

Communications in the 21st Century

Kristóf Nyíri (ed.)

Integration and Ubiquity

**Towards a Philosophy
of Telecommunications
Convergence**



Passagen Verlag

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Dorothee Arlt
Sandra Pöschl
Nicola Döring

Getting No Answer?

An Experimental Study on Unavailability
in SMS Communication

Wherever you look or listen, the mobile phone is everywhere. No matter if you are on the bus, in a restaurant, in the cinema or even in a lecture, the mobile phone rings, rumbles, vibrates, pipes or plays the latest pop hits. Nowadays, when nearly everybody has a mobile phone, mobile availability everywhere and every time seems to be granted. However, even though we can be contacted anywhere and at nearly any time, this does not necessarily mean we want to.

Entering the mobile age primarily meant, for most people, a gain of freedom and individuality, but meanwhile it can also mean increased demands on our availability. At present, mobile availability seems to be a must and one is expected to keep times of unavailability as short as possible. It is noticeable that these changes in "mobile society" are increasingly experienced as oppressive. People no longer see freedom in the possibility of permanent availability. They rather find their freedom in times of mobile unavailability when switching their mobile phone off or not answering the phone.

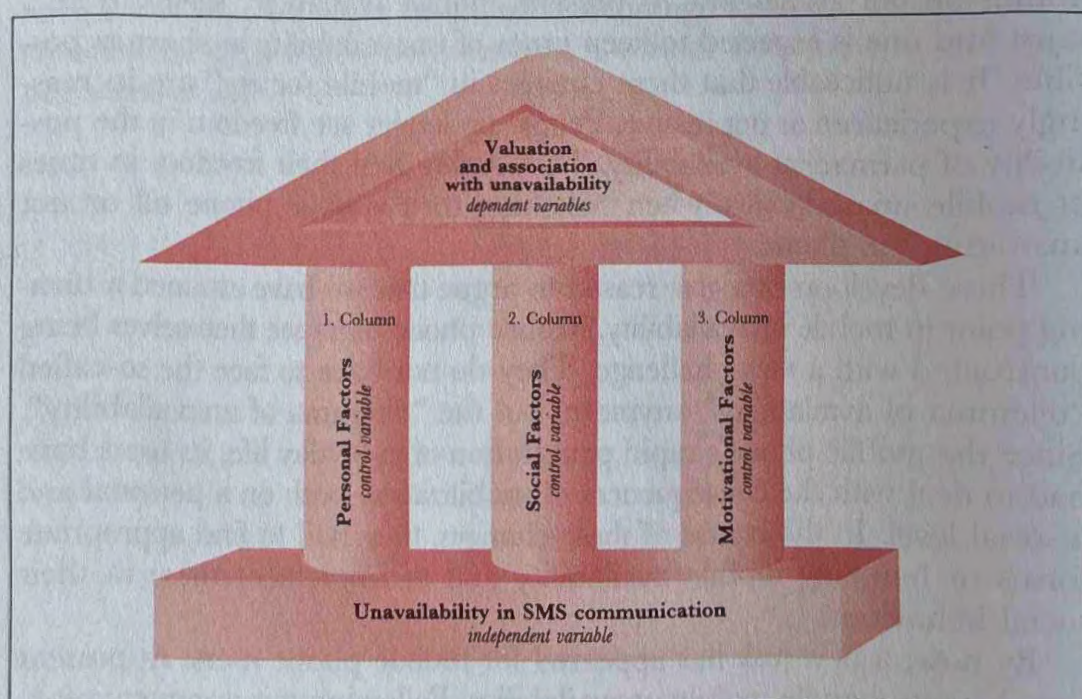
These developments give reason to argue that we have attained a turning point in mobile unavailability. Mobile phone users see themselves being confronted with a new challenge. They do not have to face the so-called "dilemma of availability" anymore, but the "dilemma of unavailability". Since the mobile phone's rapid penetration of everyday life, its users have had to deal with the consequences of mobilization both on a personal and a social level. In the course of these changes, they had to find appropriate forms of handling mobile availability and to implement these in their social behaviour.

