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ARTICLE

# What do users associate with 'interactivity'?

## A qualitative study on user schemata

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### Abstract

'Interactivity' was one of the major buzzwords of the 1990s. Although the academic discourse has produced a large number of different concepts of 'interactivity', in everyday life it still remains a label put on all kinds of aspects of online communication and digital media. Drawing on schema theory this article explores the concepts of 'ordinary' users (i.e. people who are not professional experts). The results indicate that users associate the foremost social and individual issues with the term 'interactivity', i.e. what they can accomplish by using media in terms of self-development, social influence and social relationships.

### Key words

perceived interactivity • schema • user perspective

### INTRODUCTION

During the 1990s 'interactivity' and 'interactive' emerged as buzzwords to describe the media's future. Since then, the academic discourse has produced a large number of different theoretical definitions and concepts of 'interactivity' (for an overview, see, for example, Kioussis, 2002; McMillan, 2002a). However, in everyday life 'interactivity' still remains a label put on

all kinds of aspects of online communication and digital media. Typing the term into Google turns up such different results as 'interactive' teddy bears and 'interactive' multiple sockets. Additionally, there are a seemingly endless number of web pages offering 'interactive' services. These examples show that the terms 'interactive' and 'interactivity' are used to describe a wide array of different phenomena in everyday life. Both terms still seem to be regarded by practitioners, designers and admen in the media business as keywords that are able to catch the attention of potential users and support the sale of new digital media products (see, for example, IBM Business Consulting Services, 2005).

This is where this article joins the discussion with the focus predominantly on a user perspective. We asked ourselves whether users who are confronted with the term on an almost daily basis have an idea of 'interactivity' or not and what associations they relate to the term. Which media services and technical devices do users believe to be 'interactive' and why? Drawing on schema theory (see, for example, Bartlett, 1932; Crockett, 1988; Rumelhart, 1980) we assume that the associations of users are not only influenced by the popular discourse and their past experiences but also guide their expectations and behavior towards new interactive media products.

The following study was conducted in Germany and so the results should be interpreted against the background of the German popular discourse on interactivity, which changed considerably during the last decade. In the 1990s interactivity was still new and raised a controversial discussion that included such possible benefits as increased options for political participation and commerce as well as possible costs like the dissemination of trivial or harmful content (Beck and Vowe, 1995). Above all, bandwidth was small and the internet was *slow*, which meant technical aspects also played an important role in the public discourse (Beck and Vowe, 1995). Today, interactivity is treated in a more factual and less general way in that single innovative services are regularly discussed by a number of different German media (see, for example, the weekly magazines *Computerbild* and *Chip*).

To answer our questions we conducted in-depth interviews with 38 persons in and around Munich, Germany. We consulted *primarily* 'ordinary' users, i.e. people who are not professional experts in the computer or media business but who regularly use information technologies in their private lives. However, 'ordinary' users undoubtedly differ in their experience with ICTs. While some are novices, others have used ICTs for quite a long time and may have gathered considerable knowledge. Therefore the concept of 'ordinary users' as it is used here covers a wide range of knowledge and experience. The results indicate that users in Germany have a relatively coherent picture of 'interactivity' and, above all, they associate social and individual issues with the term.

## CONCEPTS OF INTERACTIVITY - A SHORT REVIEW OF LITERATURE

In the scientific literature there are numerous definitions of interactivity but very few attempts to establish interactivity as a theoretical concept (see, for example, Kiouisis, 2002; McMillan, 2002a, 2002b). The phenomenon is basically observed from three different perspectives: interactivity as an attribute of *technological systems*, *communication processes* and *user perceptions* (Kiouisis, 2002; McMillan and Hwang, 2002). In order to contrast the associations of users with the main characteristics mentioned in the academic discourse, a very short overview of the academic literature follows.

*Interactivity as an attribute of technological systems:* A first characteristic of interactive systems is their *responsiveness*, i.e. their ability to react to user input (see, for example, Downes and McMillan, 2000; Durlak, 1987; Ha and James, 1998; Heeter, 1989; Rogers, 1986). Different systems react with different speeds, but *real-time speed* is considered to be crucial (Coyle, and Thorson, 2001; Kiouisis, 2002; Steuer, 1992). While real-time speed refers to the time period that the system needs to react to user input, users often have the option to customize the system's timely behavior. For example, some email editors allow an individual to compose a mail and send it later (*timing flexibility*, see, for example, Kiouisis, 2002). Moreover, interactive systems offer a variety of *options for the selection and modification* of content (Heeter, 1989, 2000; Jensen, 1998) and allow users to communicate directly, independent of time and place (*spatial and 'temporal' independence*; see, for example, Blattberg and Deighton, 1991; Bos and Koolstra, 2005). The number of available options plays another crucial role for the degree of interactivity (*range*, see, for example, Durlak, 1987; Kiouisis, 2002; Steuer, 1992). Some authors account for the number of senses that are addressed by the system (*sensory complexity*, see, for example, Durlak, 1987; Kiouisis, 2002). When taken as a whole, nine essential elements of interactive systems can be extracted from the literature: responsiveness, (real-time) speed, timing flexibility, selection options, modification options, range, spatial independence, temporal independence and sensory complexity.

