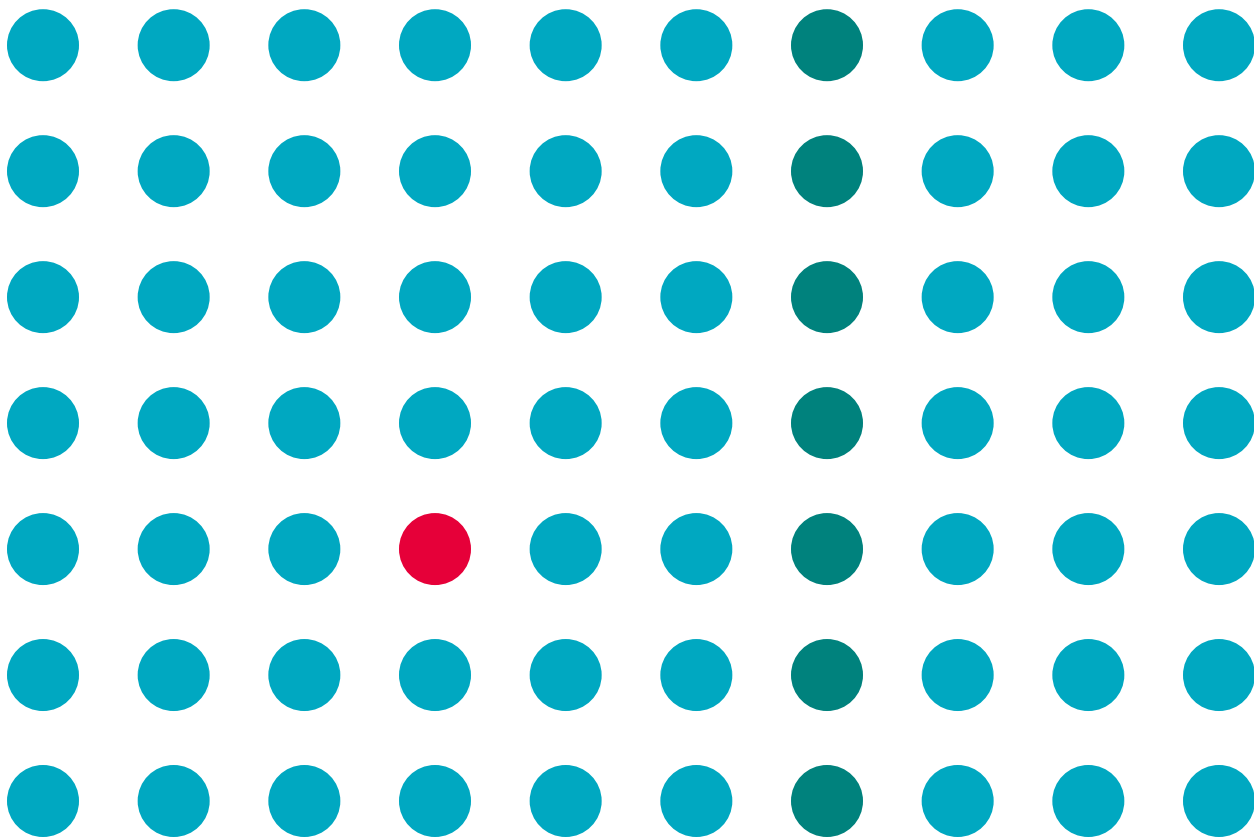


# 100 THINGS

EVERY DESIGNER NEEDS TO KNOW ABOUT **PEOPLE**

SUSAN M. WEINSCHENK, Ph.D.



## **100 Things Every Designer Needs to Know About People**

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# PEOPLE ARE SOCIAL ANIMALS

We underestimate how important it is for people to be social. People will use whatever is around them to be social, and that includes technology. This chapter looks at the science behind social interactions.

