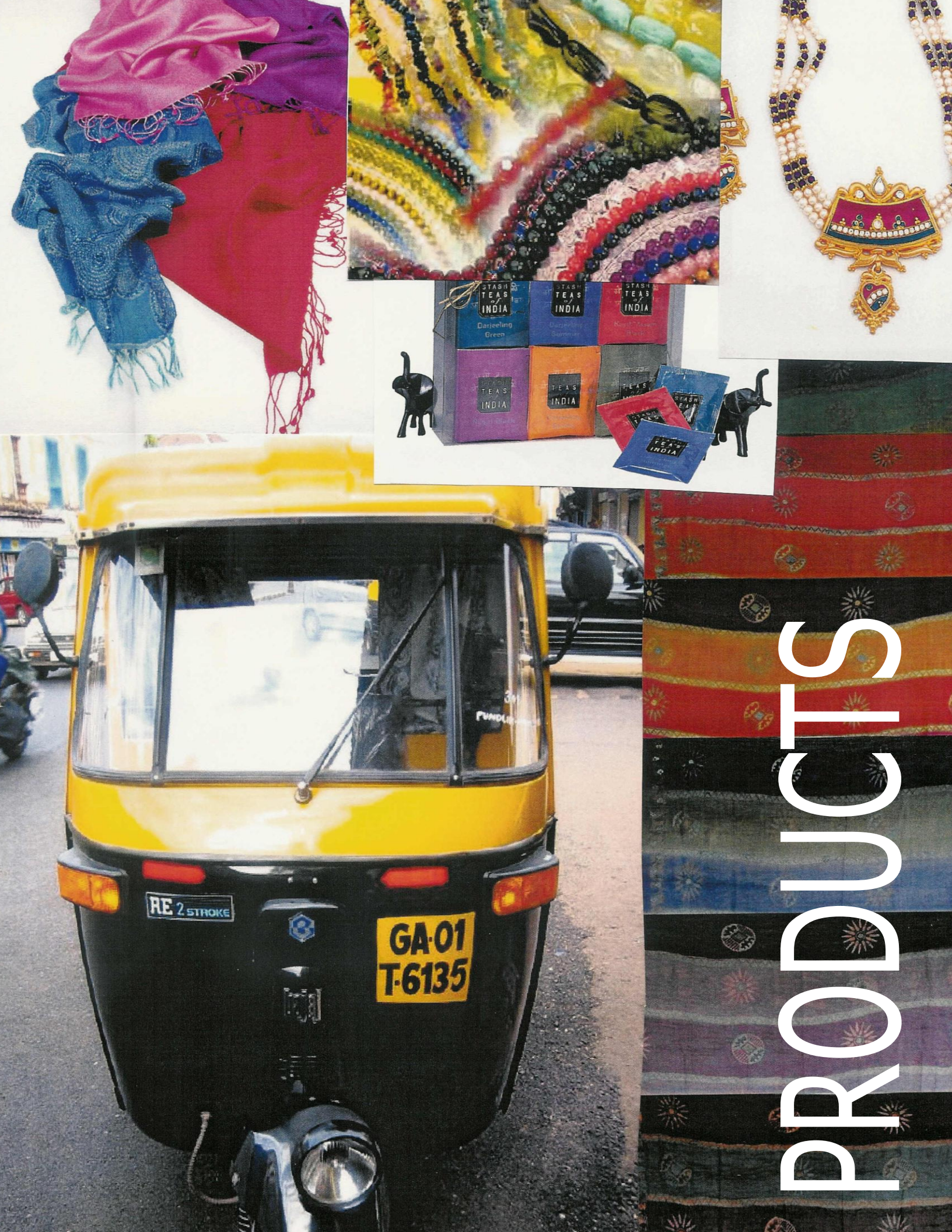
Philips	Self help groups, also a project of Philips, gives especially women in a village the opportunity to earn some money by selling products of Philips.	

Conclusion research

After this research it is clear that there is a need for a low-cost product which could make the life of the target group, people with very little money in India, better. There are already some products on the market, but these are not available for all the people, the products are too expensive or they do not see the meaning of it. The target group does not have much money to spend on products and they are not used to saving something to be able to realize a better life in the future.
So, developing and introducing a new (low-cost) product could be a solution to the problems.

The most important problems that have to be solved are education and communication. These problems are not the only problems, but when they would be solved, the life of the target group can become better by getting people smarter and be able to earn more money. Next to that, communication fits the best with the department of Philips: Consumer Electronics.

The product developed for the target group should be not too expensive, they must see the need of it and they must get a better life, by for example making more money.



PRODUCTS

8. Product

Before you can start with the requirements and a brainstorm, the problem must be described properly by making mind maps, a table with the situation now and solution directions and with a morphological scheme. These tables can be found in the appendix.
By developing a product, some requirements have to be made after the problem has described. The final product can be tested at these requirements, whether it is like you want, or whether it is not. Next to the requirements a brainstorm has to be started. After the brainstorm a couple of concepts can be chosen in cooperation with the requirements.
The test of the concepts by the requirements will find out, which concept is the best for this research.

8.1 Problem

The solution directions and mind maps came to the result that the problems in the parts education and communication should be solved by designing a product. The things you can think of:

How is it possible that so many people in a country cannot have education?
And in what kind of way is it possible to find a solution for this problem?

A lot of people cannot get the right education in India. In that culture it is also normal that children help their parents with the work during the day, because otherwise there is not enough money to live of. So education at free hours or in the evening would be a solution.

To create something that makes it possible that people could get education at their own time would be the best solution to this problem.

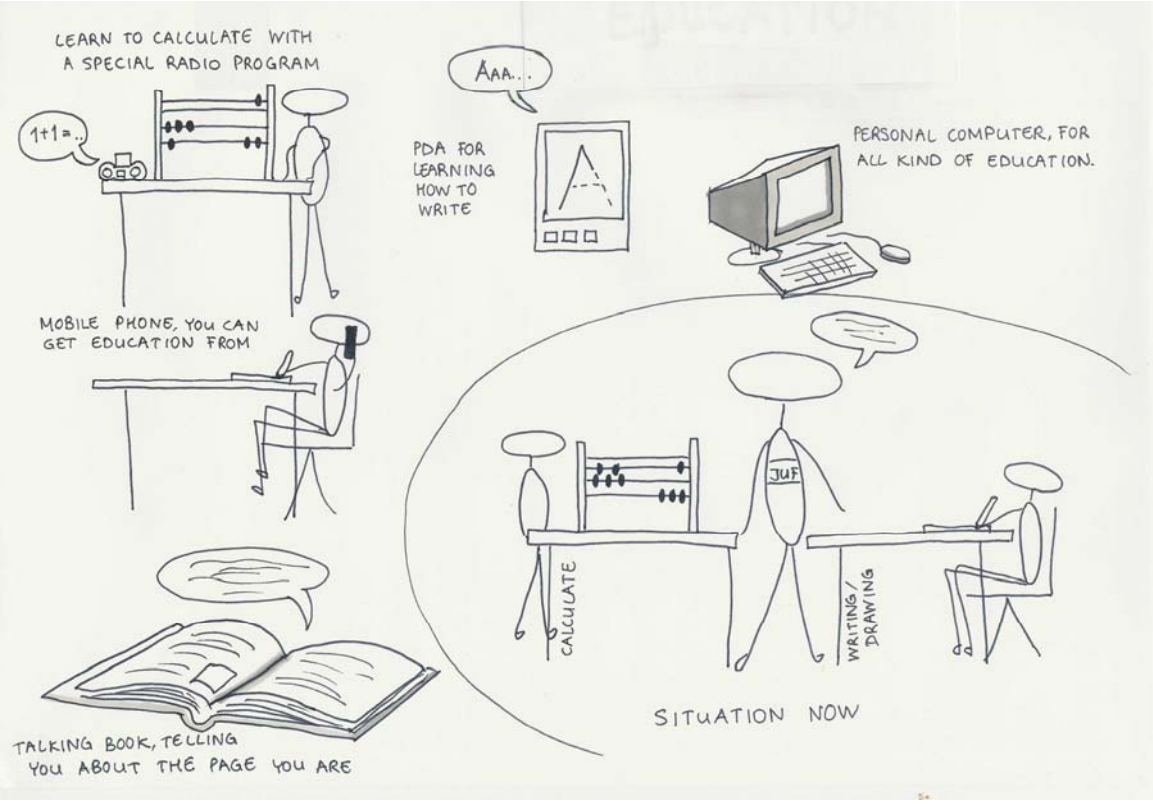


Figure 12: Situation now and the way where you can find the solution.

8.2 Social sights

Why would a person buy such a product?
Why would children want to get educated by such a product?
What will a product like this do with a community?

This kind of questions is important to think of before you introduce a product at a strange market.

Products like these concepts will have a great impact in a community; there will be a need for electricity, the community has to create groups for education, some of the activities during the day have to move to another time or place, etc.

A community could choose for such a product if they see that it is a problem if you lack on education. Education and knowledge does give a better life to illiterate people, so it is very important to let the people see that it will work.

Next to the education, communication is also a very important part of some of the designs. Especially, people in rural areas don't have contact with the rest of the world, their families, and etcetera. They have no idea about prices of products or better tools and equipment. So, with a little communication, the life could get better

and better. And with better equipment and tools, the work can be done quicker and better, so they will earn more money for the same work, in shorter time.

How and where can the product been used?

Alone	Group
Positive: Good concentration Little product will be enough Very little light needed Can be used all day, at every moment At your own speed Negative: No explanation available	Positive: Discipline Explanation available by no understanding Preference: bigger product; for the whole group in sight Negative: During the evening: much more light needed Only at planned time
At home	**Society house**
Positive: Every moment of the day possible Negative: Big group of people around (family, living there) Little less of light Every person need the product	Positive: Bigger possibility for good lighting Concentrated group Only need 1 apparatus Negative: Lot of people around

Figure 13: Comparison between education alone and in a group, at home or in a society house

In figure 13 you will find the positive and negative sides of working alone or in a group and working at home or in a society house.

With this figure, it can be seen that working in a group in a society house is the best option for education. It looks like a classroom, whether somebody does not understand the education, he can ask somebody else who understands it. So they can help each other with the assignments.

For children it could be difficult to see other children going to school, playing and have fun and them staying at home to get some education. It would be better for them if they can do the same in a group with other children. Perhaps that kind of groups could be realized in villages.

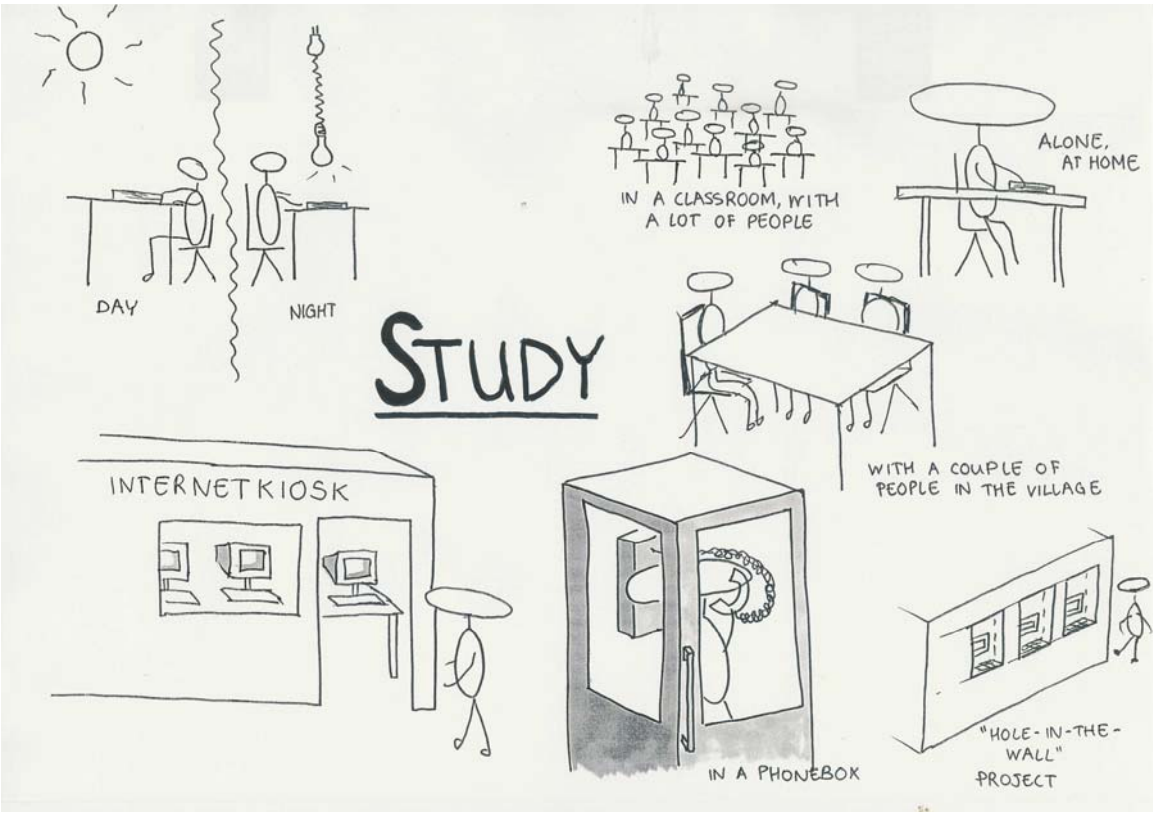


Figure 14: Possible ways for getting education

There are several ways to get education without having a teacher. In the drawing (figure 14) you can find some possibilities.

Perhaps it is possible to get more information with a product, although that will not be the main focus.

8.3 Basic Thoughts

- The price of the product must be affordable for the people living at the bottom of the pyramid
- The product must fit in Philips' portfolio
- Product must create work for the poor
- Product must be a solution to at least one of the biggest problems the people have in India
- The distribution of the product must be achievable for the target group
- The product must be attractive to the user, so he will buy it
- The distribution and promotion must be very clear, so the target group knows where they can buy the product
- The target group must get a better life from the product

As already said in the chapter Interview, there has been chosen for the problems concerning education and communication. With these problems a brainstorm has started. But before you can brainstorm, you have to note down what kind of education you will focus on.

