

Demand-side research

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QUANTITATIVE VS QUALITATIVE APPROACHES

Quantitative methods	Qualitative methods
Information represented as numerical data, use of statistical methods to estimate population parameters	Non-numerical data that is observed (verbal as well as non-verbal responses/ reactions)
Not necessarily in-depth	In-depth understanding of human behaviour
Primary data collection (surveys) ; secondary data collection (S-side analysis)	Focus group discussions, key informant interviews, ethnographic story-telling, content analysis
Multiple sampling techniques	Purposeful sampling
More generalizable	Less generalizable
More objective: provides observed effects (interpreted by researchers)	More subjective: describes a problem or condition from the point of view of those experiencing it
Deductive process to test pre-specified concepts, constructs, hypotheses that make up a theory	Can also be an inductive process to formulate a theory

Quantitative or qualitative?

- Combination is ideal; timing is crucial
 - E.g. multiple SIM ownership question

	Bangladesh		Pakistan		India		Sri Lanka		Philippines		Thailand	
	2008	2006	2008	2006	2008	2006	2008	2006	2008	2006	2008	
More than 1 SIM	10%	12%	23%	5%	9%	9%	16%	9%	19%	1%	13%	

- Qualitative told us
 - Why
 - How
- policy implications?

Final outcome depends on your objectives and resources



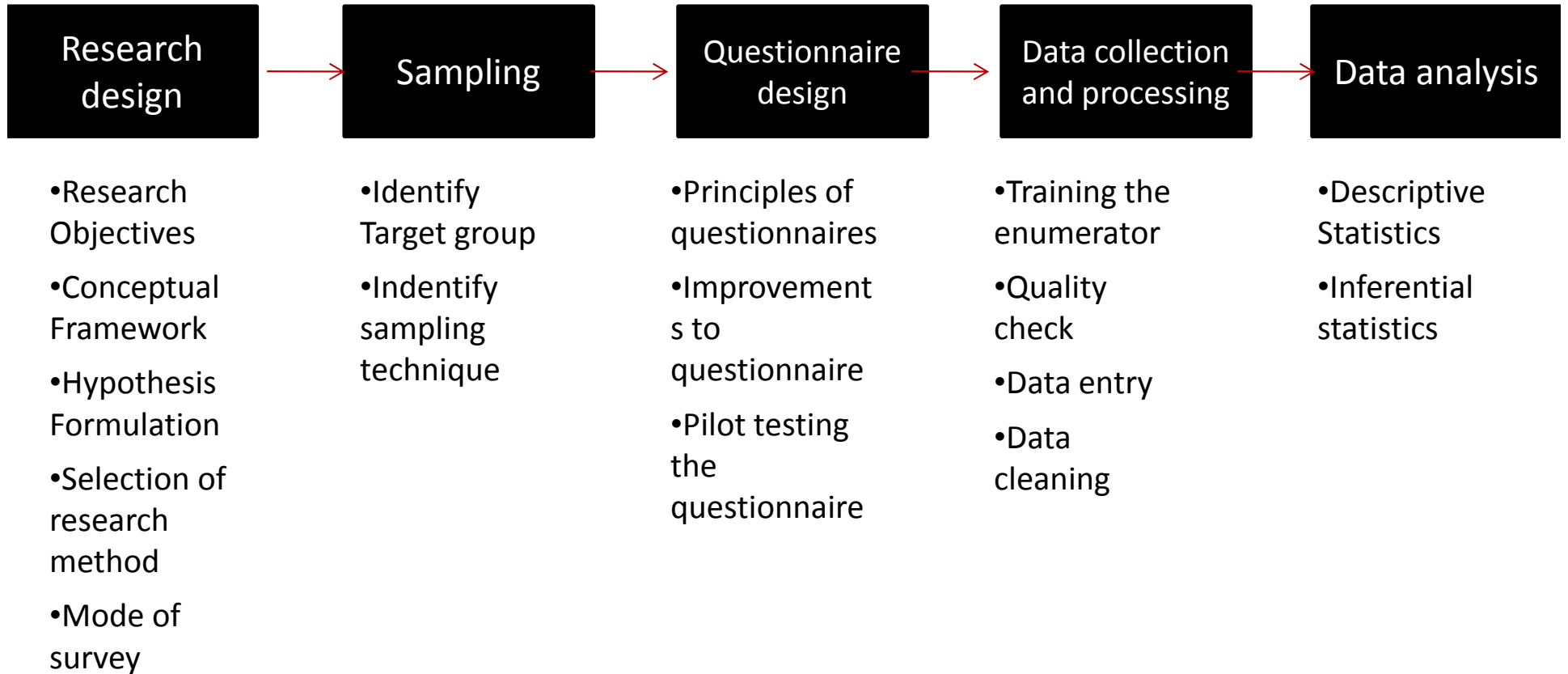
Introduction to

QUANTITATIVE APPROACHES

Teleuse@BOP tries to understand ICT use at the BOP in emerging Asia

- Large surveys of 'BOP' conducted in 2005, 2006, 2008, (2011)