# 63

## THE “STRONG TIE” GROUP SIZE LIMIT IS 150 PEOPLE

You have your Facebook friends and your LinkedIn connections. Maybe you have people you follow and who follow you on Twitter. Then there are the colleagues you work with, people you know from your community organizations like schools and churches, and your personal friends, and your family members. How many people are in your network overall?

### DUNBAR’S NUMBER

Evolutionary anthropologists study social groups in animals. One question they have been trying to answer is whether there is a limit on how many individuals different species have in their social group. Robin Dunbar (1998) studied different species of animals. He wanted to know if there was a relationship between brain size (specifically the neocortex) and the number of stable relationships in social groups. He came up with a formula for calculating the limit for different groups. Anthropologists call this Dunbar’s number for the species.

### THE SOCIAL GROUP SIZE LIMIT FOR HUMANS

Based on his findings with animals, Dunbar then extrapolated what the number would be for humans. He calculated that 150 people is the social group size limit for humans. (To be more exact, he calculated the number at 148, but rounded up to 150. Also there is a fairly large error measure, so that the 95 percent confidence interval is from 100 to 230—for you statistical experts out there).



#### Dunbar’s number holds across time and cultures

Dunbar has documented the size of communities in different geographic areas and throughout different historical time frames, and he is convinced that this number holds true for humans across cultures, geographies, and time frames.

He assumes that the current size of the human neocortex showed up about 250,000 years ago, so he started his research with hunter-gatherer communities. He found that Neolithic farming villages averaged 150 people, as did Hutterite settlements, professional armies from the Roman days, and modern army units.

## There's a limit to stable social relationships

The limit specifically refers to the number of people with whom you can maintain stable social relationships. These are relationships where you know who each person is and you know how each person relates to every other person in the group.

## DOES THAT NUMBER SEEM LOW TO YOU?

When I talk about Dunbar's number of 150 for humans, most people think that is way too low. They have many more connections than that. Actually 150 is the group size for communities that have a high incentive to stay together. If the group has intense survival pressure, then it stays at the 150 member mark, and stays in close physical proximity. If the survival pressure is not intense, or the group is physically dispersed, then the estimate of the number would be even lower. This means that, for most of us in our modern society, the number would not even be as high as 150. In the world of social media, people may have 750 Facebook friends, and 4,000 Twitter followers. A Dunbar's number advocate, however, would respond that these are not the strong, stable relationships that Dunbar is talking about, where everyone knows everyone and people are in close proximity.

## IS IT THE WEAK TIES THAT ARE IMPORTANT?

Some critics of Dunbar's number say that what's really important in social media is not the strong ties that Dunbar talks about, but the weak ties—relationships that don't require everyone to know everyone else in the group, and which are not based on physical proximity. (Weak does not imply less important in this context.) Jacob Morgan, a social business advisor, argues that we find social media so interesting because they allow us to quickly and easily expand these "weak" ties, and that those ties are most relevant in our modern world.



### Learn more about the Dunbar and Morgan debate

First watch this interview with Robin Dunbar,  
<http://www.guardian.co.uk/technology/video/2010/mar/12/dunbar-evolution>

And then read Jacob Morgan's blog post:  
<http://www.socialmediatoday.com/SMC/169132>

## Takeaways

- \* There is a limit of approximately 150 people for your “survival” community in close proximity. If you don’t feel you have that “tribe” around you, you may feel alienated, isolated, and stressed.
- \* Your relationships with larger numbers of people through social media are likely weak ties.
- \* When you are designing a product that has social connections built in or implied, think about whether those interactions are for strong or weak ties.
- \* If you are designing for strong ties, you need to build in some amount of physical proximity, and make it possible for people to interact and know each other in the network.
- \* If you are designing for weak ties, don’t rely on direct communication among all people in a person’s network or physical proximity.