*Interactivity as an attribute of communication processes:* Other authors assume that interactivity resides in communication processes. Interactivity takes place when participants *exchange* communication (see, for example, Bretz and Schmidbauer, 1983; Rafaeli, 1988; Rafaeli and Sudweeks, 1997; Williams et al., 1988), i.e. enter into a *dialogue or discourse* (see, for example, Bezjian-Avery et al., 1998). Moreover, it is supposed that users gain more *control* over the communication process in interactive communication (see, for example, Downes and McMillan, 2000; McMillan, 2002b; Williams et al., 1988). Interactive communication is therefore considered primarily as *two-way communication or bidirectionality* (see, for example, Downes and

McMillan, 2000; Jaffe, 1997; Kioussis, 2002). What's more, Rafaeli focuses on the cumulative exchange of messages: 'Interactivity is an expression of the extent that in a given series of communication exchanges, any third (or later) transmission (or message) is related to the degree to which previous exchanges referred to even earlier transmissions' (1988: 111). Kioussis labeled this characteristic *third-order dependency* (2002). Therefore, five crucial elements of interactive processes can be identified: exchange, dialogue, control, two-way communication and third-order dependency.

*Interactivity as an attribute of user perception:* From another perspective, interactivity can be conceived of as the result of the users' perceptions and sensations. Some authors emphasize that technological systems are only able to offer interactive potential while users have to perceive the interactive potential in order to harness it (McMillan, 2000; Vorderer, 2000; Wu, 1999). According to Wu (1999), perceived interactivity comprises two sub-dimensions: *perceived responsiveness* and *perceived navigation*. While the first dimension refers to the perception of the system's ability to react to user input, the second points to the navigation options offered. Furthermore, individual users differ in their perception of the speed of the system (*perceived speed*; Kioussis, 2002) and their *sensory activation* (Kioussis, 2002). Users also experience different sensations. According to Ha and James (1998), *playfulness* and *connectedness (proximity)* (Kioussis, 2002) with interaction partners in cyberspace are typical sensations. Downes and McMillan (2000) enhance this idea and talk about users developing a *sense of place*. 'Sense of place' has close ties to *the presence* or *social presence* concept (see, for example, Lee, 2004; Short et al., 1976). In total, eight criteria play a crucial role for perceived interactivity: perceived responsiveness, perceived navigation, perceived speed, sensory activation and sensations of playfulness, connectedness, proximity and presence.

There have repeatedly been calls to include a user perspective in interactivity research (McMillan, 2000; Wu, 1999). Three dominant approaches can be observed thus far: a) discussions on user behavior (see, for example, Bucy, 2004; Schonbach, 2005); b) qualitative interviews with experts (see, for example, Downes and McMillan, 2000); and c) experimental settings where the users' perception of predefined categories of interactivity was examined (see, for example, Bezjian-Avery et al., 1998; Chung and Zhao, 2004; Liu and Shrum, 2002; McMillan and Hwang, 2002). None of these approaches is able to provide a full account of what 'interactivity' means to 'ordinary' users, i.e. people who are not professional experts. To our knowledge, the only study so far which includes 'ordinary' users' perceptions of interactivity was carried out by Morrison (1998). The author conducted qualitative interviews with 39 non-professional users of ICTs and additionally with 30 families (66 persons). The results indicate that 'ordinary'

users think foremost of their own actions, sensory input, control over the communication process and the exchange of meaning when asked for their perception of interactivity (Morrison, 1998).

## SCHEMA THEORY

Besides academic concepts and the public discourse on interactivity, users may have their own ideas of what interactivity is all about. In the following, schema theory is used as a theoretical framework to illustrate how users construct, store and use their ideas of interactivity. Originating from psychology, the basic idea of schema theory is that recipients do not comprehensively picture the reality that surrounds them. Instead, they actively construct their own perception of reality (Brosius, 1991).

Schemata help us to tame the flood of daily information. Because people are not able to process the vast amount of unsystematic information they are confronted with, they rely partially on categories (i.e. concepts; Zimbardo, 1992) that are already made up in their minds. A *schema* can be defined as '... a network of interrelated elements that defines a concept for some individual' (Crockett, 1988: 34). Schemata are cognitive representations of the things that surround us (for example, the schema of a tree may contain a trunk, branches, roots, leaves, etc.). Next to physical entities there are schemata for any thinkable object of cognition and they can also refer to abstract ideas (Crockett, 1988; Zimbardo, 1992).

Schemata basically have three different functions. First, as cognitive structures they represent portions of individually stored information chunks containing knowledge, previous experiences, preconceived opinions and expectations (Schulz, 2002; Zimbardo, 1992). Second, as processors they evaluate incoming stimuli and relate new information to already stored information (Schulz, 2002). And third, schemata guide our exploratory behavior, particularly our attention and perception (Schulz, 2002). In this context it seems important that the three different functions are not independent of each other: schemata guide our exploration, filter and relate incoming information to already existing knowledge, which is changed by the incoming information, guide our exploration and so on (Neisser, 1976). Schemata can be activated via external stimuli such as the simple hearing of a word (Zimbardo, 1992) or such internal processes as imagination, thinking and remembering (Schulz, 2002). No matter in which way the schema is activated, we first try to interpret new information in terms of the initial schema (Crockett, 1988). That initial schema guides not only our inferences, but also our actions that follow the processing of information (Crockett, 1988).

'Interactivity' is one of the abstract ideas mentioned above. The entirety of associations (elements) activated in users by asking them what interactivity means to them can be understood as a user schema for 'interactivity'.

Furthermore, it can be assumed that these bundled associations reflect not only the users' past experiences with interactive media and the prevailing public discourse but also their expectations with regard to new media products. For this reason user associations have a very practical relevance: findings on interactivity-related associations can be used in the design, marketing and advertising of future products. These products, their design and advertising will in turn influence the perception of interactivity.

## RESEARCH QUESTIONS AND METHODOLOGY

The first question is whether German users have any idea of interactivity at all (RQ 1). Then, if they do have an impression, the question is what associations are tied to the term and whether there are any greater dimensions which link these terms together (RQ 2)? What's more, users may not only relate abstract ideas to the term but also think of concrete devices and services. The third question is which devices and services do users believe to be interactive and which not, and why (RQ 3)? The final question is what basic types of concepts can be observed and how different concepts can be explained (RQ 4).