By now, a new task has appeared for mobile phone users: At present they have to handle mobile unavailability. Following this argumentation, it is necessary to analyze whether mobile unavailability causes changes on a personal and social level, just as mobile availability does. For this reason, the study presented here analyzes how people deal with the problem of unavailability in SMS communication – specifically, when a sent

SMS is not answered. It focuses on the sender's perspective, examining his or her emotional reactions and behaviour. The main theme of this empirical study can be summarized by the following research question: *What influence do personal, social and motivational factors have on evaluating and handling unavailability in SMS communication?*

Theoretical Background: The "Theoretical Building"

The research question takes a multi-dimensional approach that integrates different disciplines of science. According to the theoretical background, this entails that the object of investigation was related to several psychological theories and ideas in communication science. The research examined whether there are any causal connections between unavailability and the emotions of mobile phone users as well as their reactions and behaviour patterns towards unavailability. In addition, personal, social, and motivational aspects of human behaviour were taken into account as possible influencing factors. These elaborations are visualized in the figure below. The "Theoretical Building" represents the basis for the theoretical background of this study.



*The "Theoretical Building"*¹

¹ From Dorothee Arlt, *Nicht-Erreichbarkeit in der Mobilkommunikation: Eine medienpsychologische Experimentalstudie zur SMS-Kommunikation*, Ilmenau: Univ.-Verl. Ilmenau, 2008.

The Foundation

The foundation of the “Theoretical Building” consists of the two terms *SMS communication* and *unavailability*. These terms denote the central objects of our investigation. Over its last few generations, the mobile phone has functioned as a multifunctional device. It is no longer regarded simply as a medium for information and calling, but also as a medium of mobile written communication.² SMS communication refers to the Short Messaging Service (SMS) – often called text messaging – that enables mobile phone users to send or receive short text messages. According to the classic ideas of communication science, the term “communication” is popularly understood as a process of passing information and understanding between one person and another.³ But the communication process via short text messages can be interrupted or confused by mobile unavailability, which can cause problems of misunderstanding. In 1994, Barbara Mettler-Meibom distinguished between technical and social terms of availability.⁴ Following this distinction, it is also possible to differentiate between a technical and a social dimension of unavailability. The current research project focused on the social dimension of unavailability in SMS communication, which is caused by the social behaviour of mobile phone users.

The Three Columns

Observations of people’s everyday life and their attitude towards media show that they use media in widely varying ways. One explanation of human behaviour can be found in the division between personal and social factors. Following the assumption that attitudes towards media and media use correlate with *personal factors*, one aim of the study was to reveal possible relations between these factors.⁵ In the case of this research project, personal factors apply both to someone’s sex and their personality, in keeping

² See Joachim Höflich and Patrick Rössler, “Mobile schriftliche Kommunikation – oder: E-Mail für das Handy: Die Bedeutung elektronischer Kurznachrichten (Short Message Service) am Beispiel jugendlicher Handynutzer”, *Medien & Kommunikationswissenschaft* 49 (2001), pp. 437–438.

³ Gerd Maletzke, *Psychologie der Massenkommunikation*, Hamburg: Hans-Bredow-Institut, 1963, p. 18.

⁴ Barbara Mettler-Meibom, *Kommunikation in der Mediengesellschaft*, Berlin: Edition Sigma, 1994.