## 64

## PEOPLE ARE HARD-WIRED FOR IMITATION AND EMPATHY

If you put your face right in front of a baby and stick out your tongue, the baby will stick out his or her tongue, too. This happens from a very young age, even as young as a month old. So what does this have to do with anything? It's an example of our built-in, wired-into-the-brain capacity for imitation. Recent research on the brain shows how our imitative behavior works; and in your design you can use this knowledge to influence behavior.

## MIRROR NEURONS FIRING

The front of the brain contains an area called the premotor cortex (motor, as in movement). This is not the part of the brain that actually sends out the signals that make you move. *That* part of the brain is the primary motor cortex. The premotor cortex makes *plans* to move.

Let's say you're holding an ice cream cone. You notice that the ice cream is dripping, and you think that maybe you should lick off the dripping part before it drips on your shirt. If you were hooked up to an fMRI machine, you would first see the premotor cortex lighting up while you're thinking about licking off the dripping cone, and then you would see the primary motor cortex light as you move your arm. Now here comes the interesting part. Let's say it's not you that has the dripping ice cream cone. It's your friend. You are watching your friend's cone start to drip. If you watch your friend lift his arm and lick the dripping cone, a subset of the same neurons also fire in your premotor cortex. Just watching other people take an action causes some of the same neurons to fire as if you were actually taking the action yourself. This subset of neurons has been dubbed *mirror neurons*.



## Mirror neurons are the starting point of empathy

The latest theories are that mirror neurons are also the way we empathize with others. We are literally experiencing what others are experiencing through these mirror neurons, and that allows us to deeply, and literally, understand how another person feels.



## Mimicking other people's body language makes them like you more

Watch two people talking. If you observe them closely, you will see that over time the two people start to imitate each other's body language. If one leans in, the other leans in. If one touches his face, the other person touches his face.

Tanya Chartrand and John Bargh (1999) had people sit down and talk with someone (a "confederate" who was actually part of the experiment, but the participants didn't know that). The confederates would vary their gestures and movements in a planned way. Some confederates were told to smile a lot, others to touch their faces, and others to jiggle their feet. The participants in the study would start to (unconsciously) imitate their confederates. Some behaviors increased more than others. Face touching increased by 20 percent but foot jiggling increased by 50 percent.

In another experiment Chartrand and Bargh had two groups. In one group, the confederate imitated the participant's movements, and in the second group the confederate did not imitate the participant. After the conversation, the participants were asked how much they liked the confederate, and how well they thought the interaction had gone. The group where the confederate had imitated the participant gave the confederate and the interaction overall higher ratings than the group where the confederate had not imitated the participant.



## V. S. Ramachandran's research on mirror neurons

Vilayanur Ramachandran is one of the leading researchers on mirror neurons. I recommend that you watch a TED talk where he describes his research: <http://bit.ly/aaiXba>

### Takeaways

- \* Don't underestimate the power of watching someone else do something. If you want to influence someone's behavior, then show someone else doing the same task.
- \* Research shows that stories create images in the mind that may also trigger mirror neurons. Use stories if you want to get people to take an action.
- \* Video at a Web site is especially compelling. Want people to get a flu shot? Then show a video of other people in line at a clinic getting a flu shot. Want kids to eat vegetables? Then show a video of other kids eating vegetables. Mirror neurons at work.

## 65

## DOING THINGS TOGETHER BONDS PEOPLE TOGETHER

What do members of a marching band, fans cheering at a high school football game, and people at church have in common? They are all engaging in *synchronous activity*.

Anthropologists have long been interested in rituals among certain cultures, such as drumming, dancing, and singing. Scott Wiltermuth and Chip Heath (2009) conducted a series of studies to examine in more detail whether, and how, synchronous behavior affects how people cooperate. They tested combinations of walking in step, not walking in step, singing together, and other movements with groups of participants. What they found was that people who engaged in synchronous activities were more cooperative in completing subsequent tasks, and more willing to make personal sacrifices in order to benefit the group.