The kind of education, that has been chosen, is the basic education like learning how to read, to write and to calculate. There are a lot of other possibilities, but when you look at the problem, there are 400 million illiterate people in India. This is very much, so it is the main goal to get some more people literate.

For communication there are also a lot of opportunities to use, but this is not quite the main problem. It is better to solve the problem of education first, and if this is possible together with communication, then it would be a great opportunity.

8.4 Brainstorm

The first thing to start with, is a morphologic scheme. This scheme shows all the possibilities for the concepts. The morphologic scheme of this research can be found in the appendix.
The result of the scheme will be the products for communication which can be used for education. In this case: radio, mobile phone, mp3-player, book, newspaper, computer and communicating in person by talking. These products can be used for the brainstorm.

The radio has already been made for the target group in India, by Philips and by other companies. Philips' human powered radio did not sell very well at the target group; perhaps this could get better with a different marketing strategy.
The mobile phone would be a good product for this research; maybe even the costs of the mobile phones can be reduced.
MP3-player: possible, but you need a computer to get new information on the disc, which could be a problem.
Book: good solution, the only problem: with only a book, you cannot learn basic lessons, so you need some feedback and explanation from somebody else. Maybe it is possible in combination with another product.
The newspaper: not every village can get the newspaper every day, and if you cannot read you cannot do anything with it. Next to that, people have costs all the time, so they could customize on the newspaper if they have not much money.
Computer: expensive, perhaps for a society house.
Talking: possible.

Before there can be generated some concepts, a brainstorm is needed. The brainstorm was in cooperation with a couple of colleagues at Philips. They know about the research and do have an idea about some possibilities. Next to the colleagues, also the people asked for the interview, people who know a lot about India, where asked to give their opinion about possible products.

Brainstorm: Develop an electronic product for people in India earning less than $3 a day. Preferences: education and communication.

- Book with spoken pages, like a greeting card
- Text – speech converter
- Read aloud – listening books
- Translate computer for example: Hindi – English
- Radio put in clothing
- Mobile phone you can take lessons with
- Cheap radio
- Human powered radio
- LOI-look-a-likes (like MP3, PDA, …)
- RFID, a cheap chip
- Baby alarm (200 m)
- Cheap web cam
- 'Walky Talky' (500 – 1000 m)
- Using it in a game or puzzle
- PDA for learning how to write → 'Supermemo', needing a keyboard with USB or something
- Alarm system
- Dictaphone
- Credit loan – banks will give an education system, and if you followed it and passed the exams, you can get a credit loan for starting your own company
- Teddy bear of other toy, you have to care for, like a 'Tamagotschie'
- LED-lights for safety in the traffic

Energy:

- Solar energy
- Human powered
- A fan vice versa, you need air to charge the battery of your product
- 'Powerball' for creating energy
- 'Knijpcat', light will be created by pinching the product

The original picture of the brainstorm can be found in the appendix.

Figure 15: Brainstorm session

8.5 Requirements

With the brainstorm it is possible to give the ‘product’ a direction, so it is possible to give the product some requirements based on the life of the target group and the ideas from the brainstorm.

The requirements are formulated for the target group, people who have to work all day and children. The product must be manageable so the user can take it easily with him or her, so neither too big nor too heavy. For the most people in the target group, the product could be too expensive, so the product must be able to use with more then one person, so they can share it.

Size of the product	Product must fit in a normal pocket. Maximum size of the product: 90 * 110 * 15 mm (width * height * depth)
Number of users	The product must be able to be used by one person to a maximum of 5 persons
Costs	Maximum cost of the product per person: $25 (Rs. 1000) Maximum cost of the complete set (incl. other materials needed): $30 (Rs. 1200)
Weight	Maximum weight of the product: 200 grams
Life span	Lifespan of the product must be at least 5 years by normal use in the normal conditions in India
Difficulty	The product must be easy to use, so even a five year old child is able to use it
Energy	The product must be able to use with normal electricity The product must be able to use with a wall plug
Sound	The product must have a speaker The product must have a headset
Screen	The product must have a screen of a minimum size of 30*40 mm The screen must be in black and white
Group / Alone	The product must be able to be used by the user alone and in a group
Use at every time	The product must be able to use at any time the user wants to use the product.

8.6 Wishes

Electricity	The product must be able to work on alternative power, so even if there is no electricity, the product can be used
Sound	The product must be able to have adjustable sound, so bigger groups can use the product together
Communication	The product must be able to use for long distance communication
Sharing	The product must be able to use with other people. So you can use it again. The product is able to buy in parts, so that different people all can buy a part of it, and together they have the product.

8.7 Ways of using the product

There are several ways in which you can use the product. You can carry it with you during work, or when you are at home, sitting in a chair, in bed, at the market, working at a table, etcetera.

For the product, it would be the best if the product is not too big. The user can take it with him to work, outside, whenever he wants.

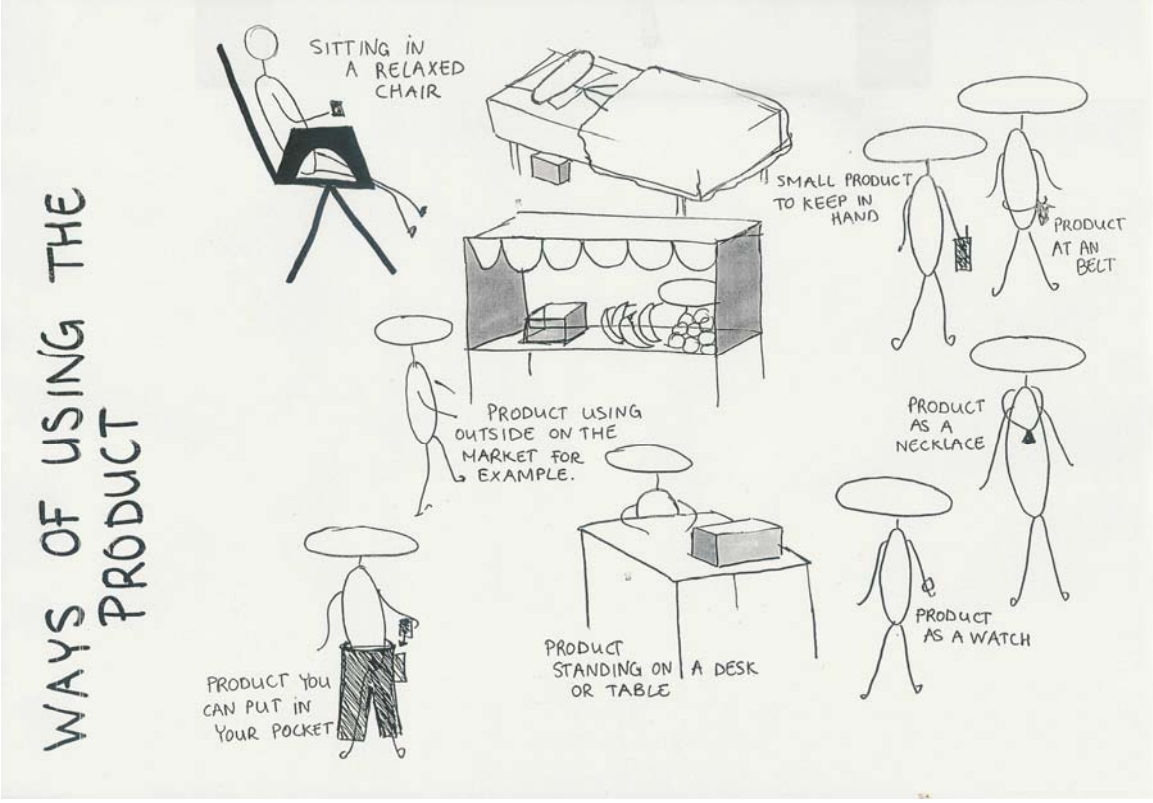


Figure 16: Ways of using the product

8.8 Design process

A part of the design process. These drawings are based on the idea “PDA” designed for children. Children must find the product attractive; otherwise they will not use it.

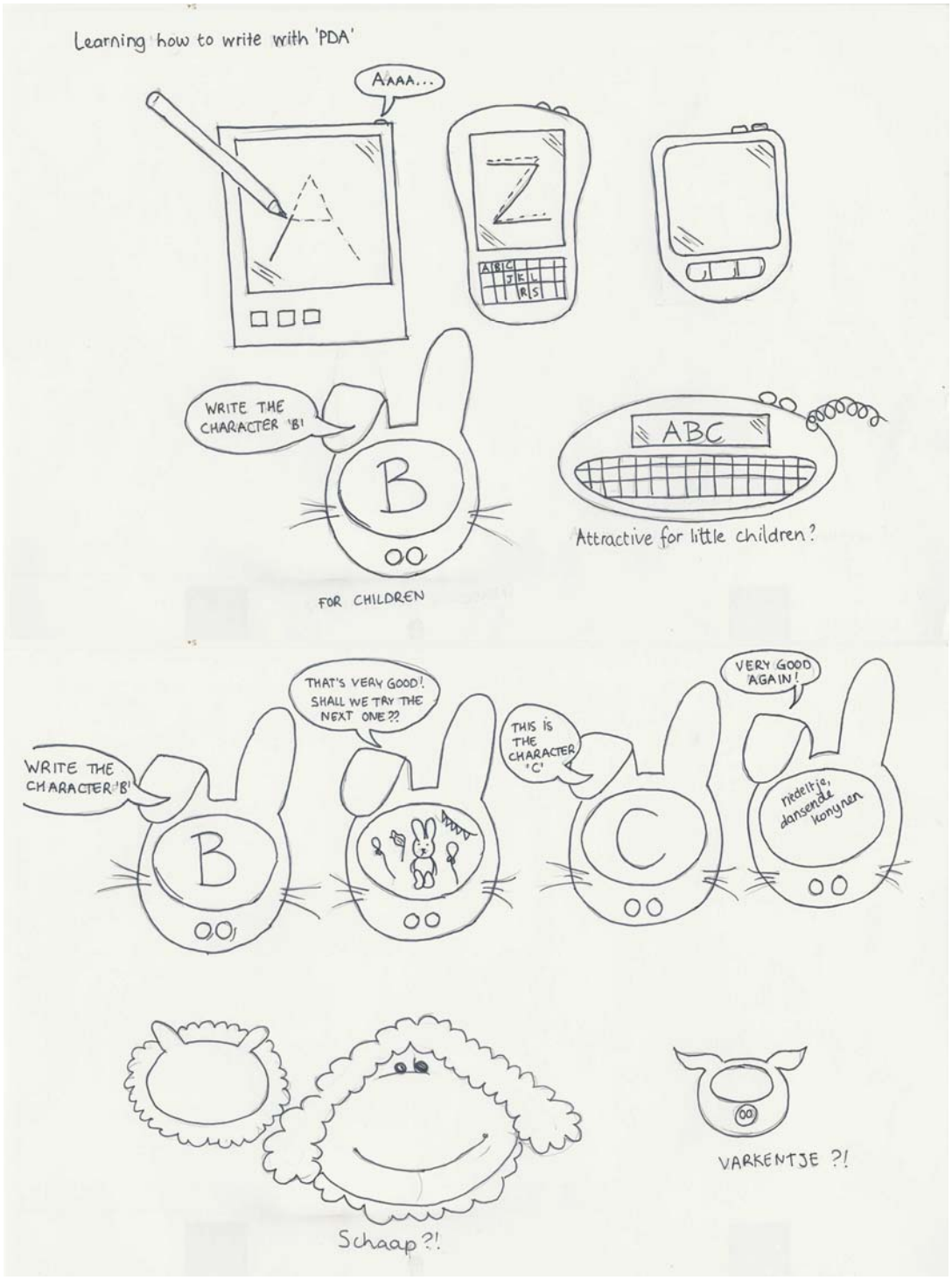


Figure 17: sort of PDA designed for children

Figure 18 shows the ways the product could be used also by night, without having a light around. The target group has to work during the day. And not always is there

light available. With this light, more activities could be done in the night, so also the mother could go to work during the day for example.

Figure 19 shows some ideas about designing a product working on alternative energy. In this case a mobile phone. Alternative energy could be the reason why the target group would buy the product. So they do not also have to pay the energy bill.

