Animal Emotions

Christian Montag, Kenneth L. Davis

Published by Punctum Books


For additional information about this book
https://muse.jhu.edu/book/77430
Of Primal Emotional Needs in a Digital Society

A German kid is sitting in front of his computer and shouts at the screen: “I want to play Ultimate Tournament!” This kid is probably in his early teens and produces a guttural cry, which is followed by verbal iterations on really wanting to play this video game. What follows is a disturbing video of a teenager raging at the computer and finally destroying the keyboard because the computer is not loading the game (Beatz 2007). This video has been watched nearly two million times on YouTube. Whether this video was staged or not (the protagonist states in a later video that it was actually acted out (Fleischer 2018)), it becomes clear that, for a lot of young children and adolescents, the computer represents a hard to resist temptation, with its many attractive video games and the abundant possibilities of the world wide web. In times of the ubiquitously available smartphone and in addition to the aforementioned video games, online social networks such as Facebook and Instagram or messenger services such as WhatsApp and WeChat are of great interest to teenagers and also growing numbers of older online users. In our own research (Montag et al. 2015), we demonstrated that the average (and directly tracked) smartphone usage of more than 2,400 investigated participants, ranging mostly between 14 and 35 years old, was about 32 minutes daily on WhatsApp. WhatsApp is an application on a smartphone that a person can use to easily exchange messages with an individual or with a group of people. It is even possible to send around pictures or videos via these
channels. WhatsApp is so successful that currently over one billion people have already installed it on their smartphones. This means that about every seventh person on this globe has created a WhatsApp account. The app WeChat is comparable to WhatsApp, but actually represents an even more powerful application (you can also pay with it), and dominates the mobile market in China (Montag, Becker, and Gan 2018). Typically, the complete peer group of any given teenager is spending a great deal of time on these digital channels. Importantly, it is nearly impossible for a single young person to quit using such messaging apps, because one would risk being socially rejected from the group with the likely consequence of feeling left out and alone and experiencing intense separation-distress/sadness. We will try to revisit and solve this issue when discussing real play behavior in the last section of this chapter.

One of the countries with the highest incidence of digital overusage is South Korea. Here, about 5% of the population (two million inhabitants), has been reported to be “hooked on” the online world (Hartvig 2010). One reason for this unbelievably high number is that one of the main industries providing jobs to people in South Korea is the computer industry. In this case, the same industry that provides jobs and a means of making a living also fosters addictive tendencies. In order to address the problem, several years ago, the government of South Korea launched an official initiative to fight Internet addiction. As a result, psychological counseling has been provided for thousands of patients in this Asian country. Although problems in other countries are still comparably low, the rest of the industrialized world is catching up fast in terms of overusing digital technologies. According to representative numbers (Rumpf et al. 2011), one percent of the German population was Internet addicted with numbers rising, and in 2014, the figure was already at two percent (Müller et al. 2014). Just take a look at what people are doing every day on public transportation! Everyone stares at a small device, their attention completely absorbed. To some extent, all digital societies are facing problems due to overusage of smartphones and the Internet.1

1 At the beginning of this chapter we already noted that Internet
Beyond these numbers, the press has covered many other disturbing stories in the last years that go beyond what we’ve already mentioned in this chapter. There was an unbelievable and very sad story about parents letting their baby starve because they were focused instead on feeding a cyber baby (Tran 2010). In another story, a young man shot and killed his mother and wounded his father because they took away his video game (Martinez 2009). Further fatalities have been reported in the context of Internet addiction due to cardiopulmonary arrest after binge video gaming for several days without stopping (Hunt and Ng 2015). In Christian’s hometown of Cologne, Germany, special traffic lights are being tested for pedestrians who stare at their smartphones instead of paying attention to traffic. In New Jersey, in the U.S., there is a proposal to ban texting on smartphones while walking (Billig 2016).

Although these cases resonate in the neural circuitry underlying our ancient negative emotions, fortunately, in their extreme form, they are infrequent, and we do not want to overpathologize everyday life habits that often provide us with joy. Needless to say, technologies are often very helpful in enabling communication across large distances. Christian could not live without Skype or other communication platforms when he’s doing his research in China and longing to see his wife, Susanne, and daughter, Hannah.