Synchronous activities are actions you take together with others, where everyone is doing the same thing at the same time in physical proximity to one another. Dancing, tai chi, yoga, singing, and chanting in time as a group are all examples of synchronous activity.

Wiltermuth and Heath's research also showed that you don't have to feel good about the group, or the group activity, in order to be more cooperative. Just the act of doing the synchronous activity seems to strengthen social attachment among the group members.



### Do people need synchronous activity to be happy?

In his article on “Hive Psychology, Happiness, and Public Policy,” Jonathan Haidt (2008) connects synchronous activity and mirror neurons with anthropology and evolutionary psychology. Essentially his hypothesis is that synchronous activity promotes bonding and therefore helps the group survive. Mirror neurons are involved in synchronous activity, and there is a certain type of happiness that humans can't get any other way than engaging in synchronous activity.

## Takeaways

- \* Many of our online interactions are asynchronous, including most social media (Twitter, Facebook, LinkedIn). Although asynchronous social activity fulfills other social needs, it does not fulfill our desire and pleasure from synchronous activity.
- \* Because most online interactions don't take place with others in physical proximity, there are limited opportunities for designers to build in synchronous activity.
- \* Look for opportunities to build synchronous activity into your product, using live video streaming, or a live video or audio connection.



## 66

## PEOPLE EXPECT ONLINE INTERACTIONS TO FOLLOW SOCIAL RULES

There's a lot of discussion about social media, but what does the term *social media* really mean now? Many people think about social media as “social” software or applications that you use to market your business or organization or brand more effectively online. But if you stop to think about it, you'll realize that all online interactions are social interactions. Just the act of going to a Web site is a social interaction. Filling out a form at a government Web site to renew your automobile registration is a social interaction.

### RULES FOR SOCIAL INTERACTIONS

When people interact with each other, they follow rules and guidelines for social interaction. Let's say you're sitting outside a café when your friend Mark comes in and sees you sitting by the window. Mark comes over to you and says, “Hi Richard, how are you doing today?” Mark expects you to interact with him, and he expects that interaction to follow a certain protocol. He expects you to look at him, in fact, to look him in the eye. If your previous interactions have been positive, then he expects you to smile a little bit. Next, you're supposed to respond to him by saying something like, “I'm fine. I'm sitting outside here to enjoy the beautiful weather.” Where the conversation goes next depends on how well you know each other. If you're casual acquaintances, then he might wind down the conversation, “Well, enjoy it while you can. Bye!” If you're close friends, then he might pull up a chair and engage in a longer conversation.

You both have expectations of how the interaction will go, and if either of you violates the expectations, then you'll get uncomfortable. For example, what if Mark starts the conversation with “Hi, Richard, how are you today?” but you don't respond? What if you ignore him? Or you won't look at him? What if you answered, “My sister never liked the color blue” and stared into space? Or what if you responded with personal information that was a bit too personal? Any of these scenarios would make Mark uncomfortable. He would probably try to end the conversation as quickly as possible, and avoid interacting with you the next time the opportunity arose.

### ONLINE INTERACTIONS HAVE THE SAME RULES

The same is true of online interactions. When you go to a Web site or use an online application, you have assumptions about how the site will respond to you and what the

interaction will be like. And many of these expectations mirror the expectations that you have for person-to-person interactions. If the Web site is not responsive or takes too long to load, it's like the person you're speaking to is not looking at you, or is ignoring you. If the site asks for personal information too early in the interaction, that's like the other person getting too personal. If the Web site does not save your information from session to session, that's like the other person not recognizing you or remembering that you know each other.

**Figure 66.1** is an example of a Web page that violates social rules. As I'm writing this book, Barack Obama is the president of the United States. Let's say you want information on how President Obama is using social media to get people to be active in supporting his ideas. You search for and go to the Organizing for America Web site from the Democratic National Committee. The home page asks for your e-mail address and zip code before you can get into the site. (There is a button below to skip this, but the effect has already been established before you see the button).