In 2005, 58 per cent of the German population (aged 14 and above) regularly used the internet (at least once per month, Van Eimeren and Frees, 2005). This usage includes a wide array of different services; for example, email, file sharing systems, electronic commerce, newsgroups, chats, computer games, web radio, IPTV and different kinds of mass media websites (Van Eimeren and Frees, 2005). Further, they are confronted with the term 'interactive' on a daily basis through the websites of newspapers and broadcasting stations (e.g. [www.daserste.de/interaktiv](http://www.daserste.de/interaktiv)). Therefore, it can safely be assumed that German users have heard the term 'interactivity', know 'interactive' services and have formed some impressions. However, even though German users are familiar with the terms, user concepts may vary individually.

In order to address these questions in-depth interviews were conducted with 38 persons in Munich, Germany, throughout the year 2005. First, we tried to adjust our sample as far as possible to the sociodemographics of German online users via a quota (sex, age, education, professional status). Second, we tried to ensure that respondents within the quota sample came from as many different backgrounds as possible. As a result, the sampling strategy can best be described as a compromise between quota and maximum variance sampling (see, for example, Jensen, 2002).

In 2005 there was an almost equal distribution of male and female users of online media in Germany (Van Eimeren and Frees, 2005). In addition, the young and better educated were over-represented (Van Eimeren and Frees, 2005). Our sample consisted of 19 women and 19 men whose age varied

from 14 to 64 years with a mean of 33.6 years (eight people between 14 and 19; eight between 20 and 29; 10 between 30 and 39; five between 40 and 49; four between 50 and 59; and three over 60). Higher education levels are also over-represented: two people were still in school, three had left school with the German *Hauptschulabschluss* (roughly comparable to the qualifications from the old-style secondary modern schools in Great Britain and junior high school in the USA), 10 with *Mittlere Reife* (roughly comparable to GCSEs and high school respectively), 10 with *Abitur* (roughly comparable to A-levels and senior high school respectively) and 13 had earned a degree from a university. Two people were still students, five had done an apprenticeship, 19 were in a job, 10 were unemployed and two were already retired. All of them used online media at least once a week.

To achieve this great variation within the quota, respondents were recruited with the help of 19 undergraduate students from different quarters of the city of Munich. Each of them was asked to find two interview partners who were neither family members nor close friends. As the main aim of the study was to reconstruct what interactivity means to 'ordinary' users it was also imperative not to choose any person who was enrolled on a university course in communication or media studies.

All respondents were asked the same questions: 'What do you think of when you hear the term interactivity? When you think of interactive media, which media come to mind? What turns them into interactive media? Which features? Which media are not interactive? Why?' Although all respondents were asked the same basic questions they were encouraged to expand on their thinking about interactivity after each single question. All respondents answered our questions in the comfort of their homes. The interviews were recorded on audiotape and later transcribed.

All interviews were conducted in German. While publishing the results of research in another language is a well-known issue (see, for example, Hoffmeyer-Slotnik and Harkness, 2005; Hofstede, 2001) this is even more critical here because our study tries to capture the *meaning* of 'interactivity' (in German: *Interaktivität*). Therefore, all questions, single associations and their dimensionality have to exactly match the English meaning. In order to ensure proper correspondence, all these translations were conducted in close co-operation with a bilingual native speaker who grew up in Louisiana, USA, and Southern Germany and who holds a *Magister Artium* degree (comparable to a Master's degree) in communication sciences.

Additionally, all respondents filled in a standardized questionnaire. Questions concerned sociodemographics (age, sex, educational level, professional status), ownership of technological devices, frequency of use of print, electronic and online media and the time budget spent on online media and television.

## RESULTS - USERS AND THEIR CONCEPTS OF INTERACTIVITY

Research question 1 proved to be relevant because two of our respondents had no idea about interactivity. Both stated that they had never heard of the term before:

I have no idea. I do not know the term. (Female, 16 years old, still in school)

Really ... nothing. What do you mean by that? Spontaneously I would say: no idea at all. (Male, 14 years old, still in school)

Both respondents were very young. Surprisingly, their answers to the standardized questionnaire show that they do actually own interactive devices (mobile phones, playstations and personal computers) and use services such as websites, email, chats and online games on a frequent basis (three to four times a week). The possible explanations for their answers are: both teenagers almost never (less than once a month) use print media (newspapers, magazines and books) and they spend less time on electronic media than the average respondent. Therefore, the chances are high that they are very rarely confronted with the term. Moreover, they are too young to have experienced the controversial popular discourse in the 1990s. Instead, they have grown up with interactive media. Devices such as personal computers or services like online gaming and chats are neither new nor exceptional to them. Consequently, they may have missed the significance of interactive media.

### Dimensions

All the other respondents had an idea of interactivity. To systemize the various associations linked to the term (addressing RQ 2) we analyzed the content of the respondents' answers in two different steps. First, we looked at each single word and dropped terms that had no real relevance to the description of interactivity (e.g. 'and', 'T'). In total our respondents produced 85 completely different associations that they clearly linked to their concepts of interactivity (see Appendix 1). Second, we looked for similarities that connected them, which turned up five different dimensions that subsume all associations.

