

Turning Threats into Opportunities – the Social Dynamics of Missed Calls

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The practice of sending intentional “missed calls” (calls that are terminated by the caller before the receiving party answers) is a familiar phenomenon in emerging mobile markets across Africa and Asia. Although generally considered to be a free-of-charge messaging service used primarily by the financially constrained, the authors document its use by a far wider range of mobile users and for a variety of other purposes, ranging from social control and relationship maintenance to entertainment. Mobile operators have long sought effective measures to eliminate or reduce the volume of missed calls since they are a major cause of network congestion and do not generate revenue. The authors argue, however, that in-depth studies of missed calls may provide the telecom industry with a much needed window into the sociocultural life space of customers, and suggest new service offerings that better match their needs and circumstances.

Introduction

In the course of two or three years the term “missed calls” has taken the leap from the vocabulary and practices of mobile users in various emerging markets to discussions among telecom network planners as well as scholarly debate among researchers of ICT behavior (Chakraborty, 2004; Fjuk, Furberg, Geirbo, Helmersen, 2007; Donner, 2007; Zainuddin, Samarajiva, Abeysuria, 2006). Intentional “missed” calls (or “beeping” and “flashing” as they are referred to in some countries (Donner, 2007) are calls placed to a number where the caller intentionally terminates the call before the receiving party answers. Under current price regimes most mobile operators do not charge for calls that are not terminated (answered). Customers are, naturally, aware of this and have put the “service” to good use as a signalling system. Since handsets display the number of missed calls the subscriber has received and which number(s) that generated them, a signalling system has gradually evolved among mobile users in which a vast variety of messages may be transmitted free of charge.

The discussions about the use of missed calls have mainly stressed that this is a form of messaging that is free as well as convenient. We will in the following investigate a wider specter of motivations that lie behind this practice, and see that missed calling is not only about transmitting instrumental messages – expressive communication is an important motivation as well. In conclusion, we will also discuss how missed calls as well as other forms of mobile use that telecom operators consider to be “untoward” and unwanted may be utilized as a source of inspiration for developing new services and new technologies that more closely reflect the current practices and needs of the users.

Methods

This paper is based on qualitative and quantitative data gathered in Bangladesh in 2007. Bangladesh has an estimated population 153 million (CIA Factbook). Although mobile penetration is roughly 23 %, what sets Bangladesh apart from most developing nations is the extremely high network coverage of 98 % (CIA Factbook, Paul Budde Communication 2008, Grameenphone Homepage). Thus, although most of the country’s inhabitants have access to one or more mobile networks, their financial circumstances may not allow the majority to make extended use of it.

A series of eight focus group discussions were carried out in Dhaka, Bangladesh in April 2007. These groups each consisted of eight respondents ranging in age from 18 to 55 and covered high, middle and lower levels in the socio-economic hierarchy. Each group consisted of either males or females. Participants were screened to ensure that they had been active mobile users for at least one year and possessed more than one SIM from more than one mobile network operator. Since sharing of handsets is widespread in Bangladesh and because the focus of the current study was on use rather than ownership, a handset ownership requirement was not included. The focus groups were conducted in Bangla by qualified moderators, and English transcripts were provided for the purposes of analysis. In addition to the focus groups, conclusions are based on the analysis of observations and semi-structured conversations with respondents recruited in local markets, at tea stalls, public call offices, cyber cafes and among craftsmen, small traders and retailers. In February 2008 we included questions about missed calls to an in-depth interview study of 44 young Bangladeshis in rural and urban areas.