Nevertheless, the introduction of digital technologies brings both opportunities and risks/problems. As the positive aspects of digital technologies are fairly obvious (again, just think of the great global communication possibilities or the fact that Ken and Christian could write this book together), in the present chapter we focus on the darker sides of technology usage. The dramatic changes in society due to the digital revolution and its impact on personal communications and on business has also impacted the scientific community, where a growing number of researchers around the globe are trying to understand if problematic Internet addiction represents no official diagnosis. In general, researchers abstain from using the term “Internet addiction,” but instead speak of “problematic Internet use” or “Internet Use Disorder.” In this chapter, we use the term “Internet addiction” only for reasons of simplicity.
use is, indeed, best characterized as an addiction. Notably, there is clear evidence that at least some of the same neural circuitries of the brain are involved in “Internet addiction” that are seen with other forms of substance (or non-substance) addictions such as alcohol addiction or pathological gambling. Moreover, in June 2018, the World Health Organization included Gaming Disorder in ICD-11. The International Classification of Disease (ICD, now in version 11) is a manual in which psychiatric disorders are described in detail. With the inclusion of Gaming Disorder in ICD-11, a specific form of Internet addiction, perhaps better called Internet Use Disorder, has been accepted and designated as an official disease/brain disorder.

Until the general debate on the nature of Internet addiction is ultimately settled (and it takes time to do good science), we urgently need to answer some pressing questions. What status should technology have in our lives in the future? When and how should we use it? At what age should children be allowed to have first contact with a smartphone? The list of such questions is already very long (and gets longer by the day). Although empirical evidence to answer these questions is rare, we might not have much time to answer them, because: i) the technological progress in our digital society is happening in ever-faster cycles and; ii) if there are negative consequences to be faced due to digital overuse, it might be too late for several generations already growing up with and using these technologies every day. In the following section, we would like to attempt to find some answers to these pressing questions by taking into account some insights from AN theory.

Before continuing, we wish to reiterate that we do not want to be one-sided about the manifold aspects of the Internet. Without a doubt, the Internet is a fantastic technology connecting people around the world. And in fact, many of our scientific papers would have not been written without the ability to communicate with other researchers via email. This was particularly true for Christian’s cooperation with Jaak. Just like

2. But there are also differences; see a recent review by Montag and Becker (2019).
3. Note that this diagnosis was ratified in May 2019.
millions of people every day, we enjoy the Internet and stimulate our seeking systems by searching for infotainment or snooping through the latest research articles being published ever more frequently in open access journals. These scientific articles can even be downloaded at no cost to interested readers. However, all these positive aspects of the Internet do not mean that we should close our eyes to the potentially harmful consequences of digital overusage. Here, we would like to highlight some thoughts that might lead some of our readers to reconsider their own digital consumption.

Okay, what’s going wrong in our digital societies? Before becoming too academic, we briefly note that we will not be very precise in the following, because Internet addiction is not necessarily exactly the same as smartphone addiction or other forms of digital overusage. Indeed, research from other groups in addition to our own demonstrates that some overlap between these digital addictions exists, but naturally, there is also room for differences. For instance, many people might think of desktop computers and video games when confronted with the term “Internet addiction,” and not of the Internet per se when thinking about their Internet connected smartphones. Perhaps Internet addiction is also simply an umbrella term for mobile and non-mobile forms of Internet addiction (Montag et al. 2020); time will tell. Notably, if the Gaming Disorder diagnosis in ICD-11 one day functions as a blueprint for other forms of Internet addiction, it might be of interest to know that all four of the following items in the recently published Gaming Disorder Test (Pontes et al. 2019, see overleaf) need to be positively answered in order to indicate an addiction to video games.

Beyond these recent developments and academic debates, it is fairly obvious that one of the leading problems of digital addictive tendencies is the smartphone and its manifold applications (Montag et al. 2020; Sha et al. 2019). It may be particular noteworthy that Steve Jobs, who successfully ushered in the smartphone hype with the iPhone in 2007, did not allow his own children to use an iPad and was very strict with his children with respect to the use of digital devices in general (Bolton 2016). This is interesting, because Steve Jobs was obviously a very smart man (some claimed he was a genius). Given that he is responsible
Gaming Disorder Test

Instructions: The questions below are about your gaming activity during the past year (i.e., last 12 months). Here, gaming activity means any gaming-related activity that has been played either from a computer/laptop or from a gaming console or any other kind of device (e.g., mobile phone, tablet, etc.) both online and/or offline.

Notably, the following items are presented in past tense, as you are asked to describe your gaming activity during the last twelve months. Nevertheless, when answering the items, please keep in mind that we explicitly refer to a time window starting twelve months ago up until today.

1. I have had difficulty controlling my gaming activity.
2. I have given increasing priority to gaming over other life interests and daily activities.
3. I have continued gaming despite the occurrence of negative consequences.
4. I have experienced significant problems in life (e.g., personal, family, social, education, occupational) due to the severity of my gaming behavior.
for the fact that a large number of digital gadgets can be found in everyone’s pocket nowadays, these strict parenting practices might come as a surprise. Maybe he just foresaw some of the problems we are discussing in this chapter – in particular for the young, vulnerable brains of children.