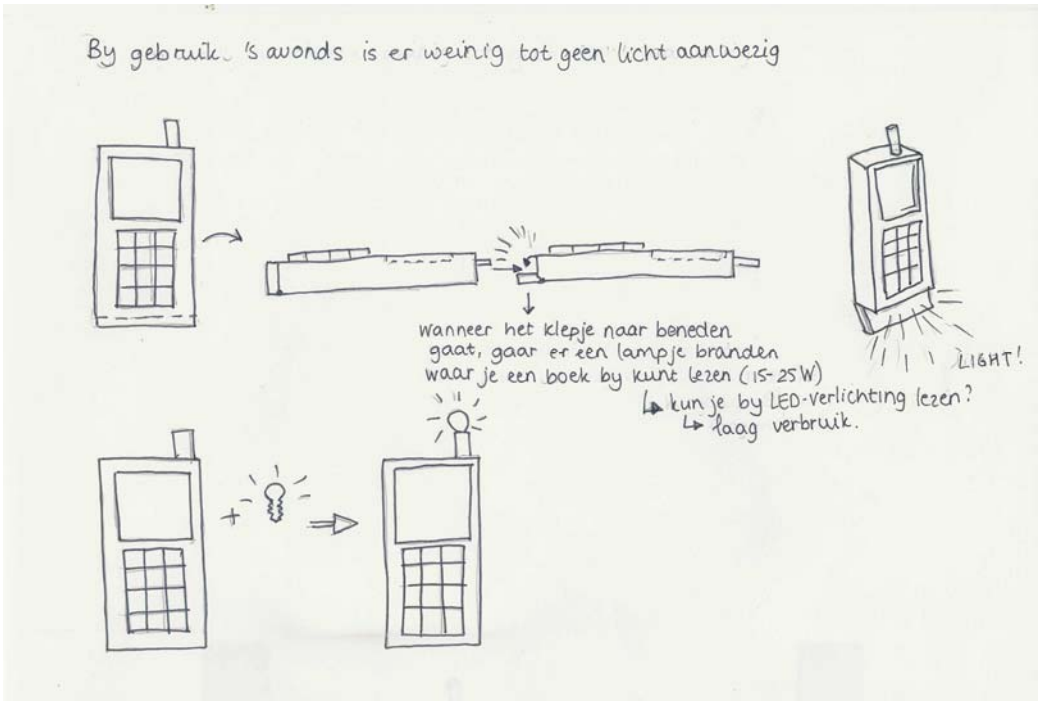


Figure 18: Light in the product for usage by night

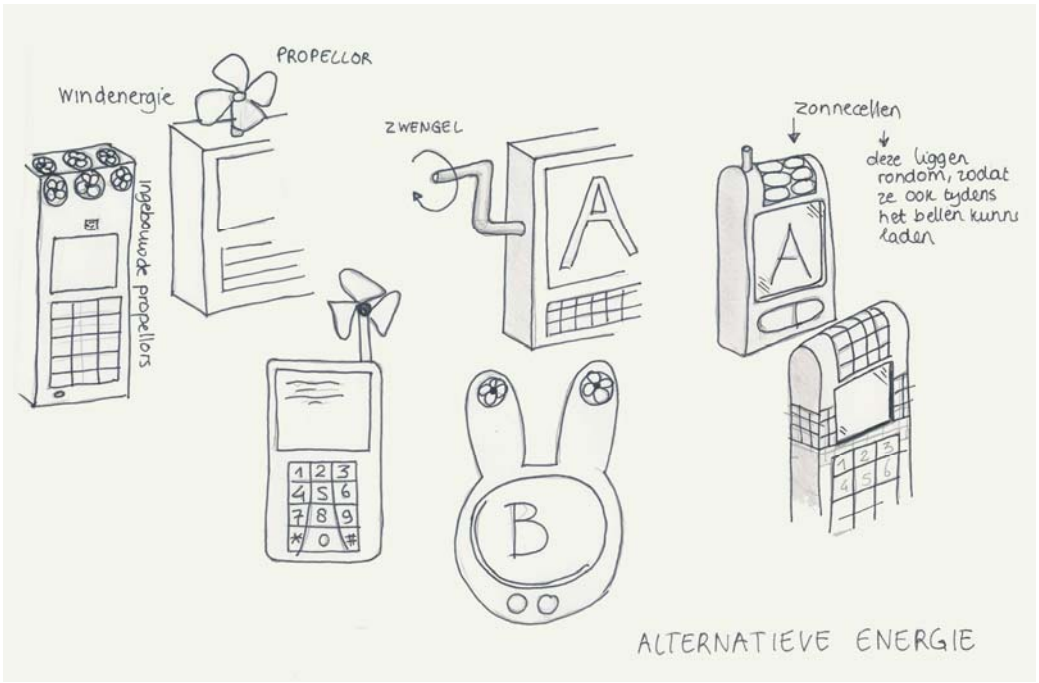


Figure 19: Ideas for products using alternative energy

8.9 Concepts

In this paragraph, a couple of concepts will be discussed. These concepts are just the concepts and nothing for the design. The concepts are just for Philips to can get an idea about the solution direction.

So the concepts are just ideas, and whether an idea would be possible, the designs can follow easily.

8.9.1 Concept 1: Mobile Phone

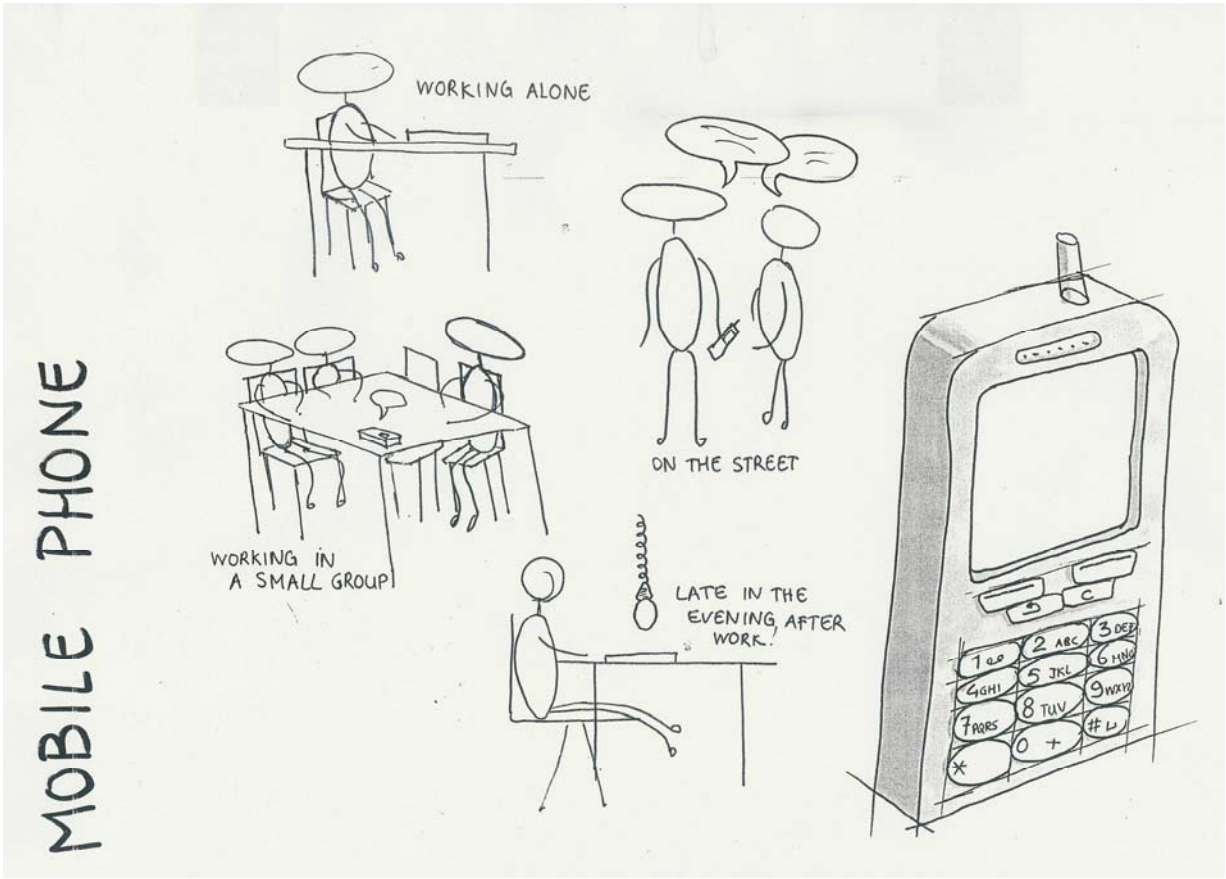


Figure 20: Mobile phone

This mobile phone can give education in cooperation with a package with a book and the SIM-card. The way it works:

1. You have to buy the low-cost mobile phone from Philips.
2. You also have to buy the package with the book and the SIM-card, which has been developed for this education project.
3. With these things you can call a special number, tell the number where you are in the book and you can start the education.

Calling this number is very cheap for the user. Maybe it will be less than $0,01; that could be a nice subsidy from a company or NGO. These very low costs for calling are possible because of calling on the same network. Those costs are almost negligible.

So, for the user it is only the costs of the mobile phone, the package and some cost for electricity when the battery of the mobile phone is low.

The benefits of the concept:

- The user can use the mobile phone for education whenever he wants. He can work during the day and get the education in the evening for example.
- The user can also use the product for communication, so it has got a double function
- Philips will sell much more low-cost mobile phones, if the people see they can do much more with this phone then with any other one.
- The user can use the product alone, but with the speaker it is also possible to use it in small groups. When you will use it in small groups, you can reduce the costs by two people buying a book and the third one buying the mobile phone.

The disadvantages of the concept:

- The mobile phone needs electricity ones in a time. So the user must have access to an electricity point.
- In India not every place can reach the mobile phone network. You cannot use it everywhere. Nevertheless there are a lot of places you can use it.
- The education will take place alone or in small groups, little children could feel ruled out from the other children who can go to school.

8.9.2 Concept 2: Simple PDA

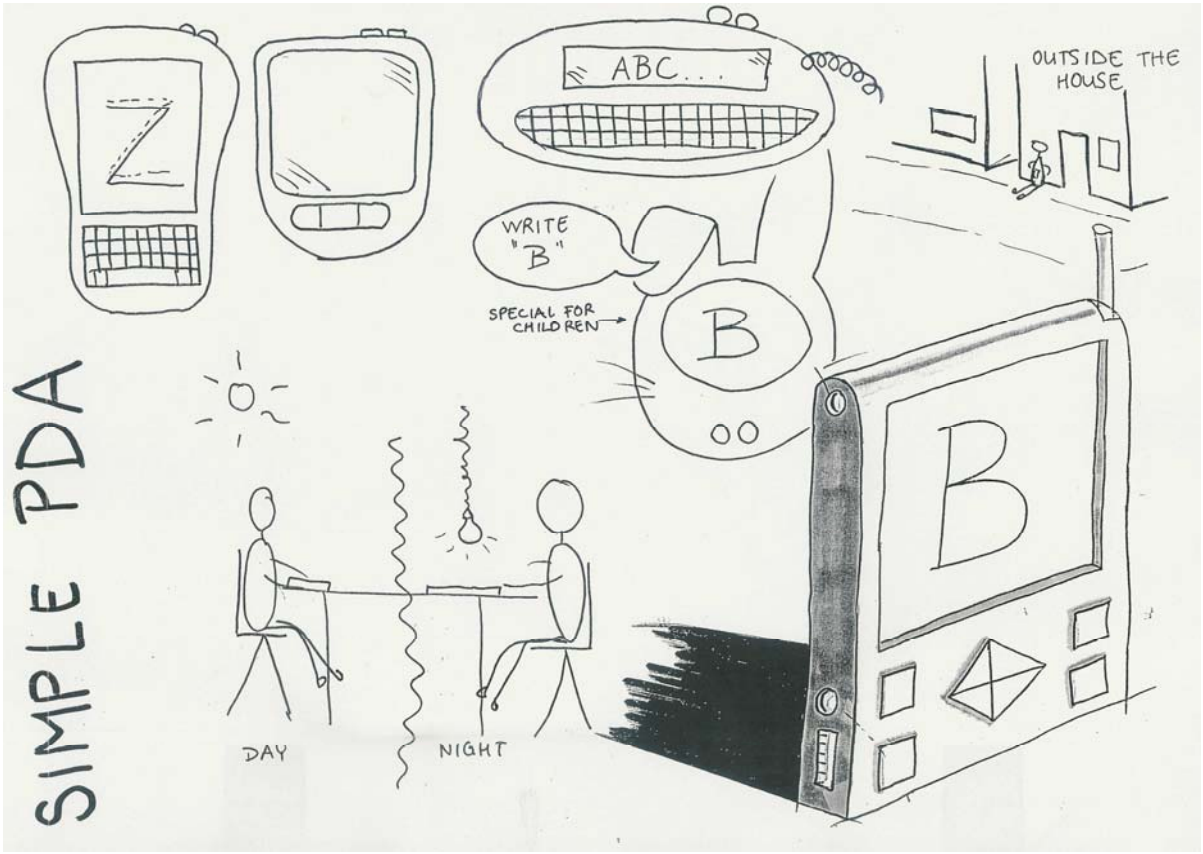


Figure 21: Simple PDA

With the Simple PDA, it is possible to learn how to write. The product has a touch screen you can write on with a special pen, also included.
Next to that, there is an USB-port, so a keyboard can put to the PDA. This gives the opportunity to get new words and sentences in the PDA, so you can practice more.

The alphabet is already programmed. So you can use it right away. The way of working:

1. First you can practice with the characters of the alphabet. They are on the screen and you have to follow the lines, when the PDA says what kind of character it is.
2. The PDA says which character you have to draw. It is not on the screen anymore. If it is right, you will pass to the next one.
3. After the characters practicing, it is possible to do it with all kinds of different combinations: words, sentences, etc.

The product does not need an Internet network to work. In the first place it will be a unit just for the practicing, and not used for communication. The communication part could be a recommendation to the whole design.

Benefits of the concept:

- Everybody can learn how to write; it will decrease the illiterate-number of India, which is far too high at this moment.
- The product can be used alone, so you can be concentrated very well.

- It is possible to use it in a group, than you also need a blackboard or paper to practice on.

The disadvantages of the concept:
- The use of the product is especially meant for working alone. It is not quite a group-product; something, which could work negatively by purchase.
- The product needs electricity, just like the mobile phone. So the product can only be used in areas where there is electricity sometimes.

8.9.3 Concept 3: Talking book

Figure 22: Talking book

The talking book can give the user education. The book tells at every page what is happening there and gives instruction about the assignments and the text written at that page. The way it works:

1. The user opens the book and the book will start to talk about the page.
2. He read the page and will make the assignments.
3. He turns over the page, and the book will start with the next page over again, just like the first page.

The product does not need an Internet network to work; all the speaking is programmed before. It is also not possible to put the product on a network, so it is only for use in this kind of way.

The benefits of the concept:

- It is easy in use. You do not need another product before you can use the product.
- The book gives the instruction, so you do not need somebody to help you.
- If you have finished the book, you can buy a new one, so everybody can get education at his own level.
- The product is working on batteries, so you do not need access to electricity to be able to use it.

The disadvantages of the concept:

- One person can only use the book. In a group it is not working.
- When the user will make the assignments in the book, after use it will be quite worthless. Unless the assignments can be made at a different piece of paper or blackboard.
- The battery has a specific life span, so the book can only be used during this life span. Unless it would be possible to recharge or replace the battery.