- Almost **20,000 face to face interviews** in **6 countries** since 2005
 - Bangladesh (2008)
 - Pakistan
 - India
 - Sri Lanka
 - Philippines
 - Thailand

Basic steps



Mode of survey depends on research objectives, among other factors

	Cost	Response rate	Researcher bias	Potential misinterpretation	Anonymity/privacy	burden on respondent
F2F	High	Very high	High	Low	None	Low
Phone	Medium	High	Medium	Low	Low	Low
Mail	Low	Low	None	High	High	High
Online	Very Low	Low	None	High	High	Medium

- Other options such as computer-assisted telephone interviews & computer-assisted personal interviews
 - LIRNEasia used (quantitative) diary approach to explore call patterns at the BOP

Hypothesis: “women use the phone more for social purposes than men”

- Use patterns
 - Phone bills?
 - Questionnaire?
 - Capture at point of usage? → diary

PLEASE FOLLOW THE FOLLOWING INSTRUCTIONS WHEN FILLING OUT THIS DIARY. THANK YOU.

1. Please circle below the day for which you are filling the diary. If no calls are taken and received for that particular day then (✓) below the particular day.
2. Please use a minimum of 1 page per day. If the no. of entries for that day is beyond what this page can accommodate (i.e. more than 15) please use another sheet after circling the same day on that sheet)
3. Please record each day's calls on a new sheet.
4. For each call (incoming or outgoing) please tick (✓) all the relevant boxes A,C,E and F for that call and record the time the call was taken or received in box "B".

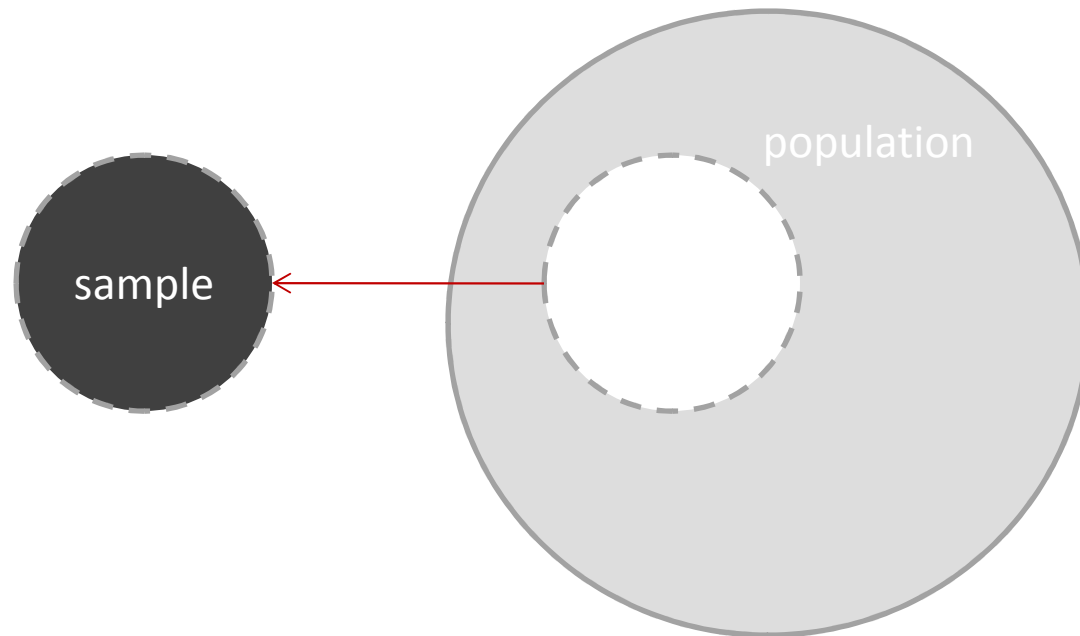
Day	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
	1	2	3	4	5	6	7
Calls not taken or received at all							