Why is the smartphone so “addictive”? We are convinced that one reason many people are hooked on their smartphones is due to slot machine strategies at work in several applications on these small devices. In psychology, we refer to the reinforcement strategy operating on smartphones as intermittent reward, meaning not being able to predict when you will receive the next reward (but knowing that it will come). In other words, when we are checking our phones, we are not getting rewarded every single time. The kinds of small rewards we are referring to could be a nice message from a loved one, a funny message on Facebook, and, for scientists, a message about an accepted research paper coming in via email. This simple operant learning mechanism results in steady responding, gluing millions of people to their phones, which, in Germany, gave rise to the slang word smombies – smartphone zombies. In fact, in 2015, this was acknowledged as an official slang word used by teenagers. As mentioned above, in Christian’s hometown we even have traffic lights anchored in the pavement so that smombies don’t get run over by the train when crossing the street (Montag 2018)!

What is also troubling to see is that attendees of concerts choose to record the complete music performance on their smartphones instead of enjoying the concert. This costs a lot of cognitive focus (holding the smartphone stable without shaking the device in the dark). Following from this, the concert attendee is not emotionally involved and produces a bad video in the dark that will probably never be watched anyway. In short, the old Roman saying carpe diem (retranslated for our times as “seize the day”) is not valued anymore, as we regularly distract ourselves from the actually occurring event (Montag and Walla 2016). For example: romantic couples who prefer their smartphones instead

4 Of relevance, persons are not addicted to the smartphone, but to applications on the phone. Alcoholics are also not addicted to a bottle, but to the content of the bottle (Panova and Carbonell 2018).
of talking to each other, even when having a candlelight dinner. Then there is the young girl Christian observed some years ago going through the zoo in Singapore – sadly, she was more interested in her smartphone than in the wildlife activity around her. Christian previously covered this story in his book *Homo Digitalis*, published in German (Montag 2018).

Returning to our questions: What status should technology have in our lives in the future? When and how should we use these technologies? At what age should children be allowed to have first contact with a smartphone? The first two questions have been partly answered by the illustration above (Figure 5.1), and the answers to these questions fit well with our basic needs arising from our ancestral animal emotions: In order to feel good,
most well-adjusted adults need direct “face to face”/“human to human” interaction. In particular when feeling sad, what do you want most? A real hug by a loving, supportive person or an encouraging smiley face via WhatsApp? The answer seems to be fairly clear and is also supported by data from Christian’s German and Chinese labs, where, in general, participants were happy with different kinds of support, but clearly chose options including physical support most often (in both Germany and China about 94%). In short, this shows that we are mammalian beings longing for social support when feeling sad and are happy with different kinds of support. Nevertheless, the physical support still seems to be of highest importance, even in a digital age.

As Jaak Panksepp pointed out in the PANIC/SADNESS/Loneliness chapter in his book Affective Neuroscience (we have mostly referred to it in this book as the SADNESS system), one mechanism to down regulate the SADNESS circuitry of our human brain is via CAREing behavior from close friends and family. Compared to virtual support, a real hug ultimately triggers more production of powerful brain chemicals such as oxytocin and opioids, soothing our emotional pain arising from the activity of the SADNESS brain circuitry.

Let’s move to another important topic. Activity of the CARE circuitry might be crucial for explaining empathic abilities in humans. Here, we understand that people are able to put themselves into the shoes of others and, more importantly, also to emotionally feel what another person feels. We wonder what will happen to generations who are used to staring at smartphones instead of nurturing their inborn abilities to read emotions from faces and understand the states of mind of other people they are interacting with. Younger generations from today (also called “digital natives”) are not to be blamed. They have not experienced times without digital technologies. Unfortunately, the digital immigrants (here we mean the parental generation of our current children), are often not the role models they should be. How many parents are staring at their own digital devices instead of interacting with their children? On the playground, we often see parents who find it more interesting to fiddle around with their technological devices than to play or interact with their kids. When coming home (tired from work), many parents give their
children a tablet to “buy” themselves some silence, although the children are actually longing for attention from the caregiver. This is all lost time for real face-to-face interaction between parents and their children, perhaps with unforeseen consequences for the empathic abilities of their young ones (Lachmann et al. 2018a; Melchers et al. 2015).