The *social dimension* comprises all associations that either indicate an action towards other human beings in the sense of *social influence* (for example 'advising' other people or 'commenting' on an issue) or emphasize *social relationships* (for example 'connectedness' with other people). One of the respondents clearly stated his intention to exert an influence on others:

When I think about discussion boards ... you take part in the discussion and have some influence. (Male, 48 years old, employed)

Other respondents paid more attention to the aspect of social relations:

As soon as you are connected to others, then I think that has a lot to do with interactivity. (Male, 28 years old, student)

The *individual dimension* subsumes all associations that are used to describe an individual action without reference to communication partners:

Interactivity is when you surf the net or download music files. (Male, 15 years old, still in school)

All associations that refer to characteristics of the technological systems are represented in the *technological dimension* of interactivity:

Everything that is not electronic is not interactive for me. (Male, 24 years old, employed)

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Some respondents also gave evaluations. They are part of the *image dimension*:

Well, ... this discussion about ring tones. This is a complete rip-off. They are trying to stop it now ... but in a way they are kind of humorous and nice. (Female, 30 years old)

Only a few of our respondents mentioned content directly (*content dimension*):

Everything is up-to-date and there is also some quality. (Male, 62 years old, unemployed)

The answers appear to show a wide variety of associations. However, they are clearly pointing in two different directions: our respondents used many more different terms to describe interactivity in the social (27 terms) and individual (29 terms) dimension than in any other dimension (image: 15; technological: 12; content: 2). So far, all intra- and inter-individual duplicates have been discarded. This approach provides an overview of the basic associations, but it does not indicate the relevance of different aspects.

To get a clearer picture of the importance of different aspects, all interactivity-related associations were counted and adjusted again for intra-individual duplicates, while inter-individual duplicates were not removed. (For example, when a person mentioned the term 'contact' twice in the course of an interview, it was only counted once. If the next respondent also mentioned 'contact', the count was raised to two, etc.) The results (Appendix 1) indicate how many of our respondents mentioned the respective associations.

Our 38 respondents mentioned 202 inter-individually different associations. The number of associations varies between zero (the two teenagers mentioned above) and 31 per person with an average of 5.3 per person. On closer inspection (Appendix 1), it seems obvious that most terms of the social and individual dimension are borrowed from everyday language. They are not specific to interactive communication and would also apply to traditional face-to-face-interactions. Terms like 'participate' or 'communication between humans' (social dimension) 'do' or 'call' (individual dimension), indicate that our respondents perceive interactive communication as an extension of traditional communication via technological means. They are interested in integrating the new possibilities into everyday life rather than accepting them as something completely new. Only when technological aspects come into play do some users mention associations like 'real-time' or 'multimedia' that are specific to the so-called 'new' media. But even then, respondents are far more interested in what they can accomplish by using these techniques than in the technology itself:

This ubiquity... everybody can surf the net anywhere. (Female, 40 years old, employed)

Although there are very few associations in the image dimension, negative associations still dominate. Some associations are clearly similar to early scientific deficit approaches to computer mediated communication, in particular 'dystopian visions' of computerization (see, for example, Thurlow et al., 2004). The usage of interactive media is thought to be dull, unhealthy, etc.:

... it is bad for education in the sense that nobody reads any more ... that children don't get the kind of education they used to get. (Female, 30 years old, employed)

Again, the responses can be subsumed under the five different dimensions mentioned above. Figure 1 shows the proportions of the different dimensions.

While the respondents focussed strongly on social (95 responses) and individual (60 responses) aspects, technological criteria also play a minor role (24 responses). Only 18 responses referred to the image dimension. Moreover, users very rarely linked their concepts of interactivity to specific content (5 responses). In Figure 1 the content dimension even vanishes from sight. When users did mention content, they drew attention to its up-to-dateness and quality (see Appendix 1). Figure 1 can be interpreted as an aggregate cognitive representation of user associations and, therefore, a rough and aggregate user-schema of interactivity.



them into 'interactive media' (the internet, online voting, chats, search engines, etc.). Again, it is intriguing that the respondents mainly mentioned services that offer some kind of social influence (e.g. voting, discussion boards) or facilitate social relationships (e.g. email, online dating, chat rooms) while they did not think about less 'connecting' services, for example online newspapers or online radio. A 19-year-old female apprentice summed up the main reasons why computers and some of the services are considered interactive:

They facilitate communication between human beings. Talking (...) in chat rooms on the internet.

Knowing about the users' basic concepts (dimensions, above) makes it easier to understand why a large proportion of our respondents also mentioned television, radio, mobile phones and telephones. These devices are not all considered interactive by themselves, but rather only in specific contexts:

The radio is kind of interactive ... listeners can call into some shows and ask for songs. (Male, 30 years old, employed)

The same applies to television. For German users, it is the combination of telephones — in particular mobile phones — *and* the radio or television that turns the radio and television into interactive media. Moreover, telephones and mobile phones facilitate contact between human beings and are therefore considered interactive. In addition to talking on the phone, some users also mentioned SMS.

In summary, it can be stated that users derive their concepts of interactivity from existing devices and services. Again, it is not the technological basis that constitutes the main criterion for interactivity. Otherwise it would be hard to explain why traditional media like television and the radio are believed to be interactive in certain contexts.

### Types of concept

The aggregate description offered above should not conceal the fact that there are individually different ideas of interactivity. With the help of the five dimensions, these individual differences can be condensed into four basic types of schemata, which can be explained by user characteristics from the standardized pre-interview questionnaire (age, sex, educational level, professional status, ownership of technological devices, frequency of use of print, electronic and online media, time budget spent on online media and television).

The first type of schema could be called a *naive concept* because it is not actually a concept at all. It simply refers to the two teenagers who had no

idea of interactivity despite using interactive media on an almost daily basis. Their sociodemographics, ownership of technological devices and media use behavior has already been covered in detail.