⁵ Manfred Schmitt, “Persönlichkeitspsychologische Grundlagen”, in Roland Mangold, Peter Vorderer and Gary Bente (eds.), *Lehrbuch der Medienpsychologie*, Göttingen: Hogrefe, 2004, p. 152.

with Gordon Allport's description of personality as a "dynamic organization, inside the person, of psychophysical systems that create the person's characteristic patterns of behaviour, thoughts, and feelings".⁶ In the study at hand the characterization of personality is based on the Big Five Model, which defines personality as a system of the five factors *neuroticism, extraversion, agreeableness, conscientiousness, and openness to experience*.⁷

Apart from personal traits, social factors play an important role in explaining human behaviour, because our actions always take place in a certain social context. Theories of social psychology imply "an attempt to understand and explain how the thought, feeling and behavior of individuals are influenced by the actual, imagined, or implied presence of others".⁸ There are several approaches to the subject of interpersonal relationships. The research project focused on the stage of building up a new personal relationship. The starting point was the following situation: Two people meet at someone's party for the first time, and they find each other quite appealing. At the end of the party they decide to stay in contact and exchange their mobile phone numbers. In order to build up a close relationship, they need to reduce their insecurity and find a common basis, therefore they use SMS.⁹ In the following, the situation described above provided the basis for realizing the experimental design of this study. The social factors were accounted for, enabling the analysis, evaluation, and *handling* of unavailability in SMS communication in this special context.

In addition to the first two columns, a third dimension can influence our individual behaviour. This dimension contains the *motivational factors* in the form of personal needs, expectations, and motives, which are specified in the *uses and gratifications* approach. According to uses and gratifications theory, "social and psychological origins of needs, which gener-

⁶ Gordon Allport, *Pattern and Growth in Personality*, New York: Holt, 1961.

⁷ See, for example, Dieter Bartussek, "Sechzig Jahre faktorenanalytische Persönlichkeitsforschung: Ein Überblick über vier Gesamtsysteme der Persönlichkeit", *Triärer Psychologische Berichte* 18 (1991); Peter Borkenau and Fritz Ostendorf, "Ein Fragebogen zur Erfassung fünf robuster Persönlichkeitsfaktoren", *Diagnostica* 37 (1991), pp. 29–41; Paul Costa and Robert McCrae, *Revised NEO Personality Inventory (NEO PI-R) and NEO Five Factor Inventory: Professional Manual*, Odessa, FL: Psychological Assessment Resources, 1992.

⁸ Gordon Allport, "The Historical Background of Modern Social Psychology", in Gargner Lindzey and Elliot Aronson (eds.), *Handbook of Social Psychology*, Reading: Addison-Wesley, 1968, p. 3.

⁹ Compare Nicola Döring, "Identitäten, soziale Beziehungen und Gemeinschaften im Internet", in Bernad Batinic (ed.), *Internet für Psychologen*, Göttingen: Hogrefe, 2000, pp. 379–415.

ate expectations of the mass media or other sources ... lead to differential patterns of media exposure (or engagement in other activities), resulting in need gratifications and other consequences, perhaps mostly unintended ones".¹⁰ In examining the third dimension of human behaviour, it was necessary to measure people's motives and gratifications of sending SMS. Therefore, items on gratifications from existing studies on the mobile phone use were included in the questionnaire.¹¹

The Roof

The roof of the "Theoretical Building" refers to the effects of mobile unavailability on human behaviour. The present study deals explicitly with the following aspects: evaluation of unavailability, emotional reactions in the described situation, and strategies to handle unavailability, as possible fields for changes in behaviour. The *Attributional Theory of Motivation and Emotion* by Bernard Weiner delivered the theoretical background for these fields of changes.¹² He defines emotions "as a complex syndrome or composite of many interacting factors. Emotions are presumed to have positive or negative qualities of a certain intensity that frequently are preceded by an appraisal of a situation and give rise to a variety of actions. Affects therefore come at a juncture between behavioral events, summarizing reactions to the past and instigating future actions."¹³ According to these considerations, and in order to survey the effect of unavailability in SMS communication, five dependent variables have been constructed: *situation-valuation, cause-attribution, emotions, reactions, and behaviour.*

¹⁰ Jay Blumler and Elihu Katz, *The Uses of Mass Communications: Current Perspectives on Gratifications Research*, Beverly Hills: Sage, 1974, p. 20.