FOR OFFICE USE ONLY	
Diary no: -	
Respondent No.:	

5. For the time of call, please write in the time alongside the relevant a.m./ p.m. in row. B.
6. Please round up seconds into minutes and record in "D". If less than one minute please record as "1".
7. Every time you send a missed call please tick (✓) in Row (G)

		Call no.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15																								
(A) Incoming / Outgoing	1	Incoming (Received)																																							
	2	Outgoing (Taking)																																							
(B) Time	1	a.m. (Before Noon)	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:																								
	2	p.m. (Between Noon and Midnight)	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:																								
(C) Phone type used	1	My own mobile																																							
	2	Household fixed phone																																							
	3	Public access phones (e.g. Telecenters, Govt. or Private Agency Post Office / Nearby Shop)																																							
	4	Neighbor / friend / relative's phone																																							
	5	My workplace or office phone																																							
(D) Duration of call (Please enter in minutes): - If less than 1 minute please enter as "1"																																									
(E) Main reason for call	1	For keeping in touch (social) purposes																																							
	2	for managing day-to-day activities																																							
	3	for education-related purposes																																							
	4	To obtain information on markets, prices, employment, logistics and other business activities																																							
	5	To engage in business or employment (e.g. confirm a sale or contract or casual employment)																																							
	6	For employment/business related purpose (e.g. call colleagues, boss etc.)																																							
	7	Others																																							
(F) Type of call	1	Local call to/from fixed lines																																							
	2	Local call to/from mobile phones																																							
	3	Long distance call																																							
	4	Foreign call																																							
(G) Missed calls		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	28	29	30	31	32	33	34	35	36	37	38	39	40

Sample: a representative part of an entire group or population



- Population: who you want to make inferences about
 - E.g., SEC D and E telephone users aged 15-60

Sample selection method is key for representation

- Idea is to estimate characteristics of population (parameters) as accurately as possible based on characteristics of sample (statistics)
- Without a representative sample a survey will produce results that are biased and misleading

Sampling Techniques

- Random
 - Simple random sampling
 - Stratified random sampling
 - ...
- Non-random
 - Purposive sampling
 - Convenience sampling
 - ...

Random sampling

- Every member in the population must have a **known opportunity** of being selected
- The selection of any member of the population must have no influence on the selection of any other member
- Random sampling always produces the smallest possible sampling error
- Sampling error in a random sample is affected only by random chance
- **Sampling frame** is needed (list of the people or items from which a statistical sample is taken)

Sample size determined by formula;
increases with desired precision level

$$n = \frac{NZ^{2*} .25}{[d^{2*} (N-1)] + [Z^{2*} .25]}$$

Where **n** = sample size required
N = total population size (known or estimated)
d = precision level (usually .05 or .10)
Z = number of standard deviation units of the sampling distribution corresponding to the desired confidence level