8.9.4 Concept 4: Web cam

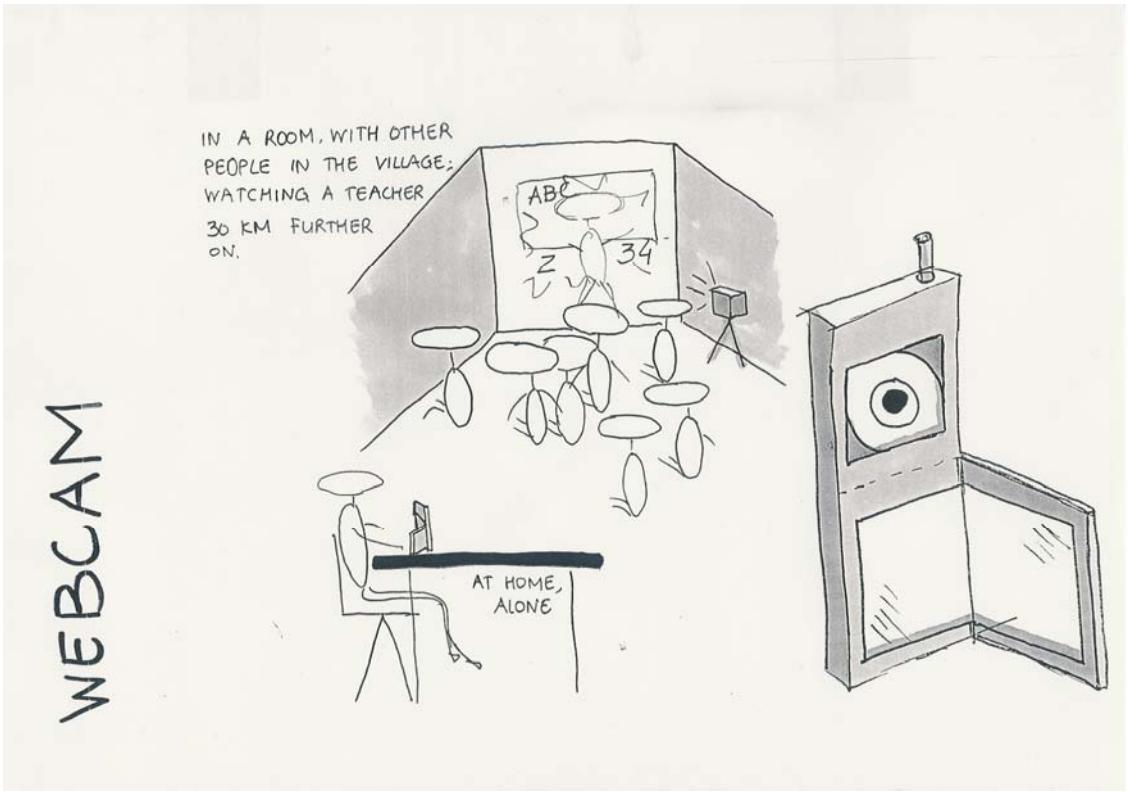


Figure 23: Web cam

The web cam in this concept is a little bit different from the ones there are on the market now. This web cam can send and receive information with another web cam from the same type without a computer connected to it. So that makes it possible for somebody to sit at home and look in a classroom 30 km further on, and take the same lessons.

The way it works:

1. There is a web cam in the classroom and the user(s) have one at their site too.
2. The web cam in the classroom shows what is happening there. This information will be send to the other web cam of the user.
3. The user can see what is happening in the classroom by the little screen on his web cam.
4. If the users are in a big group, it is also possible to project the information out of the web cam to a big screen.

The benefits of the concept:

- Education can be given at a long distance.
- It is possible to take the lessons alone, in your own place.
- It is possible to take the lessons in a group, so if you do not understand something, somebody else can help you.
- If the helping person cannot help you, it is also possible to send a question with the web cam to the teacher in the classroom.

The disadvantages of the concept:

- You can only check the lessons at the same time they are given.

8.10 Comparison Concepts

To check out which concept would be the best, it is important to compare the different concepts with each other on the base of the requirements formulated in the beginning. The bold requirements count double, they are more important then the others.

	Mobile Phone	**Simple PDA**	**Talking book**	**Web cam**
Cost (max $25 per person)	++	--	--	++ (if used for a group)
All sort of education	+	-	-	+
Alone?	+	+	+	+
Group?	+	-	-	+
Communication	++	+	--	+
Can be used everywhere	+	+	+	+/-
Sharing?	+	+	+/-	+
Size of the product (90 * 110 * 15)	+	+	-	+/-
Working stand-alone? (No other products needed)	-	+	+	-
Use at any time	++	++	++	--
Alternative Energy?	+	+	-	+
Enough sound for groups?	+	+	-	+
Total	14	10	5,5	10

The concept “Mobile Phone” would be the best concept for the target group. With this concept it is possible to get education and communication. This product is also able to use with alternative energy, although it could be raise the cost for producing. This is a weakness of the product.

The concepts “Simple PDA” and “Web cam” would be the best after the “Mobile Phone”. These concepts are a little bit more expensive to buy, but they can both be bought in a group.

The storyboard of the chosen concept “Mobile Phone” can be found in the Appendix.

8.11 Recycling

Recycling is a very important point when developing new products for India. In India all the garbage of the Western world are let down there. So if this garbage could be used to develop new products of, it would be a great opportunity.

In India the work of many children and adults in the city slums is picking up the useful materials like paper, plastics and copper.
The best way of producing these concepts would be, if it is possible to use some of these materials, like recycling.

For the concepts it is hard to use, because you cannot guarantee the quality when the materials keeps changing. For the eventual books it could be useful. Like when you print the questions on sheet, which could be projected on an empty page. This costs the user only the empty pages, and after he has used it, he can sell the sheets to somebody else.

The sheets can be made easily of little plastic bags in combination with some other chemical materials.

For the PDA or the mobile phone it is perhaps possible to use garbage-materials. Plastics can be melt and used for spray-casting housing of the products. These kinds of thoughts should be checked in future researches.

8.12 Feedback

After the brainstorming and concept generation, feedback from people who know a lot about the target group was very welcome. So, people who replied with the interviews were asked to give their opinion about some concepts.

The questions asked:

- Is an electronic product which can teach the target group how to write, read and calculate a possible solution for them?
- Would the target group see this problem, and would they see that if they spend a little money for it, their life would get better?
- Would the target group buy a kind of product if it had a maximum price of Rs. 1000 ($25)
- Would the target group like to help developing a kind of product, by distributing of promoting it?

Some ideas I have:
- Cheap computer where you can learn the alphabet with and later you can learn how to right words and sentences.
- Mobile phone which give you the instruction how to learn lessons with a book. This is possible for writing, reading, calculating, and etcetera.
- learning lessons by listening to a Discman.
- .... ?

The persons asked found it very hard to say something about the concepts. The concepts do suffice to the requirements earlier in this report, so that is not the problem. The major problem is: will it all work out? The product can be made for $25, but will the target group see that they need this product?

I think the concepts are in the way the research was done. The target group needs something to get education with, if they want to get a better life. With better education they can get better jobs and they can earn more money to live of, which makes their life better. The concepts themselves would be a solution for there people, although it is very important to introduce the products in the right way. Not for Philips getting better, so the poor people become worse in their living. The people must understand that it is all for them, and that Philips wants the people getting a better life. This could mean not much profit for Philips in the first couple of years. But when the people get a better life, and they know Philips who did that for them, they will buy more Philips-products.

The costs for the products may be a little bit high, except that the costs could be reduced with new technologies or a very large production. Perhaps it is possible to get some parts of the products sponsored by companies or foundations.

9. Business model

What type of product?	A product with simple electronics that could fit in the Philips portfolio
Promotion	Promotion will be with - Billboards - The target group. Philips gives a group of people the product; the group will use it in public, trying to get the rest of the population curious and possible costumers. - The transport of the products. Philips will sponsor the vehicles used for the transport.
Distribution	The distribution will take place with a group of people. Trucks from the factory to a distribution centre will distribute the product. From this moment, village people will take care of the products. They will transport it by special bikes or a special sponsored vehicle with also advertisement of the product.
Sales	The product will be sold in different places: - On the street: the group of people who are doing the promotion can sell the product too. Just like the people who are doing the distribution. - And for the customer it is possible to buy the product in normal shops or markets, where they come for the daily purchases.
Costs	The costs will be very high in the beginning. This is because of all the development cost, starting the promotion, etcetera. The market in India is very huge, so if there are a lot of customers, the cost can be reduced, which make it even more attractive for the population to buy the product.

Conclusion

The conclusion of this research will be that the market at the Bottom of the Pyramid in India would be a great opportunity for Philips. There are a lot of products in India available: the same kind as in the first world countries, actually. The only problem: the costs of those products are also the same as in the first world countries, so not affordable for the target group.

Two of the major problems in India are education and communication. Communication is more the feeling of having contact with the rest of the world. Education on the other hand will help the people getting smarter and finally getting a better life.

If Philips wants to invest in this market and will be able to develop a product with the same quality and service, but only cheaper; the market is waiting...
The target group will not be the problem; they would like to have more (luxury) products; status is very important in India. There are some products and services developed for the target group, like public computers with Internet and cheap telephone calls. Products like these are well used in India; people can have contact with their family again, can get the (real) prices of the products they cultivate, and they can get more information for a person who is ill for example. But there is also a group which do not see the need of a product which could make their life better.

There are two different kinds of poor people in India: people who find status very important and people who want to have food and drinking water. The main target group will be the people with only money left for food. For them it would be hard to save some money so they are able to buy a product like the concepts. Philips can bring a product on the market, but they also need to convince the people they need that kind of products.

After the market research, a brainstorm session has started, with at the end four concepts of possible products for India:

- Mobile phone, you can call a special number with and get education: writing, calculating and reading.
- Simple PDA, you can use for learning how to write.
- Talking book, which tells you what is written in the book at every page. Most of the education is possible.
- Web cam, you can look, alone or in a group, for the lessons given at the same time, a long distance further on.

From the four concepts developed for after the research, the concept “Mobile Phone” has been chosen. First of all, the concept can be used for education and communication, one of the things that came out of the interviews as important and needed.

By using this mobile phone in a group, it is also possible to buy it with the group and use it at the same time together.

Recommendations

In the future more market research will be needed before Philips can enter the market in India. This research can be used as a guideline, and perhaps most of the conclusions can also be used. But one of the biggest problems by entering the market in India is the main difference between the different regions. There is a very huge difference between the north and the south for example. If Philips wants to enter the market in India after this assignment, it would be the best to choose a region and develop a product especially for these people.
This research is more general, based on all the people in India.

Next to that, another research for human power or other alternative energy is needed. A big part of India, especially the regions where the target group lives, does not have electricity the whole day. So alternative energy working also if there is no electricity available could be stimulation for the user to buy the product.

Second recommendation: search for possibilities to recycle garbage from the streets. Maybe there are more ways of using it: the streets will be cleaner and there is no need for more material.

And is would be better if the product for India can developed and produced cheaper than the $25 said in this research.

And the last recommendation: go and see what the life is like in India. It is very hard to imagine how the life is in India, if you are used to the life in a first world country. Especially to identify what they would need and how they have to be convinced that the product will make their life better.

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List of explanations

B BoP	Bottom of the pyramid; the 4 billion poorest people in the world living under the poverty line of $1,50 a day.
C CE	Consumer Electronics, a department of Philips.
H HLL	Hindustan Lever Ltd. Company in India from Unilever.
M MNC MDG	Multinational Corporation Millennium Development Goal
N NGO	Non Governmental Organisation, an organisation not sponsored by the government
P P & G PDA	Procter and Gamble Personal Digital Assistant, a very small computer used for work, route planner, diary and for Internet
Philips	Company, the research has been done for
R Rs.	Rupee, the currency in India
U Unilever	Company from the Netherlands, making products of food, hygiene and personal care.
W Web cam	A web cam can be used together with a computer. It is like a small film camera. The movies will be sending right away to the Internet.

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Interview

I am a student of the study Industrial Design in the Netherlands. In this study I have to do an assignment for a research of products in India. This research contains especially the need of (luxurious) products for people with a low income. Poor people in India do probably not have much money to spend on luxurious products, so it is my job to design a cheap product with the same facilities, which can help the people in their living.

To make the right decisions in this research, I would like to read the experiences of people who know a lot about the life of the people in India. This interview will help me with it, so I would like to ask you, if you could fill in this form and send it back to me.

The interview can be sent to:
irenerijkeboer@gmail.com

Thanks for your help!