The second type of schema is the concept of *operators*. Respondents with an 'operator' schema only mentioned associations in the social and individual dimension. They are well aware of the individual and social possibilities offered by interactive media, but they pay no attention to the content, image or technological foundations. The schema is called 'operator' concept because the media use behavior of the respective respondents does not indicate any abstinence from interactive media. On the contrary, all of them owned and used regularly (at least two to three times a week) a relatively large range of electronic and potentially interactive media (e.g. personal computers, notebooks with internet access, mobile phones). In our sample, users with an 'operator' schema were by far the largest group (22 respondents). If anything, a lack of distinctive features is typical for 'operators'. Their age varies between 17 and 64 years. Our group comprised 10 male and 12 female respondents. They covered the complete range of professional status and educational levels and they are living either as singles or as members of large families. There is only one distinctive feature: none of these respondents worked in the media, for an agency or in the IT business. Hence it can be concluded that these users mainly represent 'John Public', i.e. average users who operate interactive media but have neither a deep understanding of nor interest in technology nor any special preferences concerning the image and content of interactive media.

A third type of schema may be called *techno plus*. Respondents with this type of concept *added* associations in the technological dimension. It is called 'techno plus' because the schema also includes the social and individual aspects which dominate it. Technology is seen more as a catalyst for social and individual activities:

I think of this network which connects people and gives them the opportunity to communicate, play or have some kind of exchange. (Female, 30 years old, employed)

Again, sociodemographic characteristics add little to the explanation of the schema. This group consisted of 10 respondents (five female, five male, aged between 15 and 64 years) who covered the complete range of educational levels and professional status. Moreover, the size of the households varied. But these respondents clearly differed from the first two types in terms of media ownership and media use patterns, as they own many more media devices than the average respondent in our sample. Most of them have both a personal computer and a notebook as opposed to just one or the other. Almost all of them additionally own more than one mobile phone, a

PDA, etc. They also spend much more time on electronic and interactive media than other users. However, these differences are only of descriptive value. They do not inform us whether technological interest is a cause or a consequence of devoted online media use. We can, though, assume that the real cause may lie in another factor: all respondents with the 'techno plus' schema mentioned that they work or had worked in the media, software or agency business. It should be pointed out that it is still not clear whether they had chosen their job according to their interests or whether they had developed an interest in it while working. At least it can be assumed that their socializing on the job helps keep them up to date in terms of technology.

We call the last type of concept the *skeptical schema* because respondents with that schema mentioned associations in all five dimensions. They are far more advanced than all the other respondents in terms of a critical discussion. They not only realize the social and individual opportunities as well as the technological basis, but also heavily criticize some of the content offered on the internet. Although they see the opportunities of interactive media, they are very skeptical as to whether these are being used in a sophisticated way:

... somebody who is completely alone, someone who has few social bonds... it might be a chance for him to speak to other people. That might be more positive than just staying alone. But when I look at all these children who are playing computer games day in day out, they are almost exclusively communicating via the web or SMS. I do not know whether this is a very healthy way of communicating. (Male, 30 years old, employed)

Although some of the sociodemographics do not contribute to an explanation of this schema (gender: two female, two male respondents), others do. All four respondents are relatively old (30 to 61 years) and share a relatively high level of education (A-levels and above). They work in good and rather traditional jobs (e.g. teachers) and all of them have a family. Although they use and own a large range of interactive media, the time budget spent on these devices is below average. Their main line of reasoning can be summarized as follows: because of their jobs all of them had to get used to interactive media. Although they realize the positive potential offered for communication they fear that interactive media might pose a hazard for younger and less educated persons. In that sense the most advanced schema of interactivity also represents the most pessimistic one. It reflects the controversial popular debate on interactivity in the 1990s.

Summing up the evidence, it can be stated that the most intriguing result refers to the fundamental relevance of social and individual aspects. Our respondents mainly related interactivity to already existing schemata of social interaction and, therefore, everyday life communication. All other schemata seem to develop from that starting point. Other schemata, for

example an individual technological schema, did not occur in our sample. On the one hand, the results are confined to a relatively small sample of 38 persons, but, on the other hand, we expected a far higher degree of variance even within a small sample. The results may offer only an initial glimpse of how users perceive and understand interactivity but they do clearly point to a fundamental relatedness of interactivity and face-to-face interpersonal communication in particular. Therefore, our respondents mainly conceived interactive communication as an extension of already existing forms of communication.

## A COMPARISON OF ACADEMIC AND USER CONCEPTS

At this point it is an intriguing question whether or not there are differences between academic concepts of interactivity and those of 'ordinary' users. Because we asked users to explain their concepts of interactivity, all associations have to be conceived of as characteristics of user perception. Nevertheless, we keep the different academic perspectives offered in section 2 analytically separate.

*Interactivity as an attribute of technological systems:* In section 2 we identified nine crucial elements of interactive systems. The associations of our respondents reflect most of these characteristics. The criterion 'responsiveness' is expressed in associations such as 'feedback from a machine'. Our respondents also referred to 'timing flexibility' ('flexible timing'), 'selection and modification options' (e.g. 'options', 'choose', 'modify content'), spatial and temporal independence ('independent of space and time') and sensory complexity (e.g. 'sensory activation', 'multimedia'). 'Real-time speed' was literally reproduced. The only characteristic missing is 'range'.

*Interactivity as an attribute of communication processes:* The associations of users contain five of the six crucial elements identified above: 'exchange' and 'dialogue' were literally reproduced. 'Control' was implicitly mentioned with the help of terms such as 'interfere', 'exert influence'; 'two-way communication' expresses itself in associations such as 'communication between humans'. Only 'third-order dependency' is missing. There are two possible explanations: the first being that although third-order dependency is one of the oldest conceptualizations of interactivity (Rafaeli, 1988), it is a strictly academic concept. Therefore, 'ordinary' users might express that idea through terms like 'exchange'. Second, 15 years after the advent of the internet, users might be used to the 'dependency of messages and simply assume it.