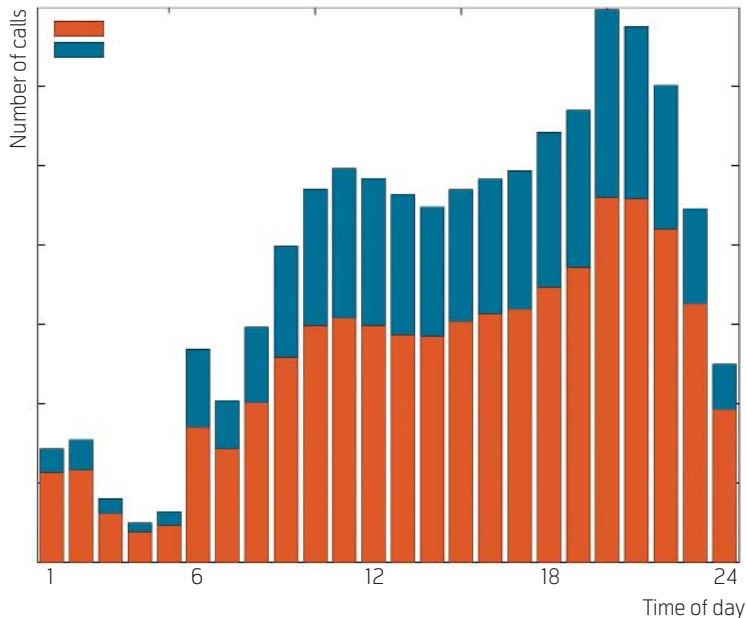


Figure 1 The distribution of missed and terminated calls across a twenty-four hour time span on Grameenphone's mobile network (statistics based on traffic data collected during a single day in June 2007)

The quantitative data on which our analysis is based derives from detailed analysis of 310 million Charging Data Records¹⁾ (CDR) from Grameenphone. The records are from a single day in June 2007²⁾. It provides a quantitative verification of some of our qualitative findings and may subsequently serve as a source of new hypotheses relating to patterns of mobile use

Why Missed Calling is Viewed as a Problem for the Telecom Operators

The obvious reason why a free-of-cost and easy to use messaging system is viewed as a problem for telecom operators, is that it implies a use of the facilities of the operator that does not generate revenue. It also reduces the revenue one could have expected from charged traffic, as there exists a free alternative to some of the communication needs that may be catered for by charged services. An argument that from time to time comes up in the discussions about missed calls is that missed calls in some cases generate charged traffic, and that this to some extent may outweigh the negative consequences of missed calls. Our data indicate that this is not the case. In Bangladesh, the charged traffic generated from an initial missed call is minimal compared to the missed call activity.

However, there are other serious consequences of widespread use of missed calls as well. One is that the convenience of using missed calls inhibits the uptake of other charged forms of messaging, like SMS, which is not much used in Bangladesh. Finding a number in your contact list, hitting the "call"-button and then, once you hear the call signal, pushing the "end call"-button is far easier than composing an SMS, especially if you are illiterate or not familiar with the alphabet on your phone's keypad. It is also more convenient than using various forms of messaging that do not include typing, like voice-messages or symbol messages.

The most serious consequence for the telecom operators is not, however, that missed calls reduce revenue generated by "legitimate" messaging services such as SMS and MMS, or that it inhibits the general uptake of such services, but that it is the major cause of network congestion in peak periods. In Bangladesh, missed calls constitute upwards of 70 % of total network traffic at any hour (see Figure 1). This congestion causes charged calls to be disconnected, or not connected in the first place. This reduces the quality of service, and leads to customer dissatisfaction. Since networks are scaled according to traffic volume and anticipated growth, it may also lead to over-dimensioning of the network based on false prognoses, leading to vast sums of money being wasted.

The main culprits are not customers who send one, two or three missed calls in a row to say "Call me back", "I am on my way home now, please start cooking the rice", or "father just went out, you can safely call me now". Those who make the most significant contribution to network congestion are the ones who send a large number of consecutive missed calls; fifty, one hundred or even several hundred missed calls in a short period of time have been documented in the present study.

The intuitive solution to the above-mentioned problems is either to charge call *attempts* so that missed calls will no longer be free, or to inhibit the use of missed calls by means of technical measures, e.g. filtering out caller information (the A-number) transmitted to the recipient (B-number) of a missed call. Not knowing who called will greatly reduce the information value of a missed call. This is likely to reduce missed calls significantly, but these approaches are problematic because subscribers have come to regard missed calls as a service in the same way that SMS

1) Every call made on a mobile network (terminated as well as unterminated) generates a unique record in a database specifying – among other things – the caller's number, the receiving party's number, time, duration, location, etc. Several million CDRs generated during a 24-hour period were analyzed by the authors.

2) Analysis of CDRs was carried about by Kenth Engø-Monsen, Telenor R&I.

and MMS are services. It is anticipated that removing or significantly reducing the possibility of using unlimited missed calls will not be received favorably by subscribers unless they receive some form of compensation, perhaps in the form of a free but limited use or an inexpensive alternative messaging service.

Finding a sustainable remedy for the missed call problem is hence dependent on gaining a thorough understanding of how and for which purposes missed calls are used, which needs it caters to, and which it does not fill satisfactorily, and the various motivations for choosing this form of messaging over other forms.