1. In which way do people with a low income (maximum of 500 Rupee a day) make their money?

_____

2. How do these people live?

_____

3. Do these people, with a low income, have money to spend on (luxurious) products like a television or a radio?

_____

4. What kind of luxurious products do they already have? When and where do they use these? At home, or at work, or ….

_____

5. Is there a need for another luxurious product? And what kind of product should that be?

_____
_____
_____

6. What do you think is the biggest problem of people with a low income?

_____
_____

7. If these people have more money to spend, what will they buy first?

_____
_____

8. What are the main priorities for people in India?

_____
_____

9. Do you have an idea what kind of product should be developed for the poor people in India?

_____
_____

10. Do you know other people I can approach for information?

_____
_____

Comments:

_____
_____
_____
_____

Results of the interviews

	Totaal:	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27
Luxurious products they already have (4):																												
Scooter	1	x																										
Mixer / grinder	1			x																								
Mobile phone	4															x	x				x							x
Internetcafe	1				x																							
Television	11						x			x		x	x	x				x	x	x		x					x	x
Radio	12						x			x	x		x	x				x	x	x				x	x		x	x
Fan	1											x																
Refrigerator	3						x													x								x
Washing machine	1																			x								
Cooking stove	2						x																					x
Electricity	1						x																					
Gold, silver	3								x	x			x															
Expensive clothing	2								x	x																		
Cosmetics	2											x										x						
Bicycle	3													x			x								x			
None	5		x			x		x										x					x					

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27
Solution direction (5):																												
Mobile phone, Communication	4					x			x													x		x	x			
Transport	5			x		x			x																		x	x
Clean drinking water	4							x								x									x	x		
Food	3			x				x																		x		
Health	1			x																								
Oven	1																		x									
Refrigerator	2											x																x

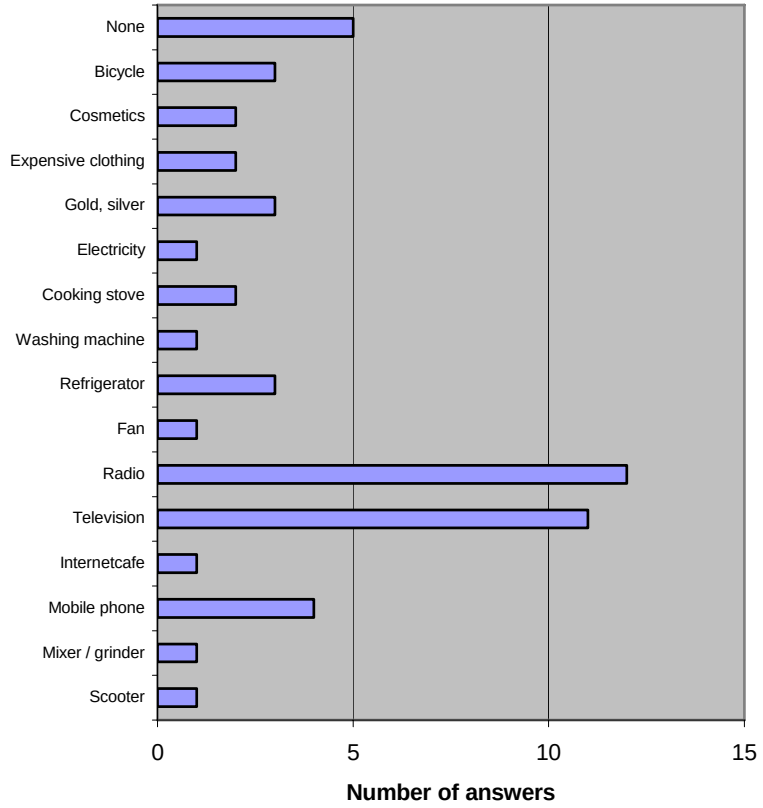
House, shelter	2					x									x													
Tv, radio, informationsysteem, etc	3					x											x						x	x			
Western products	3		x							x						x											
Statussymbols	2								x												x						
Nothing	3	x			x																	x					
Same products, only cheaper	1																		x								

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27
Biggest problems (6):																												
Survive	3	x																				x	x					
Money goes to alcohol	2								x																x			
Mobility	1							x																				
Shelter / housing	3							x				x																x
(Mal) nutrition	5							x				x						x			x	x						
Clean drinking water	3							x													x				x			
Classes	3							x						x								x						
Education	6	x		x			x							x											x		x	
Healthy, aids	8	x		x			x					x							x		x	x				x		
Low income, no employment	11			x	x	x	x						x			x			x					x	x	x	x	
Working in bad conditions	1				x																							
Egoism in higher classes	1		x																									
No money for saving	2								x											x								
To get out of poverty	1									x																		
Debts	2												x		x													

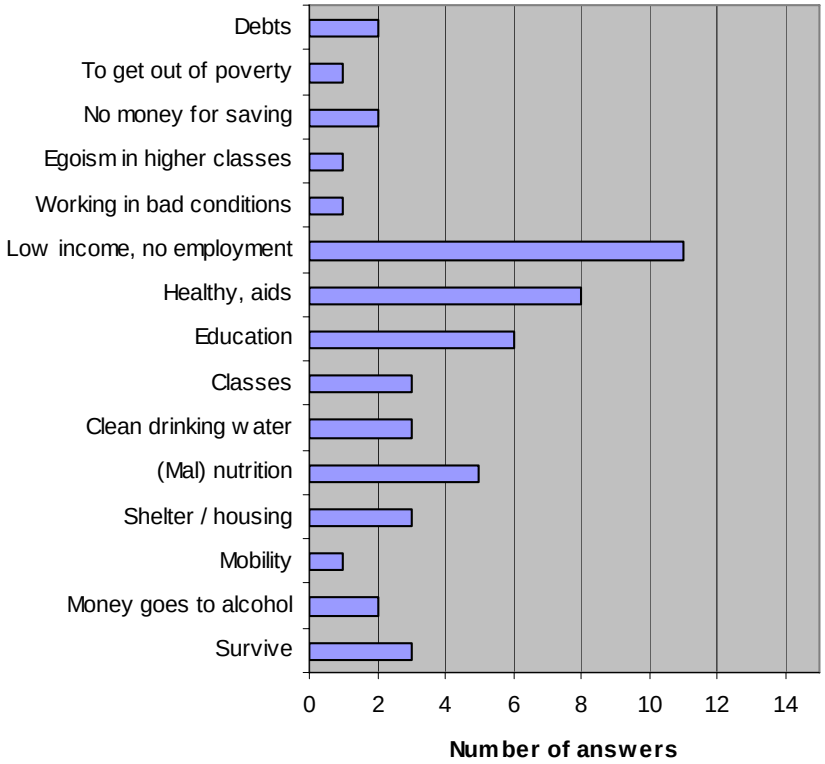
What would people buy? (7)?		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27
Radio / television	7					x	x					x		x			x								x		x	
Nutrition	9		x	x				x				x			x	x					x		x	x				
Clean drinking water	3			x				x													x							
School stuff for the kids	1			x																								
Housing / shelter	10				x			x				x	x	x	x				x		x	x	x					

Mobile phone	3					x											x										x	
Kids going to school	1												x															
Clothing	3													x											x	x		
Ornaments	1																	x										
Different for everybody	1	x																										
Medicines	2																								x	x		
Transport	2																										x	

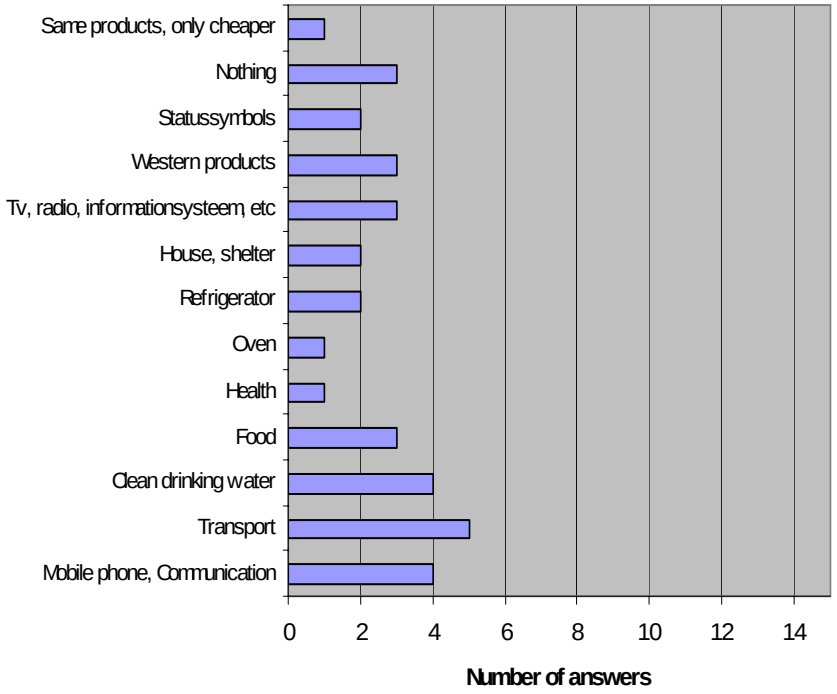
1. Luxurious products they already have



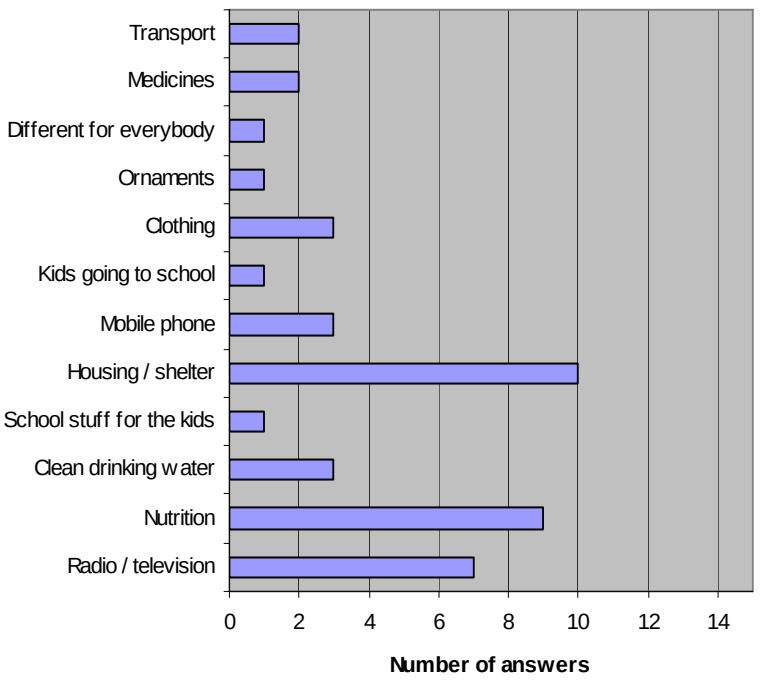
2. Biggest problems



3. Needs



4. What would people buy if there is money?



Results of the interviews in groups

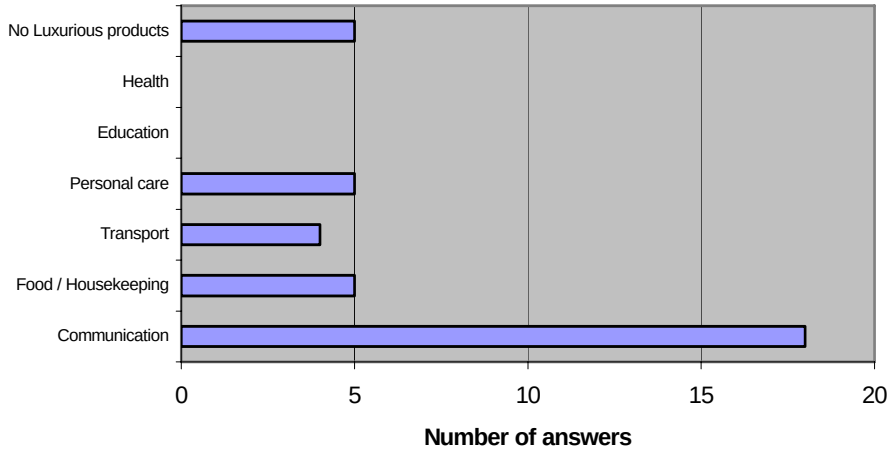
1. Luxurious Products they already have		**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**	**21**	**22**	**23**	**24**	**25**	**26**	**27**
Communication	18				x		x			x	x	x	x	x		x	x	x	x	x	x	x		x	x		x	x
Food / Housekeeping	5			x			x					x								x								x
Transport	4	x												x			x								x			
Personal care	5								x	x		x	x									x						
Education	0																											
Health	0																											
No Luxurious products	5		x			x		x										x					x					

2. Biggest Problems		**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**	**21**	**22**	**23**	**24**	**25**	**26**	**27**
Communication	0																											
Food / Housekeeping	6							x				x						x			x	x			x			
Transport	1							x																				
Personal care	2								x																x			
Education	6	x		x			x							x											x		x	
Health	8	x		x			x					x							x		x	x				x		
Money	18	x		x	x	x	x		x	x			x		x	x			x	x		x	x	x	x	x	x	
Classes	4		x					x						x								x						
Shelter	3							x				x																x

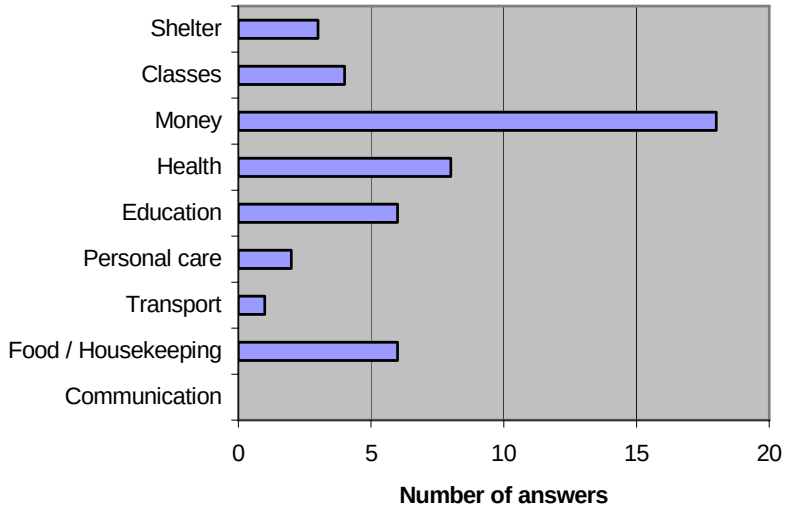
3. Needs		**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**	**21**	**22**	**23**	**24**	**25**	**26**	**27**
Communication	7					x			x									x				x		x	x			x
Food / Housekeeping	8			x				x				x				x			x						x	x		x
Transport	6			x		x																x		x	x		x	
Personal care	5		x							x	x						x					x						
Education	0																											
Health	1			x																								
Shelter	2					x										x												

4. What would people buy if there is money?		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27
Communication	7					x	x					x		x			x								x		x	
Food / Housekeeping	10		x	x				x				x			x	x					x		x	x				x
Transport	2																								x			x
Personal care	4													x				x					x	x				
Education	2			x									x															
Health	2																						x	x				
Shelter	10				x			x				x	x	x	x				x		x	x	x					