*Interactivity as an attribute of user perception:* As already mentioned above, 'responsiveness', 'navigation' (e.g. 'surf', 'click'), 'speed' and 'sensory activation' were named by the respondents. Moreover, they expressed sensations of 'playfulness' (for example, 'play') and 'connectedness' (literally

reproduced). There are also some associations that indicate feelings of 'proximity' and 'presence' ('take part in', 'participate', 'create together').

Therefore, it can be concluded that the 38 respondents under investigation mentioned almost all of the academic criteria. Nevertheless, no single respondent was able to reproduce all criteria. The interviews reveal that almost all users ascribe specific weight to process-related characteristics, (for example, exchange, dialogue) and specific sensations (for example, connectedness), i.e. characteristics that express social and individual aspects of interactivity. Characteristics of technological systems (for example, 'real-time' speed) are only mentioned by some respondents and only in addition to process- and sensation-related aspects. The results may be traced back partly to the change in popular discourse and technological development. While interactivity and its options were a controversial issue in the 1990s and bandwidth was still low, the discussion focused on options and speed. Nowadays both are taken for granted.

## DISCUSSION

The results of this small-scale qualitative study entail several limitations. Although we tried to adjust our sample to the sociodemographics of German online users, it cannot be regarded as representative. Therefore we cannot give evidence on the distribution of different types of concepts throughout the whole population. One of the main aims of qualitative interviewing is to identify different types or patterns of attitudes or behavior (see, for example, Jensen, 2002). Although we found different types of concepts it is still possible that there are users with different concepts. Moreover, the idiosyncrasies of the German media system and the German public discourse on interactivity confine the results to the German situation.

Summing up the evidence it can be stated that our interview partners have — despite the diffuse usage of the term in everyday life — a surprisingly coherent picture of 'interactivity'. Their ideas can be condensed into five different dimensions (social, individual, technological, image and content). Our users predominantly associate social and individual issues with the term, i.e. what they can accomplish by using media in terms of self-development, social influence and social relationships. Only a few persons mentioned additional aspects of technology, content and image. The results corroborate the findings of Morrison (1998) whose respondents also paid much more attention to their own actions and sensations than to technical features (see section 2). The differences in individual concepts can be partly explained by professional reasons. Respondents who associated aspects of technology, image or content are often used to dealing with interactive media on a professional basis (e.g. technicians who associate real-time speed, teachers who associate educational hazards), and, even in these cases, the latter aspects

play a minor role. All of the associations users mentioned seem to develop from existing forms of traditional communication; for example, face-to-face communication or interpersonal communication via telephone. The results may serve as a reminder that the key to understanding interactive communication lies in understanding the traditional forms of communication and their social embeddedness.

Surprisingly, the results indicate that younger people are less aware of interactivity as a concept than their seniors. While our two novices had no real idea, older respondents (who were not 'raised digital') were much more reflective of changes in the media landscape. This result might be traced back to the controversial popular discourse of the 1990s, when most of the older respondents first got in touch with interactive media. In the long run interactivity might, therefore, be neither special nor new to younger generations. More to the point, they might just take it for granted. ;

The knowledge of user schemata is useful from an academic as well as a practitioner's perspective. First, the results might be fruitful for further research into perceived interactivity. McMillan (2000) suggested that interactivity may reside primarily in the eye of the beholder. In her study, technological features of websites did not serve as good indicators to measure perceived interactivity (McMillan, 2000). The results of our study offer an explanation for this result: large proportions of user schemata are not covered by technological aspects but by aspects of individual action, social influence and relationships. In 2002, MrMillan and Hwang developed three different scales to measure perceived interactivity (real-time conversation, no delay, engaging). Although these scales contain items that refer to social (e.g. '...enables conversation') and individual aspects (e.g. '...keeps my attention') of perceived interactivity they still neglect the accompanying sensations of users. Therefore, it would be interesting to add items that express situational sensations and see whether a 'sensation'-scale (e.g. '... gives me a sense of connectedness' or '... I feel like I am part of a community') might explain more of the variance of perceived interactivity. Second, knowing more about the perceptual component of interactivity may in turn facilitate a better understanding of 'ordinary' users' often complex and heterogeneous behavior towards new information technologies. As users are only able to behave according to their perception of reality, the perceptual component should be conceptualized as an intervening variable between technological features and behavioral outcomes. Third, future work may focus on a more expanded analysis of the 'image' dimension. Knowledge about the positive and/or negative experiences of 'ordinary' users and about the symbolic value of interactive media devices may contribute to a more thorough design of new technologies.

The results also have a practical relevance, because they reflect not only the users' past experiences with interactive media and the public discourse on interactivity but also their expectations regarding new media products, as they give clues that can be used in the design, marketing and advertising of future products. Users have the impression that interactivity is a phenomenon that resides in themselves and evolves from social and individual action. These insights offer nothing really *new*, especially to software and hardware designers. The main research objective of Human Computer Interaction (HCI) is the usability of hardware and software and many efforts have been taken to create 'interactive' communication as close as possible to natural forms of communication (see, for example, Lowe and Hall, 1999; Nielsen, 2000).

In contrast to HCI researchers, the German advertising business does not seem to make much use of these insights. 'Interactive' is still a label put on all different kinds of products (for example, television sets which are only able to receive digital signals). Technological descriptions still dominate advertisements. Even if many users are not sure how to evaluate new media technologies, some of them already feel deceived in their expectations:

You cannot really take part in... you cannot really comment on anything because they do whatever they want with your sound bites... on television the degree of interaction is so ridiculously low ... I would say this is dupery. I really get annoyed by that. (Male, 39 years old, employed)

To enhance the acceptance of future products, it would be advisable to tell users what they can accomplish by using the respective product.