The Motivations behind Missed Calls

When we first started exploring the missed call phenomenon, we found that two assumptions were commonly made by people in telecom business. In the course of our research we found that, although not entirely misconceived, these understandings do not cover the complex reality of the missed calls practice.

Myth 1: Giving missed calls is motivated by economy. Saving money is indeed a strong motivation behind sending missed calls. However, there are many other strong motivations. Sending missed calls is not only an economic strategy, it also fills practical needs, social needs and entertainment needs. We will discuss this in detail in the following.

Myth 2: Giving missed calls is a practice primarily among the financially disadvantaged.

Poor people do use missed calls, but all the other socio-economic classes are also familiar with and regularly use them. However, they may have different motivations for doing so and the way they use them may differ. We will come back to this as well in the following.

For operators, failing to recognize the complexity in the practice of missed calls means that one will not be able to take the actions that are required to limit the practice. At a less measurable level, it means failing to take advantage of the insight the missed call practice gives us about our customers and their communication behavior. This insight is valuable for the development of new services as well as new technology. Hence, we will dig deeper into the phenomenon in the following.

We have categorized the motives that came out in the focus groups in four categories:

- Economic motives
- Practical motives
- Entertainment needs
- Social and relational motives

The category social and relational motives is by far the most complex, covering several sub-categories.

Economic Motives

“My husband gets mad at me if I finish my monthly phone budget of taka 300 in 15 days.”

Woman, 40

As long as the subscriber is not charged for untermi-nated calls, missed calls is a way of sending mobile messages free of cost. This allows the financially constrained to avail mobile communication even when they do not have money to spare. For those with more disposable income, it means that economy is not a barrier for extensive use of the mobile. Economic motivations were stressed by most of our respondents as important for their use of missed calls.

Practical Motives

“After my husband comes back from office at 5:30 pm he gives me a missed call because we live on the 5th floor and when he reaches the ground floor he gives a missed call to signal me to throw the gate keys down ...”

Woman, 34

Sending missed calls is an easy and fast way of communicating. Compared to voice, no time needs to be spent on small talk before getting to the point and before hanging up. Compared to SMS, only a little typing is needed. Moreover, literacy is not needed³⁾. 57 % of the Bangladeshi population are illiterate, and an even larger proportion do not read Roman letters (CIA Factbook). Imagination is the main limitation to what you can communicate with missed calls. The number of consecutive missed calls, who has sent them and what day and hour they were sent, as well as individual pre-negotiated agreements, are factors that are taken into consideration when interpreting the meaning. One missed call from the husband at 6 o'clock in the afternoon may mean “I just left work”. Two missed calls may mean that “I am running late”. During the day, a missed call from the husband may simply mean “I am thinking of you right now”.

Another practical motivation for missed calling is that it is a discrete way of communicating. A missed call may be sent from within one's bag or even from within one's pocket. This is in particular a motivation

³⁾ The minimum requirement is that the recipient is capable of identifying the originator of the missed call, either recognizing the number or the associated name which is linked to specific numbers on the handset.

for youth who in various situations want to keep their communication hidden from their friends or guardians. We will get back to such situations below.

Entertainment Needs

“It’s fun to disturb people. Sometimes people call me back if I give missed calls continuously and sometimes it turns into a quarrel.”

Woman, 19

Using missed calls is also a source of entertainment. Friends have missed call competitions; one person sends a missed call and the other tries to receive it before it is hung up. If she manages to receive the phone call, the calling person loses credit. If this game goes on for a while, a large number of consecutive missed calls may be the result, adding to the congestion of the network.

Missed calls are also a source of entertainment for youth (see Figure 2) or bored homemakers, especially during the frequent loadshedding when the lack of electricity makes housework difficult because the lamps and the fans stop working, and it is not possible to watch TV. Waiting in the damp and warm darkness for electricity to return, one can pass time by sending missed calls to friends and family, or even to random numbers to see whether one gets a reply.

Listening to ring back tones is another form of getting free entertainment through the mobile. A person who

has a popular song as his ring back tone may have an agreement with his friends that if they give him two missed calls, it means “Don’t pick up, I want to listen to your ring back tone”.

Social and Relational Motives

In the category “social needs” we have included the motives that are related to establishing and maintaining relationships of various kinds.