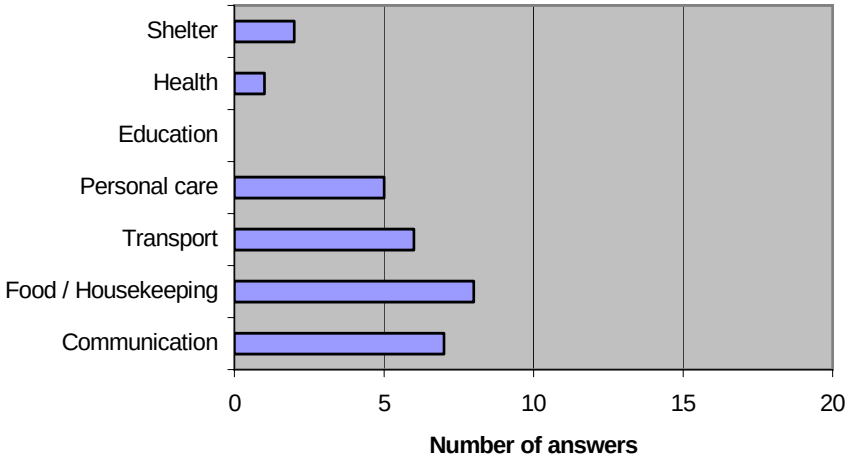
1. Luxurious Products they already have



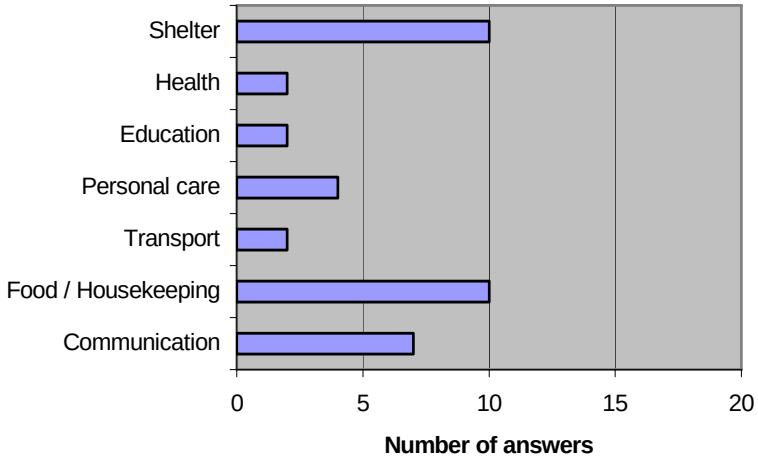
2. Biggest Problems



3. Needs



4. What would people buy if there is money



Brainstorm

Solution direction

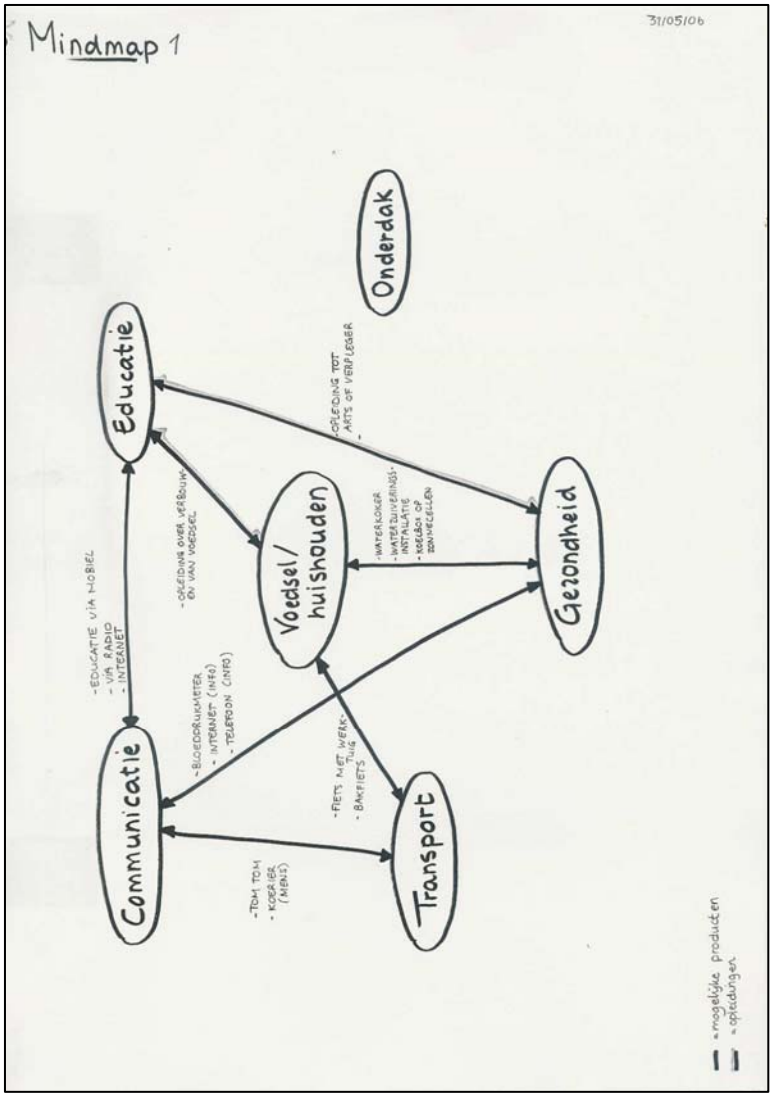
In what way do the people in India live? And what are some problems they have to deal with?

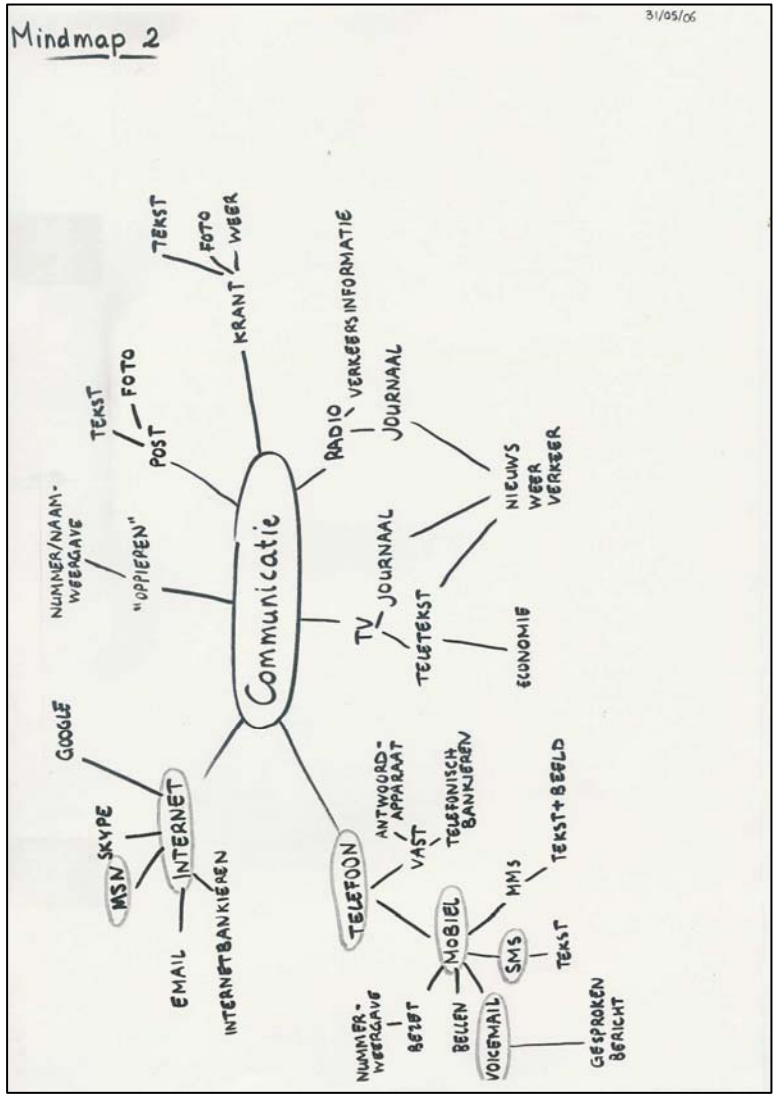
	Education	**Communication**	**Nutrition**	**Health**	**Shelter**	**Transport**
Situations now:	1. A small village where children cannot go to school because the bus to school is too expensive. The children cannot get any education and will keep the same weakness their parents have. 2. Adults cannot get any education to get a better life. Ex.: a doctor has to come from another village for little problems instead of the village people helping themselves with small problems. … (see next page)	1. It cost a lot of time to call a doctor when there is somebody ill. A lot of times it could be too late. 2. The people in the village will hear too late when there is a nature disaster. A lot of people will die. 3. Communication is for most of the people in villages not affordable. The cost of a phone is high and cost for calling is also not affordable.	1. The food cannot be prepared properly. People can get ill and cannot work for a couple of days. 2. The time for cooking is very long. This is expensive time and could be used better for work or study for example. 3. To collect all the food on the land cost a lot of time. Food can be lost which cost money and time. … (see next page)	1. People get ill from food and cannot work for a couple of days. 2. The hard working gets people tired out. 3. Somebody gets very ill, a doctor can only come in 3 days, and the patient could already be dead by then.	1. People living in boxes and plastic. 2. People living at illegal places, when the places have to be used for different objectives, all the people get homeless. 3. People get homeless by nature disasters.	1. An ill patient cannot be transported, help for him will get too late. 2. The transport of fresh products is not available. A lot of there products will get lost. 3. It cost a lot of time when there is not transport available for getting products to the market or collect the products of the land.

	Education	**Communication**	**Nutrition**	**Health**	**Shelter**	
	3. Education is only possible during the day in expensive time. In the evening or night, there is too little light.		4. Cooking can only be done by daylight. The person who cooks cannot do any work in the same time			
Problems:	Children go to school, but when there is too little money, the children have to work for the family again and cannot go to school.	There are TV's and radio's available, only the costs for the using are too high.	Cooking costs a lot of time, time which could be used better. With little money the food does not have all the nutrients they would prefer.	Poor houses, little nutrition and too little knowledge to heal people.	Very much ill people by rain and poor houses.	There is no transport. All the knowledge, food and problems stay in the village and there is no sight on a better life.
Require-ments:	- Basic education and studies for basic needs and better lives. - Easy accessible - Affordable product - Use of very little energy - Attractive for buying	- Easy accessible - Range in the whole country - Affordable - Use of very little energy - Must be able to get contact with - Attractive	- To be able to prepare food in less time - Preparing food with less energy and healthier - Also for use when it is dark - Affordable - Attractive	- Must replace a potential doctor	- People must have a place to stay - Shelter must be equal to rain - Cheap	- Easy in use - Affordable - Using less to no energy (human powered?) - To transport more people or products for a long distance

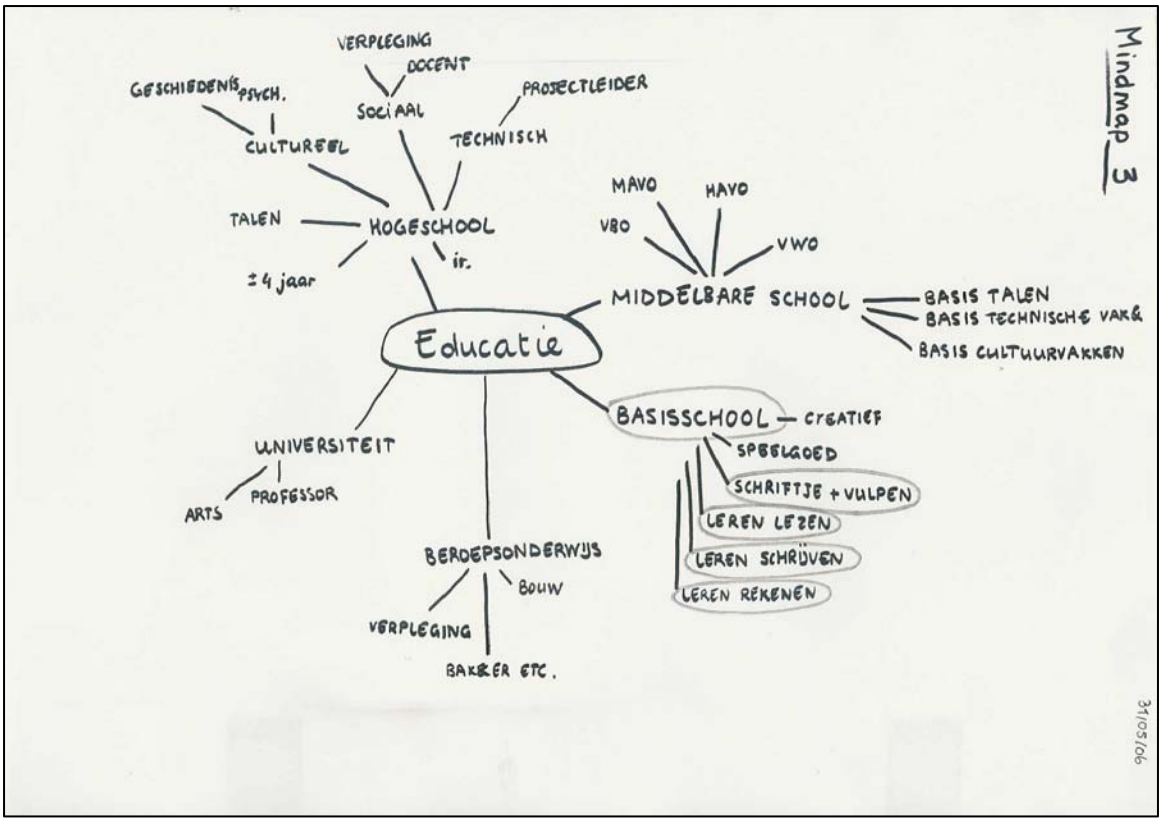
	Education	**Communication**	**Nutrition**	**Health**	**Shelter**	**Transport**
What will happen?	People get smarter, will get better jobs and can buy better food. They are smarter so a higher quality can be reached.	People can be informed for a nature disaster or when there is somebody ill.	Better food, better life. Food can be prepared quicker, so more time left to work for extra money	Better life and more time to work when you are not ill.	Better houses, less ill, less fear for losing your home.	Transport of a patient to a doctor. Products can be transported to the market and city. Quicker evacuation in case of a nature disaster.
Product Ideas:	Mobile phone which can be used for education. Lessons for a group by using a radio	Low cost TV Human powered TV, radio, telephone Communication by radio, asking questions.	Cooker on solar energy, during the day it will recharge. Water boiler on solar energy or human powered	Installation which can clean water into drinking water	Better materials for houses. Parts of the houses made in factories	Bike which recharge a battery by cycling. The battery can be used later for other activities Tools which make working on the land easier and quicker.