**FIGURE 66.1** The Organizing for America Web site doesn't follow rules of social interaction

Here's what the Web page interaction is like from a social rule expectation viewpoint:

You're walking on the street and someone comes up to you and says, "Would you like to learn more about how you can support President Obama's policies?" The person is holding out a brochure to you. "Sure," you answer, and you go to take the brochure from the person's hand. He pulls the brochure away and says, "Oh, sorry. Before I can talk to you any further, or let you have this brochure, you have to give me your email address and your zip code." "Forget it," you respond and walk away. "Wait," he yells, "that's OK, we can skip the email address and zip code." But by now you don't trust him and don't want to interact.

### *Takeaways*

- \* When you're designing a product think, about the interactions that the person will have with it. Do the interactions follow the rules of a person-to-person interaction?
- \* Many usability design guidelines for products are actually guidelines that connect to social expectations for interactions. Follow basic usability guidelines and you'll be more assured of meeting interactive expectations.

# 67

## PEOPLE LIE TO DIFFERING DEGREES DEPENDING ON THE MEDIA

There are many ways to communicate: paper and pen, e-mail, face-to-face meetings, telephone, instant messaging. Some researchers have been interested in whether there are differences in how honest we are based on the medium.

### NINETY-TWO PERCENT OF GRADUATE STUDENTS LIED

Charles Naquin (2010) from DePaul University and his colleagues have conducted research on honesty in people when using email versus pen and paper.

In one study, forty-eight graduate business students were each given \$89 (imaginary money) to divide with their partner; they had to decide whether to tell their partner how much money was in the kitty, as well as how much of the money to share with their partner. One group communicated by email and the other group by a handwritten note. The group that wrote emails lied about the amount of money (92 percent) more than the group that was writing by hand (63 percent). The e-mail group was also less fair about sharing the money, and felt justified in not being honest or fair.

### MANAGERS LIE, TOO

Lest you think only the students would lie, Naquin and team performed additional studies with managers. One hundred and seventy-seven managers played a group financial game. Participants were assigned to teams of three. Each member of the team had a chance to play the role of a manager of a project team who was allocating money for projects. They played with real money, and they were told that the amount of money available would be revealed after the game. Some participants were told to communicate via e-mail and others with paper and pen. The managers who communicated via e-mail lied more, and kept more money for themselves, compared to the managers who communicated with paper and pen.



### Harsher ratings on performance reviews

Terri Kurtzberg (2005) and her team did three studies to see whether people gave different performance review ratings if the reviews were done via e-mail versus with pen and paper. In all three studies participants gave more negative appraisals of their peers when communicating via e-mail than when using pen and paper.

## PEOPLE LIE MOST ON THE TELEPHONE

At this point you might be thinking that e-mails are the worst in terms of lying. They're not. Jeff Hancock (2004) conducted a diary study. Using self-reporting, participants admitted to lying most on the phone, and least in email, with face-to-face and instant messaging interactions equal and in the middle of the other techniques.



### The moral disengagement theory

Albert Bandura, a social psychologist from Stanford University, hypothesized that people can and will become unethical as they distance themselves from the bad consequences of their actions. He called this the moral disengagement theory (Bandura, 1999). In discussing the results of his studies about email, Charles Naquin (2010) and his team suggests that e-mail causes that distancing because it is viewed as less permanent, and because people feel less trust and rapport online.



### How to tell who is lying in an e-mail

Jeff Hancock (2008) reports that liars write more words (28 percent more) than people who are telling the truth, and that liars use less first-person references (I, me) and more second and third-person references (you, he, she, they). Interestingly, most people in the research were not very good at figuring out when they were being lied to.