¹¹ Compare, for example, Joachim Höflich and Patrick Rössler, *op. cit.*; Joachim Höflich and Julian Gebhardt, "Mehr als nur ein Telefon: Jugendliche, das Handy und SMS", in Judith Bug and Matthias Karmasin (eds.), *Telekommunikation und Jugendkultur*, Wiesbaden: Westdeutscher Verlag, 2003, pp. 125–144; Louis Leung and Ran Wei, "More Than Just Talk on the Move: Uses and Gratifications of the Cellular Phone", *Journalism & Mass Communication Quarterly* 77 (2000), pp. 308–320; Garrett O'Keefe and Barbara Sulanowski, "More Than Just Talk: Uses, Gratifications, and the Telephone", *Journalism & Mass Communication Quarterly* 72 (1995), pp. 922–933.

¹² Bernard Weiner, *An Attributional Theory of Motivation and Emotion*, New York: Springer, 1986.

¹³ Bernard Weiner, *op. cit.*, p. 119.

Method: Procedure and Design

The study was carried out as an online questionnaire experiment. The basic idea of an experiment is to investigate a correlation between a cause and an effect. Psychological experiments generally include three different kinds of variables: independent, dependent, and controlled variables. In this study, *unavailability in SMS communication* represented the independent variable. Furthermore, the sex of the participating subjects was taken into special consideration as a fixed, controlled variable in the design, whereas the presented situations were judged from a female or male perspective.

For the data collection, conducted between January and March 2007, German students were asked to complete a questionnaire which was presented in three different versions, thereby realizing three different stimulus materials of the independent variable. As mentioned before, subjects were asked to imagine themselves in the following situations: After flirting at a party, mobile phone numbers were exchanged. Subjects should imagine that they sent an SMS to the new acquaintance during the next day, and waiting for an answer firstly, for one hour, secondly, for one day, and lastly, for one week.

After these preliminaries, the experiment was conceptualized as a 3×2 design. Within this design, six experimental manipulations were realized, consisting of all possible combinations of the two factors. The independent variable *unavailability in SMS communication* was tested on three different levels (no answer for one hour/one day/one week), and the controlled variable *sex* with the two levels male and female.

Selected Results

Subjects and Cell Allocation

A sample of $N = 499$ (40% female, 60% male) undergraduate students possessing a mobile phone took part in the experiment. Demographic statistics indicated an age range of 18 to 58 years, with a mean age of $M = 23.8$ ($SD = 3.3$) years. At the moment of data collection, 46% of the students did not have a partner and 53% lived in a steady partnership. Referring to the cell allocation for the three levels of unavailability, Table 1 shows that they were nearly equally distributed (A_1 : $N=174$, 35%; A_2 : $N=152$, 30%; A_3 : $N=173$, 35%).

Independent variable - Unavailability (A)	Controlled variable - Sex (B)					
	B ₁ : male		B ₂ : female		Sum B	
	N	%	N	%	N	%
A ₁ : no answer after one hour	108	22	66	13	174	35
A ₂ : no answer after one day	91	18	61	12	152	30
A ₃ : no answer after one week	99	20	74	15	173	35
Sum A	298	60	201	40	499	100

Table 1
Cell allocation

Effects on the Emotional Reactions of the Subjects

The effects on the emotional reactions of the subjects were tested with the following hypothesis: *Women react more emotionally on unavailability than men*. To prove this hypothesis, the data was analyzed with an analysis of variance to compare the emotional reactions of women ($N = 201$) and men ($N = 298$). In the questionnaire, the emotional reactions were measured with 16 single items of emotions in the situation of unavailability in the first step, and in the second they were summarized to an emotional index. The participating subjects had to judge these emotions on a rating scale with five stages. The descriptive statistics for *unavailability* and *sex* in relation to the dependent variable emotions show a highly significant gender difference ($p < .01$, $h^2 = .06$) compliant with the hypothesis that women ($M = 2.64$, $SD = 0.88$) reacted more emotionally in the experienced situation of unavailability than men ($M = 2.18$, $SD = 0.86$). The hypothesis was substantiated.