Mindmaps


Mindmap 1
31/05/06
Communicatie
Educatie
Onderdak
Voedsel/ huishouden
Gezondheid
Transport
- EDUCATIE VIA MOBIEL
- VIA RADIO
- INTERNET
- BLOEDDRUKMETER
- INTERNET (INFO)
- TELEFOON (INFO)
- OPLEIDING OVER VERBRUIK EN VAN VOEDSEL
- OPLEIDING TOT ARTS OF VERPLEGER
- WATERKOKER
- WATERZUIVERINGS-INSTALLATIE
- KOELKAST OP ZONNECELLEN
- FIETS MET WIEKEN-TUIG
- BAKFIETS
- TOM TOM
- KORTSTE (MOBIEL)
= mogelijke producten
= opleidingen

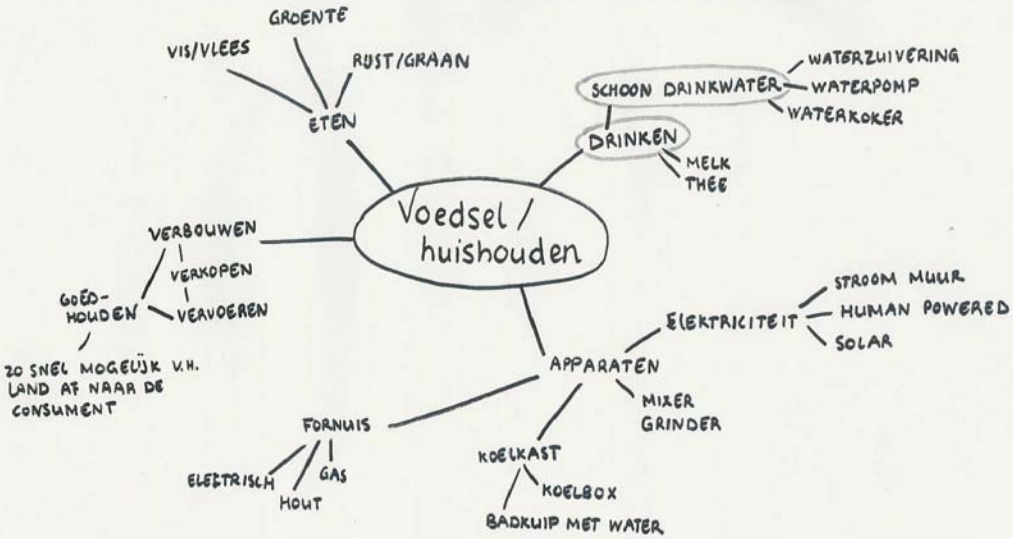

Mindmap 2
31/05/06
Communicatie
INTERNET
GOOGLE
MSN
SKYPE
EMAIL
INTERNETBANKIEREN
NUMMER/NAAM-WEERGAVE
"OPPIEPEN"
TEKST
FOTO
POST
TEKST
FOTO
KRANT
WEER
RADIO
VERKEERSINFORMATIE
JOURNAAL
TV
JOURNAAL
TELETEKST
NIEUWS
WEER
VERKEER
ECONOMIE
TELEFOON
ANTWOORD-APPARAAT
VAST
TELEFONISCH BANKIEREN
NUMMER-WEERGAVE
BERICHT
MOBIEL
BELLEN
VOICEMAIL
SMS
MMS
TEKST
TEKST + BEELD
GESPROKEN BERICHT

Mindmap 3



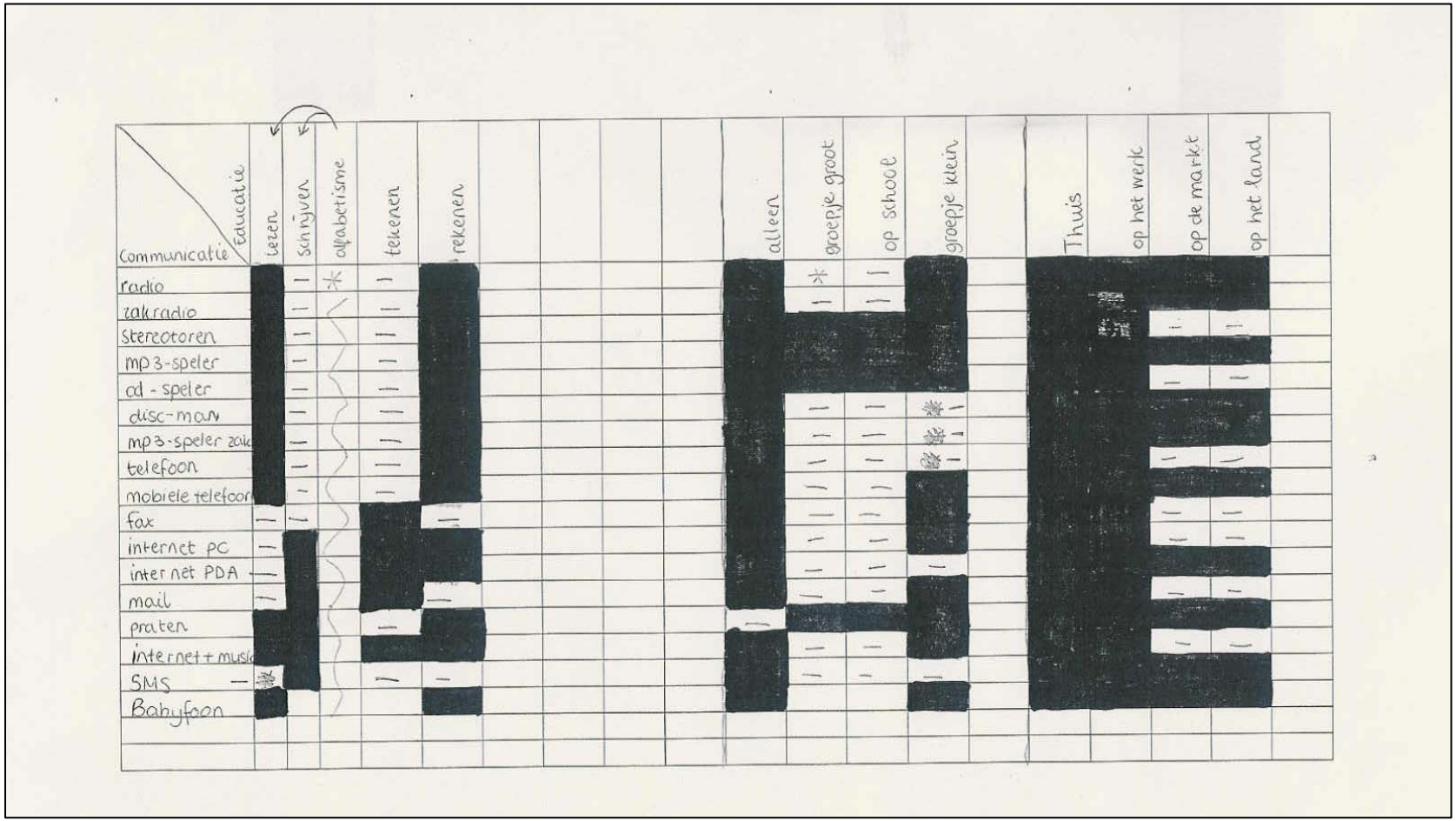
31/05/06

Mindmap 4

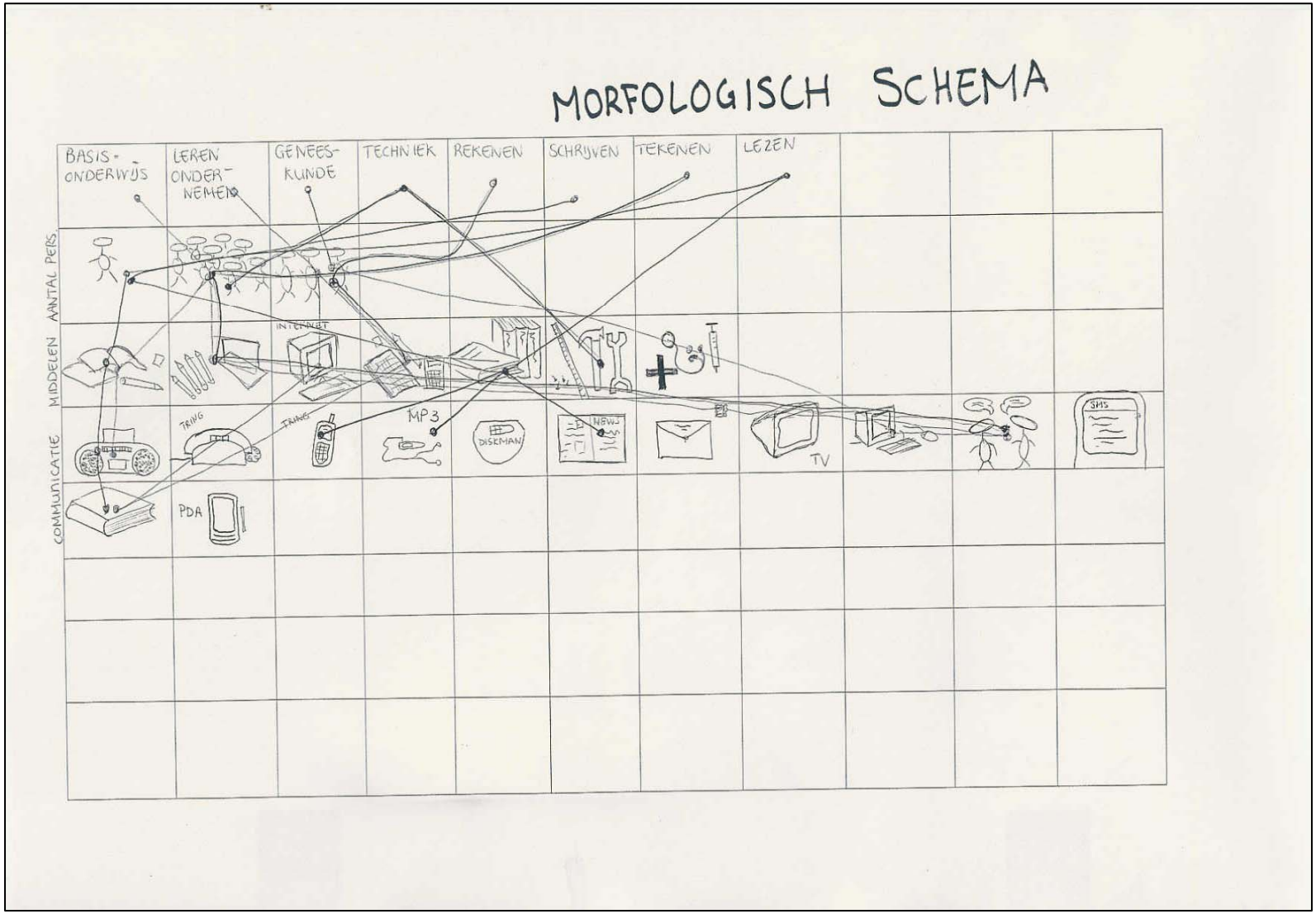


31/05/06

Matrix

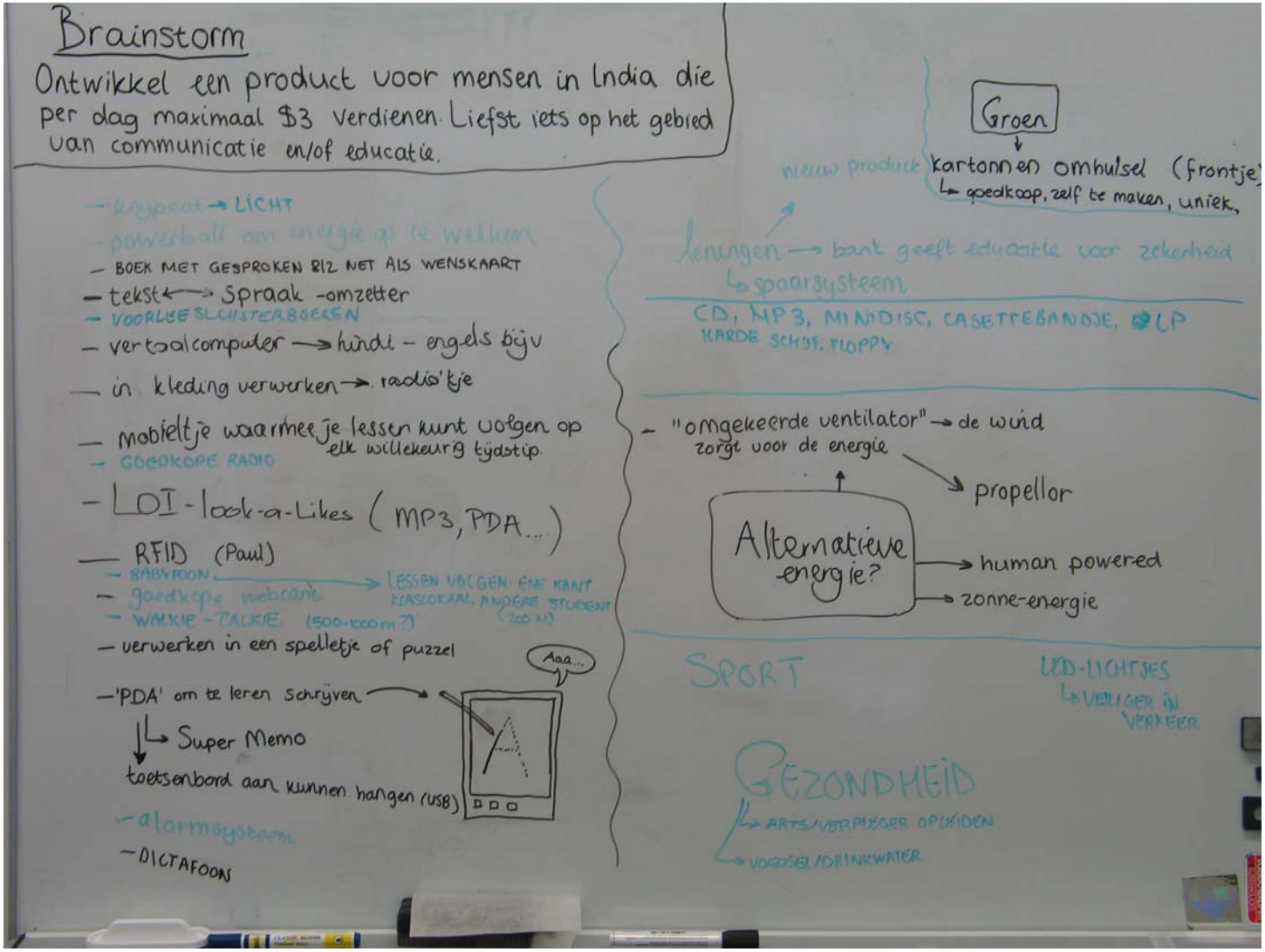

Communicatie
Educatie
lezen
schrijven
alfabetisme
tekenen
rekenen
alleen
groepje groot
op school
groepje klein
Thuis
op het werk
op de markt
op het land
radio
zakradio
stereotoren
mp3-speler
cd-speler
disc-man
mp3-speler zoiets
telefoon
mobiele telefoon
fax
internet PC
internet PDA
mail
praten
internet + muziek
SMS
Babyfoon