Appendix 1 Associations with interactivity

	COUNT		COUNT
<b>1 Social Dimension</b>		debate	1
1.1 <i>Social Influence</i>		appeal	1
speak out	8	comment	1
participate	8	create together	1
have a say in	5	modify content	1
exert influence	5	<b>1.2 Social Relationships</b>	
feedback from other people	2	communication between	21
interfere	2	humans	
take part in	1	connectedness	9
advise	1	contact	6
cause	1	exchange	5
join in	1	discussion	4
play a part in	1	talk with each other	4
impact	1	conversation	2

	COUNT		COUNT
interaction	1	<b>3</b>	<b>Technological Dimension</b>
dialogue	1	real-time	3
integration	1	options	3
<b>2</b>	<b>Individual Dimension</b>	ubiquity	3
do	18	electronic	3
call	7	multimedia	2
choose	5	technological convergence	2
say	3	flexible timing	2
utter	2	network	2
surf	2	independent of space	1
arrange	1	independent of time	1
decide	1	feedback from machine	1
book	1	sensory activation	1
tap	1	<b>4</b>	<b>Image Dimension</b>
dive into	1	rip off	2
watch	1	ridiculous	2
register	1	dumb	2
order	1	bad education	1
manage	1	unhealthy	1
jump in	1	nonsense	1
record films	1	dull	1
take photos	1	threatens reading	1
inform	1	luxury	1
feed in	1	danger	1
react	1	social pressure	1
download	1	young	1
engage	1	chance	1
play	1	humorous	1
act	1	nice	1
press	1	<b>5</b>	<b>Content Dimension</b>
create	1	quality	4
strike keyboard	1	up-to-dateness	1
click	1		

Appendix 2 Devices and services

	COUNT		COUNT
<b>1</b>	<b>Devices</b>	computer/online games	7
	computer	discussion boards	7
	television	call-in shows on the radio	7
	mobile phone	television game shows	4
	radio	newsgroups	3
	play station	email	2
	telephone	SMS	2
<b>2</b>	<b>Services</b>	online shopping	2
	internet	ring tones	1
	call-in shows on television	online dating	1
	voteings	online quizzes	1
	chat rooms	search engines	1

## References

- Bartlett, F.C. (1932) *Remembering. Studies in Experimental and Social Psychology*. London: Cambridge University Press.
- Beck, K. and G. Vowe (1995) 'Multimedia aus Sicht der Medien', *Rundfunk und Fernsehen* 43(4): 549-63.
- Bezjian-Avery, A., B. Calder and D. Iacobucci (1998) 'New Media Interactive Advertising vs. Traditional Advertising', *Journal of Advertising Research* 38(4): 23-32.
- Blattberg, R.C. and J. Deighton (1991) 'Interactive Marketing: Exploiting the Age of Addressability', *Sloan Management Review* 33(1): 5-14.
- Bos, M.J.W. and C.M. Koolstra (2005) 'Developing a New Objective Instrument to Measure Different Levels of Interactivity', paper presented at the First European Communication Conference, Amsterdam, the Netherlands, 24-26 November.
- Bretz, R. and M. Schmidbauer (1983) *Media for Interactive Communication*. Beverly Hills, CA: SAGE.
- Brosius, H.B. (1991) 'Schema-Theore - ein brauchbarer Ansatz für die Wirkungsforschung?', *Publizistik* 36(2): 285-97.
- Bucy, E.P. (2004) 'Interactivity in Society: Locating an Elusive Concept', *The Information Society* 20(5): 373-83.
- Chung, H. and X. Zhao (2004) 'Effects of Perceived Interactivity on Web Site Preference and Memory: Role of Personal Motivation', *Journal of Computer Mediated Communication* 10(1), URL (consulted January 2006): <http://jcmc.indiana.edu/vol10/issue1/chung.html>
- Coyle, J.R. and E. Thorson (2001) 'The Effects of Progressive Levels of Interactivity and Vividness in Web Marketing Sites', *Journal of Advertising* 30(3): 65-77.
- Crockett, W.H. (1988) 'Schema, Affect, and Communication', in L. Donohew, H.E. Sypher and T.E. Higgins (eds) *Social Cognition and Affect*, pp. 33-52. Hillsdale, NJ: Lawrence Erlbaum.
- Downes, E.J. and S.J. McMillan (2000) 'Defining Interactivity - A Qualitative Identification of Key Dimensions', *New Media & Society* 2(2): 157-79.
- Durlak, J.T. (1987) 'A Typology for Interactive Media', in M.L. McLaughlin (ed.) *Communication Yearbook 10*, pp. 743-57. Newbury Park, CA: Lawrence Erlbaum.
- Ha, L. and James E.L. (1998) 'Interactivity Re-examined: A Baseline Analysis of Early Web Sites', *Journal of Broadcasting & Electronic Media* 42(4): 457-74.
- Heeter, C. (1989) 'Implications of New Interactive Technologies for Conceptualizing Communication', in J.L. Salvaggio and J. Bryant (eds) *Media Use in the Information Age: Emerging Patterns of Adoption and Consumer Use*, pp. 217-35. Hillsdale, NJ: Lawrence Erlbaum.
- Heeter, C. (2000) 'Interactivity in the Context of Designed Experiences', *Journal of Interactive Advertising* 1(1), URL (consulted January 2005): <http://jiad.org/vol1/nol/heeter/>
- Hoffmeyer-Slotnik, J.H.P. and J.A. Harkness (2005) *Methodological Aspects in Cross-National Research*. Mannheim: ZUMA.
- Hofstede, G. (2001) *Culture's Consequences. Comparing Values, Behaviors, Institutions, and Organizations across Nations*. Thousand Oaks, CA: SAGE.
- IBM Business Consulting Services (2005) 'Medienstudie 2005', *Mediaculture-online*, URL (consulted June 2007): [http://www.mediacultureonline.de/fileadmin/bibliothek/ibm\\_medienstudie/ibm\\_medienstudie.pdf](http://www.mediacultureonline.de/fileadmin/bibliothek/ibm_medienstudie/ibm_medienstudie.pdf)
- Jaffe, J.M. (1997) 'Media Interactivity and Self-Efficacy: An Examination of Hypermedia First Aid Instruction', *Journal of Health Communication* 2(4): 235-51.