Influence of Personal Factors on Emotional Reactions

In the present study, the Big Five Model builds the theoretical background to characterize someone's personal factors or rather their personality. The Big Five Model describes five basic dimensions of personality. These personality traits are often called *neuroticism*, *extraversion*, *agreeableness*, *conscientiousness* and *openness to experience*.¹⁴ Neuroticism is often char-

¹⁴ See, for example, Oliver John, "The 'Big Five' Factor Taxonomy: Dimensions of Personality in the Natural Language and in Questionnaires", in Lawrence Pervin (ed.), *Handbook of Personality: Theory and Research*, New York: Guilford, 1990, pp. 66-100.

acterized by traits such as tension, moodiness, and anxiety. Sometimes this dimension is also called emotional instability. The trait of extraversion includes characteristics such as talkativeness, assertiveness, sociability, and emotional expressiveness. On the other hand, people with low extraversion "tend to be reserved ..., sober, aloof, independent, and quiet".¹⁵ Agreeableness is described with terms such as sympathetic, kind, prosocial, and affectionate. Common features of conscientiousness are a high level of thoughtfulness and goal-directed behaviour. Highly conscientious people seem to be more organized, thorough, and plan more than others. And the last dimension, openness to experience, means having wide interests, as well as being imaginative and insightful. Therefore, it is sometimes called intellect or imagination.¹⁶

The first step to identify the influence of personal factors on emotions was to measure the Big Five factors. For this, the questionnaire included Peter Borkenau and Fritz Ostendorf's German version of the NEO-FFI, a 60-item personality inventory developed by Paul Costa and Robert McCrae.¹⁷ Correlation analysis with the Big Five and the dependent variables showed the highest correlation between the factor *neuroticism* and *emotions* ($r = 0.43$). Consequently, in the following, I will go into details pertaining to this effect.

First of all, this result meant that the higher people score on neuroticism, the more they react emotionally in the situation of unavailability. To itemize this effect, or rather the influence of neuroticism, more precise analyses of variance and covariance with the factor *neuroticism* as controlled variable were computed and compared for the independent variable *emotions*. The results indicated a most significant influence of the personal factor neuroticism. It could be shown that the main effect of the subjects' sex on emotions had become weaker after the covariance analysis ($p < .01$, $h^2 = .05$) compared to the analysis of variance ($p < .01$, $h^2 = .06$). Regarding the research question, the result underlined that the personal factor *neuroticism* influences peoples' evaluation and handling of unavailability, in this case peoples' emotional experiences.

¹⁵ Paul Costa and Thomas Widiger, *Personality Disorders and the Five-Factor Model of Personality*, Washington: American Psychological Association, 1994, p. 3.

¹⁶ See, for example, Boele De Raad, *The Big Five Personality Factors: The Psycholexical Approach to Personality*, Seattle and Göttingen: Hogrefe & Huber, 2000.

¹⁷ Paul Costa and Robert McCrae, *op. cit.*; Peter Borkenau and Fritz Ostendorf, *NEO-Fünf-Faktoren Inventar (NEO-FFI) nach Costa und McCrae*, Göttingen: Hogrefe, 1993.

Conclusion

The present study analyzed what effect unavailability and sex as well as personal social and motivational factors have on human behaviour towards unavailability in SMS communication. The research question and hypotheses suggested that duration of unavailability, sex of the SMS-sender, and other factors have differing effects on the dependent variables. In summary, the results indicated relations between these different aspects. In addition, they pointed out that it has been useful to integrate different psychological theories and ideas of communication science in analyzing the psychological aspects of unavailability in SMS communication.