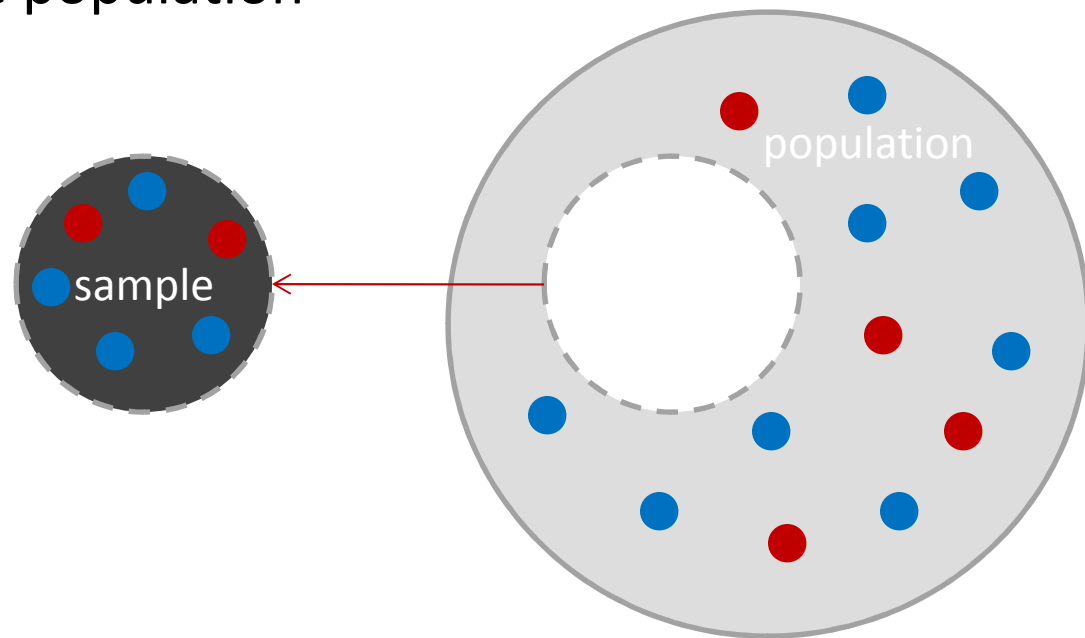
- n= **384** for precision level of **+5%**
- n= **1,537** for precision level of **+2.5%**
- n= **9,604** for precision level of **+ 1%**

Simple Random Sampling

- Used with a homogeneous population
- Sampling frame is needed
- Random number generator (e.g., MS Excel) used to select sample

Stratified Random Sampling

- Used when the population is heterogeneous
- Ensures representation of sub-groups (strata) within the population
- Requires detailed knowledge of the distribution of characteristics of the population



Teleuse@BOP:

Multi-stage stratified sampling (with variations)

1. **States / Provinces / Districts** (primary sampling unit) randomly selected
2. **Urban** and **rural** centers randomly selected
3. Starting points randomly selected (# determined in proportion to population)
 - fixed number of interviews around each starting point
 - Every 3rd HH selected – “right hand rule”
 - Household members listed into Kish grid (random number chart)

Other kinds of sampling

- Cluster sampling
- Systematic sampling
- ...
- Combinations

Systematic Sampling

- Frequently done in exit polling of voters or store customers
- $n = \text{population size (N)}/\text{sample size needed}$
- Start with a random number between 1 and N
- choose every n^{th} member in the population