Contact Seeking and Romantic Motives

Flirting and the desire for contact with the opposite sex is an important driver for the practice of missed calls. In Bangladesh, as in many other societies, missed calls constitute a private space where forbidden behavior such as flirting can be practiced without public exposure and ridicule. People send missed calls to random numbers hoping for a reply from a person who may eventually turn into a boyfriend/girlfriend or even a spouse. This is done by women as well as men. Below a young woman tells about how she first came into contact with her boyfriend:

“I gave him a missed call. It was an unknown number. He called me and asked me who I am. Then I told him that ‘I don’t know you, please don’t call me anymore’. After that I gave him another missed call. He told me that I am preventing him from calling me, but am [still] giving him missed calls. Then I told him that he can talk to me.”

Woman, 22

Photo: Per Helmersen



Figure 2 A group of young people in a Dhaka park entertaining themselves by listening to ring back tones and by sending missed calls to random numbers

After six months they were still only communicating through phone.

Most attempts to locate a companion by means of a missed call are certainly not this successful, but the stories about people finding love through a random missed call were told in most of our focus groups. Some of them may be urban myths or wishful thinking, but regardless of the truthfulness, the assumption that missed calls may, if one is lucky, result in a romantic relationship is a driver of the practice in itself.

Arranged marriages are still the norm for the majority of the Bangladeshi population, but self-arranged marriages (or “love marriages” as they tend to be called, where the partners choose each other independently of their parents’ wishes) are not uncommon (Rashid 2005, Geirbo & Imam 2006). It may be that an increase in self-arranged marriages has a positive influence on the contact seeking missed call activity. But looking for love is not the only motivation behind sending missed calls to random numbers. Seeking acquaintances and friendships is also a reason why this is done. Both forms of contact seeking through missed calls can be compared to chat relationships found in online chat rooms. The same phenomena found there (misrepresentations of self, assumed identities, etc.) were also reported in relationships established by missed calls:

“I gave miss-calls to a number thinking that it might be a girl. One day that person sent me an SMS asking to meet. When I went to meet her, I found that it was a guy! We became good friends afterwards, even though he is senior to me.”
(Man, 23)

Once romantic contact is established, it needs to be maintained. This generates voice calls and text messages, but also often additional large numbers of missed calls (see Figure 3). Sending a missed call may, given the context of interpretation, mean that the sender is thinking of you or missing you. Sending several missed calls intensifies this message, and it is not uncommon to send several hundred missed calls to the chosen one, like this quote tells:

“It is becoming a symbol of love. You can express your affection by giving hundreds of miss-calls.”
(Man, 44)

Executing and Countering Social Control

At the same time as missed calling may be a way to bypass norms for proper conduct without getting caught, missed calls are also used as a tool for social control. Young couples send missed calls to each



Figure 3 Sending ‘I’m thinking about (missing) you’ calls was reported to be a frequently used missed call activity. Social grooming is clearly a need fulfilled by this type of calling

other both to check if the line is free (if not, the other might be having an affair with someone else) and to keep the line busy so he/she has less possibility to start a phone affair. Husbands expect missed calls from their wife at fixed hours as a signal that the household is running smoothly. Parents request missed calls from their children as a signal that they are safe when they are out with friends or have arrived safely at their destination. As sending missed calls does not require that the sender has credit on her prepaid card, there are also no valid excuses for refusing signaling with parents. Despite this being a disadvantage in situations where privacy is preferred by the youth, it is in other situations used by the youth to sidestep the parental control, as this story illustrates:

“Once I attended a friend’s birthday party and came home late. I told my friend I would give her one missed call if I needed her to come to my place and help me if my father was angry. My father was very angry with me so I gave my friend a missed call. She came over with her mother to appease my father.”
(Woman, 18)

Missed calls also have the advantage that it is not easy for others to know who initiated the contact. A newly married woman is expected to yield to the control of her mother-in-law, and being frequently in touch with her childhood home may be frowned upon by her in-laws. By sending a missed call to her mother, a young wife can tell her mother that she wants to talk to her. Her mother replies with a voice call, and the young wife thereby avoids her mother-in-law's fury for calling her mother.