- Jensen, J.F. (1998) 'Interactivity. Tracking a New Concept in Media and Communication Studies', *Nordicom Review* 19(1): 185-204.
- Jensen, K.B. (2002) 'The Qualitative Research Process', in K.B.Jensen (ed.) *A Handbook of Media and Communication Research. Qualitative and Quantitative Methods*, pp. 235—53. London: Routledge.
- Kiousis, S. (2002) 'Interactivity: A Concept Explication', *New Media & Society* 4(3): 355-83.
- Lee, K.M. (2004) 'Presence, Explicated', *Communication Theory* 14(1): 27-50.
- Liu, Y. and L.J. Shrum (2002) 'What Is Interactivity and Is it Always Such a Good Thing? Implications of Definition, Person, and Situation for the Influence of Interactivity on Advertising Effectiveness', *Journal of Advertising* 31(4):53—64.
- Lowe, D. and H. Hall (1999) *Hypermedia and the Web. An Engineering Approach*. Chichester: Wiley.
- McMillan, S.J. (2000) 'Interactivity Is in the Eye of the Beholder: Function, Perception, Involvement, and Attitude Toward the Web Site', in M.A. Shaver (ed.) *Proceedings of the 2000 Conference of the American Academy of Advertising*, pp. 71—8. East Lansing: Michigan State University.
- McMillan, S.J. (2002a) 'Exploring Models of Interactivity from Multiple Research Traditions: User, Documents and Systems', in L.A. Lievrouw and S. Livingstone (eds) *Handbook of New Media. Social Shaping and Consequences of ICTs*, pp. 163-82. London: SAGE.
- McMillan, S.J. (2002b) 'A Four-Part Model of Cyber-Interactivity', *New Media & Society* 4(2): 271-91.
- McMillan, S.J. and J.S. Hwang (2002) 'Measures of Perceived Interactivity: An Exploration of the Role of Direction of Communication, User Control, and Time in Shaping Perceptions of Interactivity', *Journal of Advertising* 31(3): 29-42.
- Morrison, M.A. (1998) 'A Look at Interactivity from a Consumer Perspective', in J.B. Ford and E.J.D. Honecutt (eds) *Developments in Marketing Science*, pp. 149-54. Norfolk, VA: Academy of Marketing Science.
- Neisser, U. (1976) *Cognition and Reality: Principles and Implications of Cognitive Psychology*. San Francisco, CA: Freeman.
- Nielsen, J. (2000) *Designing Web Usability: The Practice of Simplicity*. Indianapolis, IN: New Riders Publishing.
- Rafaeli, S. (1988) 'Interactivity. From New Media to Communication', in R.P. Hawkins, J.M. Wiemann and S. Pingree (eds) *Advancing Communication Science: Merging Mass and Interpersonal Processes*, pp. 110-34. Newbury Park, CA: SAGE.
- Rafaeli, S. and F. Sudweeks (1997) 'Networked Interactivity', *Journal of Computer Mediated Communication* 2(4), URL (consulted May 2004): <http://jcmc.indiana.edu/vol2/issue4/rafaeli.sudweeks.html>
- Rogers, E.M. (1986) *Communication Technology. The New Media in Society*. New York: Free Press.
- Rumelhart, D.E. (1980) 'Schemata: The Building Blocks of Cognition', in R.J. Shapiro, B.C. Bruce and W.E. Brewer (eds) *Theoretical Issues in Reading Comprehension*, pp. 33-58. Hillsdale, NJ: Lawrence Erlbaum.
- Schonbach, K. (2005) 'The Hyperactive Audience - Still an Illusion', in P. Rossler and F. Krotz (eds) *Mythen der Mediengesellschaft*, pp. 267-77. Konstanz: UVK.
- Schulz, W. (2002) 'Kommunikationsprozess', in E. Noelle-Neumann, W. Schulz and J. Wilke (eds) *Fischer Lexikon Publizistik - Massenkommunikation*, pp. 153-82. Frankfurt am Main: Fischer Taschenbuch Verlag.

- Short, J., E. Williams and B. Christie (1976) *The Psychology of Telecommunications*. London: Wiley.
- Steuer, J. (1992) 'Defining Virtual Reality: Dimensions Determining Telepresence', *Journal of Communication* 42(4): 73-93.
- Thurlow, C., L. Lengel and A. Tomic (2004) *Computer Mediated Communication. Social Action and the Internet*. London: SAGE.
- Van Eimeren, B. and B. Frees (2005) 'Nach dem Boom: GroBter Zuwachs in internetfernen Gruppen', *Media Perspektiven* (8): 362—79.
- Vorderer, P. (2000) 'Interactive Media and Beyond', in D. Zillmann and P. Vorderer (eds) *Media Entertainment. The Psychology of its Appeal*, pp. 21-36. Mahwah, NJ: Lawrence Erlbaum.
- Williams, F., R.E. Rice and E.M. Rogers (1988) *Research Methods and the New Media*. New York: Free Press.
- Wu, G. (1999) 'Perceived Interactivity and Attitude toward Websites', in M.S. Roberts (ed.) *Proceedings of the American Academy of Advertising*, pp. 254—62. Gainesville: University of Florida.
- Zimbardo, P.G. (1992) *Psychologie*. Berlin: Springer.

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