Morphologic Scheme



Brainstorm session

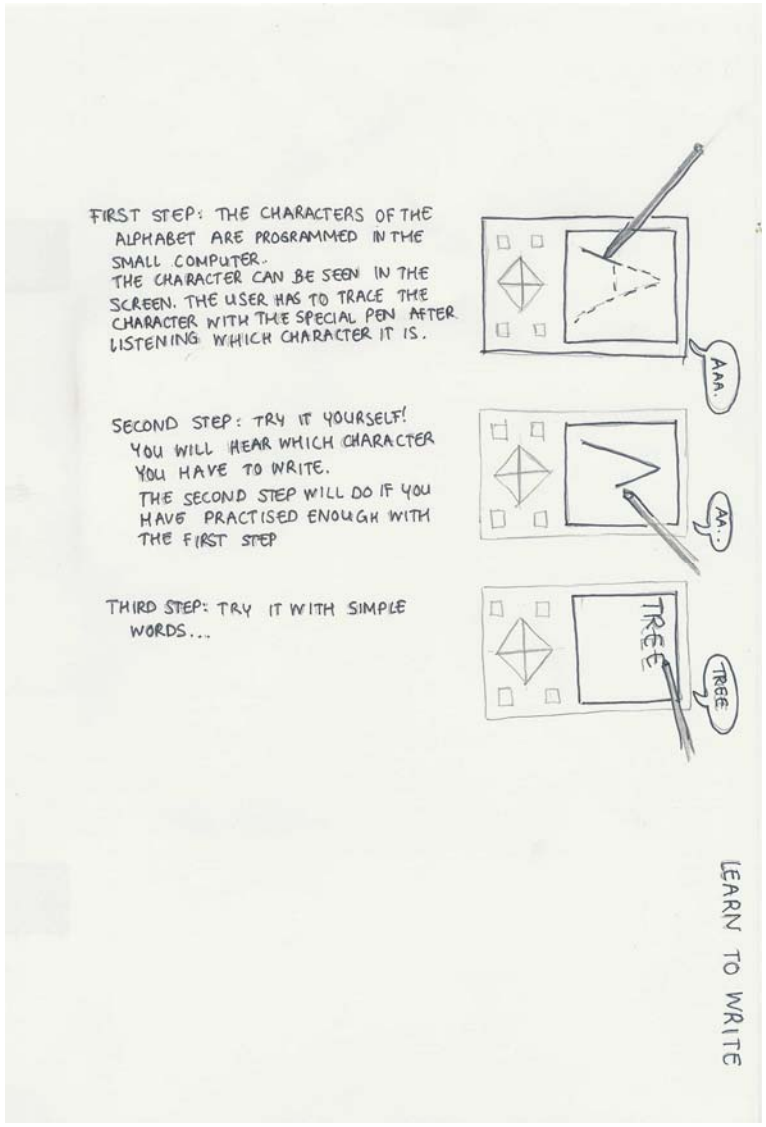
The original picture of the brainstorm with a couple of colleagues in my office:

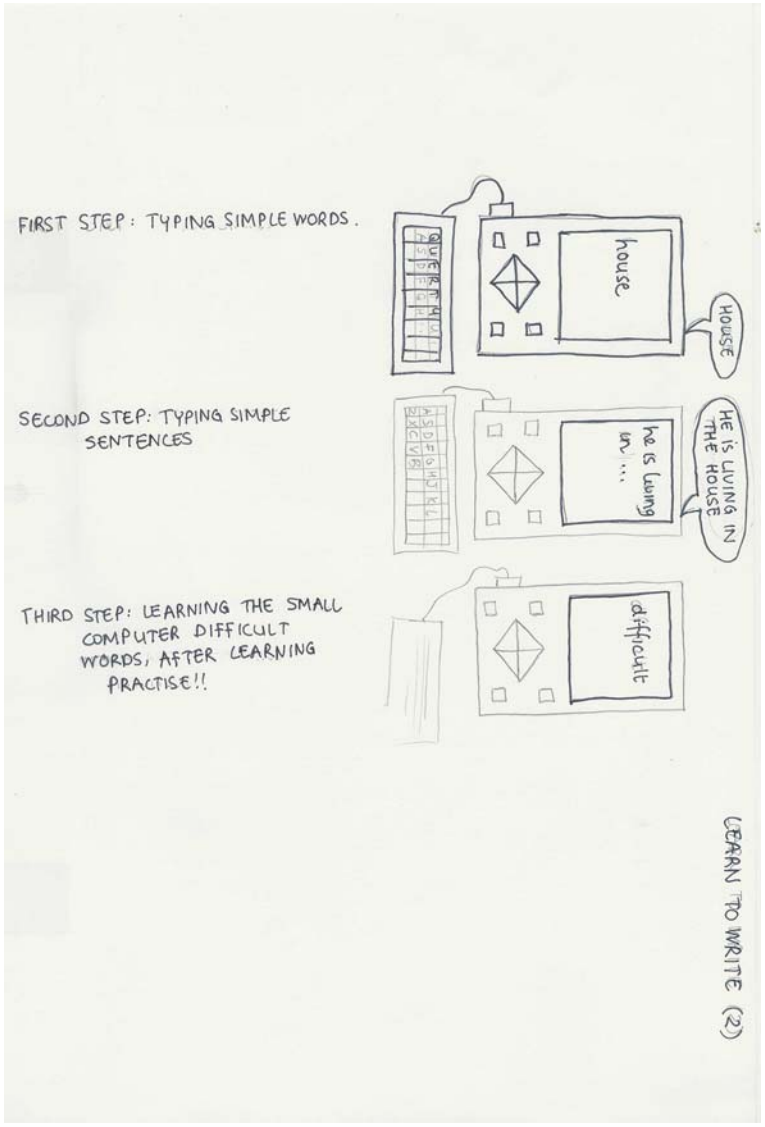


Collage Philips

Collage India

Storyboard (1)





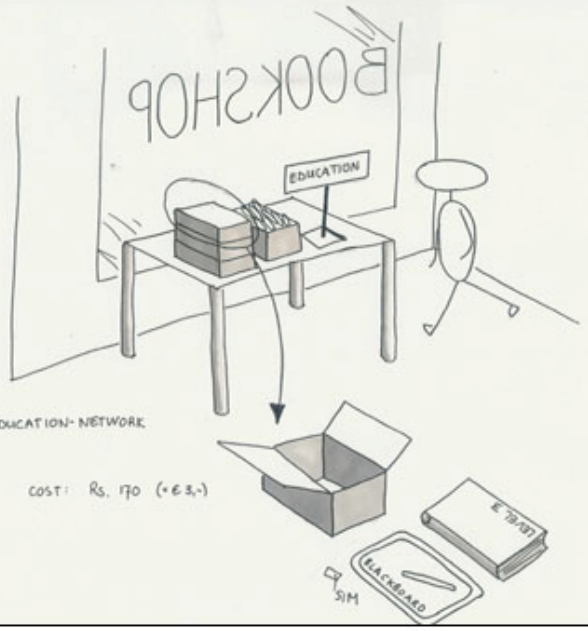
Storyboard (2)

HELLO! I AM PHILIP, AND I LIVE IN INDIA. MY PARENTS ARE NOT VERY RICH, SO I WASN'T ABLE TO GET EDUCATION.

WITH THIS STORYBOARD I AM GOING TO TELL YOU HOW I GOT EDUCATION, HAVING LOW MONEY TO SPEND.

I FIRST NEEDED THE LOW-COST MOBILE PHONE FROM PHILIPS. WITH THIS MOBILE PHONE I COULD COMMUNICATE, BUT IT WAS ALSO POSSIBLE TO GET EDUCATION WITH IT!

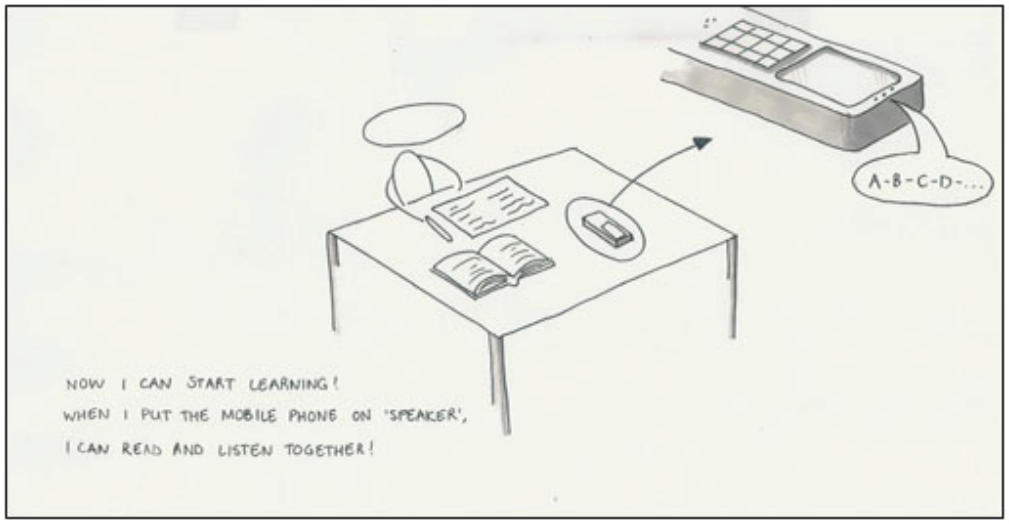
COST: Rs. 999 (= €18,-)



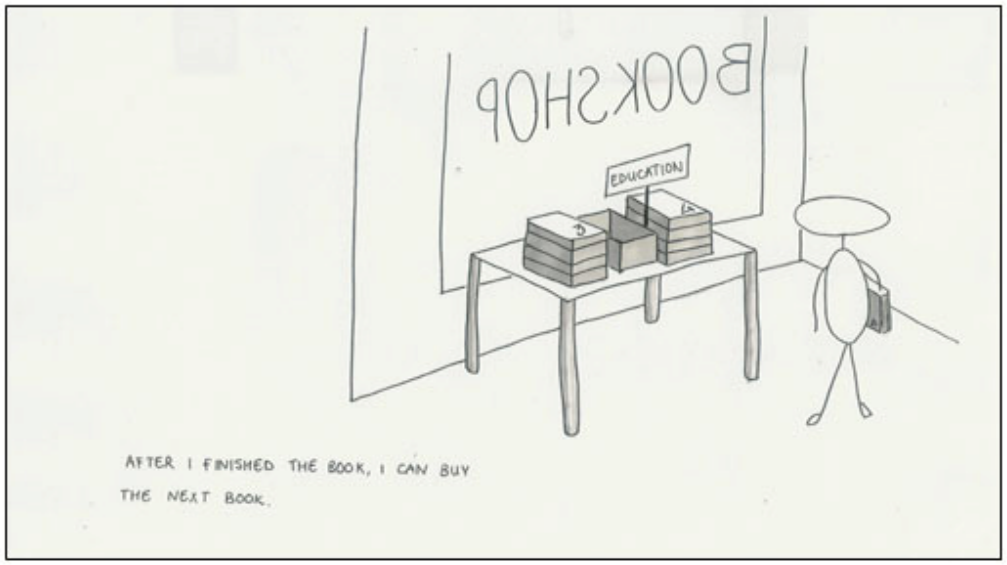
IN THE BOOKSHOP DID I BUY THE PARCEL FOR LEVEL 3.

THE PARCEL CONTAINS: A BOOK, A BLACKBOARD WITH CALC AND A SIM-CARD, TO GET ON THE SPECIAL EDUCATION-NETWORK FOR FREE

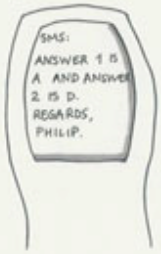
COST: Rs. 170 (= € 3,-)



NOW I CAN START LEARNING!
WHEN I PUT THE MOBILE PHONE ON 'SPEAKER',
I CAN READ AND LISTEN TOGETHER!



AFTER I FINISHED THE BOOK, I CAN BUY
THE NEXT BOOK.

IF I DON'T UNDERSTAND SOMETHING,
I CAN ASK SOMEBODY IN THE VILLAGE
DOING THE SAME LEVEL.

TO CHECK, WHETHER I HAVE UNDERSTOOD
EVERYTHING, I HAVE TO SEND A SMS
WITH THE ANSWERS OF THE EXAM.