Non-random methods

- Purposive sampling
- Convenience sampling
- Snowballing

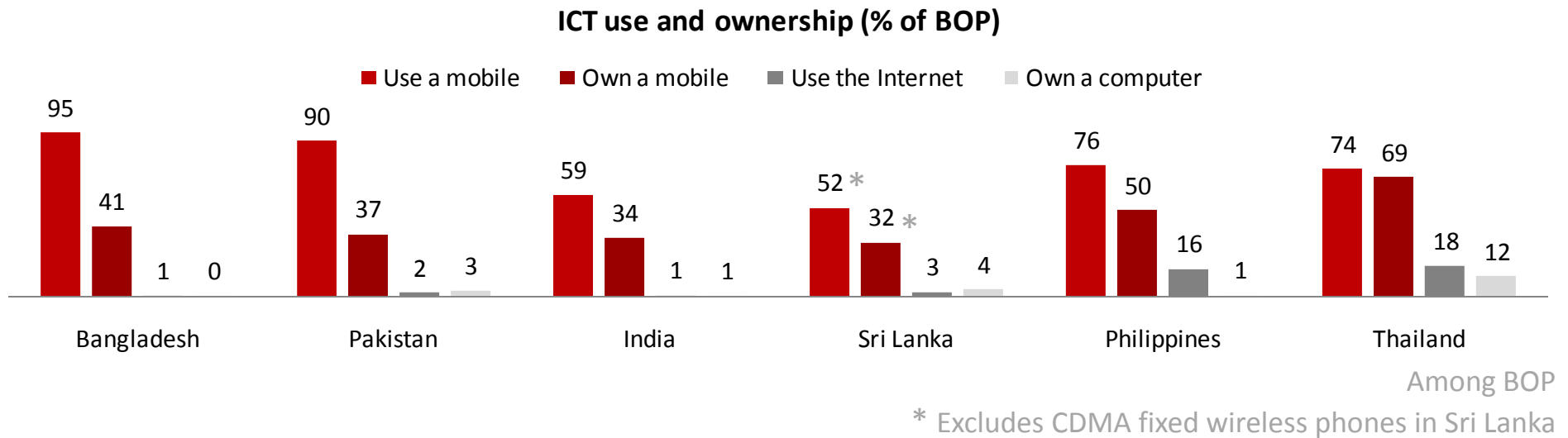
Purposive sampling

- Usually would have one or more specific predefined groups
- The researcher chooses the sample based on who they think would be appropriate for the study
- Eg. T@BOP Migrant Sample was selected through purposive sampling and to some degree snow-ball sampling

Convenience Sampling

- Sample drawn from a population close at hand
 - Ex: First 10 people you meet
- Sample may not be representative

Simple kinds of data analysis



More complex...

$$P(Y) = \frac{1}{1 + e^{-\sum_{i=0}^K \beta_i X_i}}$$

Table 7: Logistic regression output for Model 1 (predicting probability of mobile Internet-only use)

	Coefficient	Odds Ratio	Significance
Age squared	-0.01	0.99	0.00
Ln (monthly personal income)	0.50	1.64	0.00
Gender	-0.26	0.77	0.04
Walk time to nearest town	-0.03	0.97	0.09
% of phone-owning contacts	1.18	3.26	0.00
Mobile ownership	0.43	1.53	0.02
Secondary education	1.23	3.41	0.00
Tertiary education	2.36	10.59	0.00
Philippines	1.65	5.21	0.00
Thailand	1.93	6.90	0.00
Constant	-6.34	0.00	0.00
n = 483; Nagelkerke R Square: 0.429			

Research Article

Are the Poor Stuck in Voice? Conditions for Adoption of More- Than-Voice Mobile Services

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Abstract

Mobile phone access is widespread in Asia; voice connectivity has been achieved for the most part through intense competition, with prices being driven down to almost unsustainable levels. Against the backdrop of intense competition, new services and applications, such as price information alerts, news alerts, mobile money applications, and mobile Internet services, may provide new revenue sources, allowing operators to expand services. More important, from a development perspective, they also offer a way to get information and services with lower transaction costs to customers at the “bottom of the pyramid.” This article examines the use of such “more-than-voice” services among telecom users at the bottom of the pyramid in emerging Asia. Through a logistical regression model, it attempts to understand what factors can predict their use in order to inform operators on how they can better serve these markets, and to educate policymakers on how they can assist with policies that will favor greater access.

Introduction

Globally, mobile phone connections overtook fixed phone connections in 2002. Recent research has shown that mobile phone access is widespread in the emerging Asian region. The ratio of mobile SIMs to fixed connections in India was 9.2:1 in 2008; this ratio was even as high as 19.9:1 in Pakistan and 33.2:1 in Bangladesh, two other significant markets within the region (ITU, 2010). Even among low-income earners within these markets, more than 90% of phone connections were mobile by late 2008

Internet through computers	1.958	7.085	608.5	0.00
Number of phone-owning contacts	0.164	1.180	17.8	0.00
Sum of perceived benefits	0.078	1.081	8.1	0.00
Duration of mobile ownership	0.013	1.013	1.3	0.02
Philippines	-1.789	0.167	-83.3	0.00
Thailand	-1.160	0.313	-68.7	0.00
Constant	-6.340	0.000	-100.0	0.00

n=2,524; Nagelkerke R-Square: 0.354

Source: Authors.

The largest predictor of more-than-voice adoption is Internet use through computers; the odds of using more-than-voice services are more than 600% higher for mobile owners that use the Internet from a computer than those who don't, holding other variables constant. Education is the second largest contributor, with completion of tertiary education, as well as secondary education, leading to increases in the odds of more-than-voice use by 47.8% and 27.4%, respectively.

The next largest contributor to the probability of more-than-voice adoption is the number of the respondent's closest five contacts that own a mobile phone. For each additional mobile-owning contact within the respondent's closest five contacts, the odds of using more than voice services increases by 18%. Thus, compared to a mobile owner with no mobile-owning close contacts, one with all five of his closest contacts owning mobiles has 90% higher odds of using more-than-voice services.