Social Positioning

Bangladeshi society is characterized by complex social hierarchies. The signs that communicate a person's positions in the hierarchy are in many cases subtle, like whether or not an employee has an air freshener in her office. In some companies this is a sign of a high position in the hierarchy. On the lower rungs of the hierarchy access to a lift is a sign of one's position (a less subtle one than whether one has an air freshener or not). In a building block of some standard there will be a number of household employees, caretakers and occasionally craftsmen, some of whom may use the lift and some who may not. Knowing one's place in the hierarchy and behaving according to the norms that apply to this position is necessary if one wants to avoid sanctions from one's surroundings. This also goes for the use of missed calls. Depending on the position one holds in a hierarchy, there are people one may and may not give missed calls. As a general rule, one should not send missed calls to people below oneself in a hierarchy. Older brothers should not give missed calls to younger siblings, but rather be the one who bears the expenses of the call. Also, a man of means giving a missed call to a service provider will show disregard for his own position in the hierarchy:

"Who can you not send missed calls to?"
"Drivers and electricians ... it's a matter of prestige."
Man, 45

Communicating to people above you in the hierarchy also requires skillful assessment of relations. Giving missed calls to people with a better financial situation or a higher social standing than you is often approved of, but not always. Giving a missed call to a teacher or your boss is considered disrespectful.

Catering to Phatic Communication Needs

Above we have seen some examples of how fairly complex messages can be transmitted and understood through a combination of number of calls sent, timing and knowledge of the sending party. Missed calls are, however, not only a medium for instrumental messaging. Much missed call practice originates in a need

for phatic communication. Phatic communication refers to forms of communication where the interaction between the communicating parties is the motivation, not the content of the messages in itself. In phatic communication, the very act of communicating has a value in itself, separate from the value of exchanging information that is of practical use to the parties. The creation of bonds and the maintenance of community is the motivation behind this kind of communication. Much of the missed call activity reported by our respondents is phatic communication, like giving missed calls to say "I miss you" or "I am thinking of you right now".

In Bangladesh, phatic communication is acknowledged as an important part of the daily interaction between family and friends. That conversation is considered to have value in itself, separate from the content of the conversation, can be clearly seen in the importance Bangladeshis give to the communication form *adda* that exists in Bangladesh as well as Indian Bengal. An *adda* is an informal conversation among a group of people that goes on for a shorter or a longer period, often for hours on end. It may fluctuate between serious topics like politics and history to mundane topics like gossip and jokes (Chakraborty 2001: 124). However, it is not the content of the discussions that defines this as an *adda*, but the form: being together in a group engaging in communication about random issues. Without further comparison, the inherent emphasis on form rather than content gives missed calls a functionality that other forms of mobile messaging, like SMS or voice messages does not have. The inherent vagueness of a missed call makes it especially suitable for phatic communication. Services that open for more complex messages, like SMS, require the user to think up a specific message and formulate this. Using missed calls instead liberates the user from this requirement. As we have seen above, missed calls may well be used for instrumental communication (like asking someone to call you back), but it is equally, if not more, suited to the situations when you want to share affections and experience community with someone without having anything specific to say. Family members, couples and friends send missed calls back and forth throughout the day to reconfirm togetherness across space. A young man expresses it like this:

"Suppose a group of my friends have met up without me – they will give me missed calls to let me know they are missing me."
(Man, 22)

The inherent vagueness of missed calls also opens for the interpretation of the recipient, and this is likely to be an important reason for its popularity

as a medium for phatic communication. Receiving a missed call from a lover or a good friend can bring the receiver a lot of enjoyment thinking about the possible thoughts and feelings that motivated the sender.

Turning Threats into Opportunities

We have seen that missed calls cater to both instrumental communication needs and to phatic communication needs while being easy to use as well as free of charge. Hence, the volume of missed calls is not likely to decline unless the telecom industry comes up with attractive alternative service offerings or other countermeasures. As it is today, mobile operators in many parts of the world view the phenomenon solely from the perspective of lost revenue and unnecessary infrastructure investments. While we are in the process of coming up with solutions to this problem – technical, regulatory and other – we should view missed calls as a unique learning opportunity. The immense popularity of missed calls tells us that this practice contains valuable information about the communication needs and preferences of our customers.

To sum up, we have found that although financial considerations are important when deciding which communication service to use, there are other strong drivers as well. Ease of use and convenience is another strong driver, especially for illiterates or people who cannot use the Roman alphabet. Unexpectedly, we also found entertainment needs to be strong drivers, especially for young people and adult female homemakers. Establishing and maintaining of relationships turned out to be a key application area for missed calls.

Contrary to commonly held beliefs about the missed calls phenomenon, it is not the lack of resources that is the most prominent factor behind the practice; on the contrary, it is the abundance of creative social resources which makes the collective development and diffusion of this multifaceted messaging form possible. Tapping into this source of creativity through studies of unexpected and often disregarded ICT usage will provide the telecom industry with a much needed window into the socio-cultural life space of our customers, and suggest new service offerings that better match their needs and circumstances.

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For a presentation of the authors, please turn to page 3.