We would like to close this chapter with a word on when children should have their first contact with a smartphone or tablet. Naturally, it is hard to answer this question without sound empirical studies. Nevertheless, we know from abundant psychological and neuroscientific studies that regular play activity is key to well-being in children. What is not meant here is play activity on smartphones or a computer game on a console. Instead, mammalian spontaneous rough-and-tumble play requiring no learning might be the most important form of play, fostering social competencies and motor skills of young children. Rough-and-tumble play has been called “the real nasty good stuff for the brain” by Jaak in a video available on YouTube (Panksepp 2010a), pointing towards the fact that this very bodily form of play (roughhousing play) happens spontaneously between play partners without the need to include toys and without guidance from parents (except perhaps to help when someone gets hurt). Children need nothing but themselves to have a good playtime. Bad news for all the fancy toy developers! What has already been shown is a robust link between ADHD and Internet addiction (Sariyska et al. 2015) and ADHD and negative emotionality (Wernicke et al. 2019). Moreover, we observed in our own recent work in young adults (Montag et al. 2016), inverse associations between self-reported play tendencies and the preference for online social interaction (over real life social interaction). Together with studies showing that high Internet addiction tendencies go along with lower empathic traits, we wonder if (real) play deprivation in the form of prolonged screen time might result in tendencies towards ADHD and putatively lower empathic abilities in children as they grow up. Unfortunately, we are all too aware of the fact that we currently have no direct evidence for causal links for the ideas stated here (this theoretical causation is presented in Figure 5.2).
Nevertheless, given the possibility that we are right, it will not do any harm to send children out with their friends to engage in real rough-and-tumble play with its well-known and proven positive effects. The best side effect of all this will be that, if your child and their friends are all having a good time playing outside, the smartphone will become comparably boring and will be left behind, along with their other digital gadgets. Hence, screen time will naturally decrease. This said, we are not arguing for abstaining in general from digital technologies. For instance, large-scale studies suggest that moderate use in adolescence (after childhood) “is not intrinsically harmful” (Przybylski and Weinstein 2017, 204). As the ancient Greek philosophers have noted – it is important to find the golden mean between too little and too much in nearly all aspects of human life.

Finally, we would also like to focus on the impact of digital technologies on well-being in our work lives. One key concept of well-being has been put forward by psychologist Mihaly Csikszentmihalyi with the so-called flow concept (Csikszentmihalyi 2008). Flow describes a state of mind in which
we are highly concentrated and forget about time and space, while working in a kind of psychic “rush.” One prerequisite for this highly intensive flow experience is a match between our own cognitive ability and the difficulty of the task at hand. We’ll return to the flow concept in Chapter 7 when we discuss well-being in the context of our animal emotions. But here we want to stress that flow does not occur at work when we are flooded by distractions such as emails or interrupted by smartphone messages. Ironically, flow often happens in videogames or other digital environments, but the digital influx on our computer and into our lives can also be a stressful experience. Indeed, it has been demonstrated that checking email at planned stable times (instead of checking email always and everywhere) reduces stress (Kushlev and Dunn 2015). Again, see Christian’s book *Homo Digitalis* for further ideas on how to better handle the everyday digital influx (Montag 2018).

Another stressful experience is a computer breakdown – in particular in situations in which we rely on technology in order to book a last minute flight or write an important email to a collaborator. In sum, technostress can result in frustration and then also activate the rage circuitry as outlined with our first introductory example of the boy wanting to play his video game (seeking). Needless to say, the online world can trigger activity in all of our animal emotions (we have not talked about pornography, substance abuse, and lust or fear triggered by seeing gruesome videos). The most lasting negative impact of digital societies on our well-being might be caused by the mere long hours we spend with digital machines instead of directly caring for and about each other. This might also explain negative associations between social media addiction and well-being (Clark, Algoe, and Green 2017; Duradoni, Innocenti, and Guazzini 2020). We end this chapter with a line delivered by Hank Moody, the character played by *X-Files* star David Duchovny. Maybe he was onto something when he said, in episode 4 of season 5 (“Californication”), that he would like to go back to the year 1994 without all the Twitter & Co. stuff.
Summary

Although Internet addiction is not an official diagnosis yet (with the exception of the specific area of Gaming Disorder), this does not mean that we are not facing problems due to digital overuse in many societies around the globe. Changes due to technological (over) use are omnipresent. In the present chapter, we argue that it is of utmost importance for children to act out their inborn playful tendencies in classic ways to develop into psychologically healthy adolescents. Moreover, it is important that children are taken care of, whereas parents often make it easy for themselves by putting their children in front of a screen instead of directly interacting with their kids. Finally, also for adults, digital overuse goes along with negative emotionality impacting our sadness, fear, and anger systems.