Being a female is negatively associated with the odds of more-than-voice use, leading to a 14.2% reduction in the odds of more-than-voice use when compared to a male of similar characteristics.

Age is a significant negative predictor of more-than-voice usage, though at a lower level of significance (90%), and also contributing only a small amount to the odds of more-than-voice use.

The country variables are significant, indicating that there are country-level effects that predict the probability of using more-than-voice services. These country-level effects would include cultural factors, overall infrastructure levels, and different policy environments, among others. The inclusion of country variables is necessary because the number of respondents using more-than-voice services is insufficient to perform the logistic regression separately for each country; therefore, the three were aggregated. The model captures the relationships between the independent and dependent variables common to all three countries, and the residual factors that are unique to certain countries are captured in the respective country dummy variable. Sri Lanka is used as a reference category; therefore, its country-level effects are captured in the constant.

Variables which were not significant predictors were how rural the respondent's location is—

Introduction to

QUALITATIVE METHODS

Qualitative research

- In-depth and detailed
- Helps understand a research problem from the perspective of the 'affected' local population
- It's never just about what they say, but also what they do
 - Visual cues as important as verbal cues
- Effective in getting culturally specific information about particular populations:
 - Values, opinions, attitudes, behaviors and social contexts

When is qualitative research appropriate?

- When the hypothesis is not yet fully formed
 - *E.g. why women in some villages use their phones less when their children are around.?*
 - Could be a precursor to a quantitative study.
 - Could be a considered exploratory research
- When one wants to know why a certain phenomenon occurs
 - *E.g. Why do people in the ages 10-16 use their phones more when they are at home and you want to know why?*
 - Could be that the phenomena was discovered during a previous quantitative study.
 - Could be considered as explanatory research
- When a descriptive answer is needed
 - *E.g. What are the attitudes of users to having a off-peak time start at 7pm.*

Different kinds of qualitative research

Case studies

Focus groups

Unstructured interviews

Diary/ Journal method

Ethnographic studies

Field research

User personas

**Participatory design &
evaluations**

Photo novellas

Ethnographic studies

- Observational field work done in the actual context being studied
 - Participant observation i.e. “immersion of researcher in actual context”
 - *E.g. trying to understand call behavior at work.*
- Much heavier focus on how individuals interrelate in their own environment and the influence of this environment on individuals
 - *E.g. how long is he on the phone when his boss is around?*
 - *E.g. What is his body language when talking on the phone with boss around, in front of colleagues, when no one is around, etc.*

Ethnographic studies

- Pros:
 - Richer understanding of complex social/ cultural actions
- Cons:
 - Difficult to interpret and analyze
 - Time consuming and expensive
 - Researcher can influence behavior.

Focus groups

- Aids in understanding audience, group, users.
- Concentrates more on group interactions more than individual responses.
- Pros:
 - Collective discussion gives more data than individual discussions
 - Group discussions can trigger individual memories/ recall.
- Cons:
 - Group think
 - Social/ cultural issues can affect how one acts in front of a group

**SOME EXAMPLES FROM
TELEUSE@BOP3**

Ronnie | Manila, Philippines

27 years | Shop helper / Barbecue vendor / e load seller



- Ronnie downloads ringtones as well as has ring-back tones on her phone which expire in 24 hours. So she activates them frequently.
- She also downloads these from the Internet at a cybercafe too.



Ronnie | Manila, Philippines

27 years | Shop helper / Barbecue vendor / e load seller

- Ronnie only uses the news feature from her service provider in order to keep updated. For all other forms of information, she either consults someone in her social circle (by phone), watching TV or going to information centers, like city hall, health center etc.



Zayed | Shopkeeper

21 years | Sonargaon, Bangladesh

- Once facilitated money “transfer” through mobile for the village “maulavi” who was away in Dhaka; the maulavi sent BDT1,000 in load to Zayed’s mobile; once the load was received, Zayed then paid the same in cash to the maulavi’s family in the village
- Transactions of up to BDT5,000 (USD70) can be made, however this is dependent upon the shopkeeper having cash available to give the intended recipient in one go
- Commissions can be as high as 20%; the shopkeeper also makes commission on reselling the load