### Takeaways

- \* People lie most on the phone, and least with pen and paper.
- \* People are more negative toward others via e-mail than with pen and paper.
- \* If you're designing surveys via e-mail, realize that people are likely to be more negative than they would be using pen and paper.
- \* If you are conducting a survey or getting audience feedback, be aware that telephone surveys will not get you as accurate a response as email or pen and paper surveys will.
- \* Getting customer or audience feedback is most accurate when done in person, one-on-one.

## SPEAKERS' BRAINS AND LISTENERS' BRAINS SYNC UP DURING COMMUNICATION

When you listen to someone talking, your brain starts working in sync with the speaker. Greg Stephens (2010) and his team put participants in his research study in an fMRI machine and had them record or listen to recordings of other people talking. He found that as people listen to someone else talk, the brain patterns of both speaker and listener start to couple, or mirror each other. There's a slight delay, which corresponds to the time it takes for the communication to occur. Several different brain areas were synced. He compared this with having people listen to someone talk in a language they did not understand. In that case the brains do not sync up.

### SYNCING PLUS ANTICIPATION EQUALS UNDERSTANDING

In Stephens's study, the more the brains were synced up, the more the listener understood the ideas and message from the speaker. And by watching what parts of the brain were lighting up, Stephens could see that the parts of the brain that have to do with prediction and anticipation were active. The more active they were, the more successful the communication was. Stephens noted that the parts of the brain that have to do with social interaction were also synced, including areas known to be involved in processing social information crucial for successful communication, such as the capacity to discern the beliefs, desires, and goals of others. Stephens also hypothesizes that mirror neurons are involved in the speaker-listener brain syncing.

#### *Takeaways*

- \* Listening to someone talk creates a special brain syncing that helps people understand what is being said.
- \* Presenting information through audio and/or video where people can hear someone talking is an especially powerful way to help people understand the message.
- \* Don't just rely on reading if you want people to understand information clearly.

## 69

## THE BRAIN RESPONDS UNIQUELY TO PEOPLE YOU KNOW PERSONALLY

Your Uncle Arden invites you over to watch the World Cup and tells you to bring some friends. When you get there, you see that there are several people you know (relatives and friends of relatives), and some you don't know. It's a lively bunch, and over food and the game on TV, lots of topics are covered, including soccer and politics. As you would expect, you have similar opinions as some of your friends and relatives, and you disagree with some of them. You actually have more in common, in terms of soccer and politics, with some of the strangers you just met today than you have with some of your friends and relatives. When it comes to the people in the room, you have essentially four possible connections as shown in **Figure 69.1**.

<b>Similar</b>	Friends and relatives that I have a lot in common with	Strangers that I have a lot in common with
	Friends and relatives that I don't have a lot in common with	Strangers that I don't have a lot in common with
<b>Not Similar</b>		

**FIGURE 69.1** The four possible connections with the people at the World Cup party

The question that Fenna Krienen (2010) conducted research on is this: Does your brain react differently to these four combinations? Do you make judgments about other people based on how similar they are to you? Or is it more important that they be close to you, either a close friend or a relative? And if there are differences, will they show up on fMRI brain scans? When you think about people that you don't know, but feel similar to, do the same brain regions light up as though you were connected to them through kinship or previous friendship?

Krienen and her team tested these theories. They found that when people answered questions about friends, whether or not they felt they were similar to their friends, the medial prefrontal cortex (MPFC) was active. The MPFC is the part of the brain that perceives value and regulates social behavior. When people thought about others that they don't know, but had common interests with, the MPFC was not active.



## Facebook vs. Twitter and the MPFC

Jonah Lehrer (2010) writes about the difference between Facebook and Twitter. He says that Facebook is your friends and relatives that you know well, even if you aren't similar in how you think about everything. Facebook activates the MPFC. Twitter is more about helping you connect to people that you don't already know.

### Takeaways

- \* All social media are not alike. It may be important to distinguish between social media for friends and relatives versus social media for people you're not already connected to.
- \* People are "programmed" to pay special attention to friends and relatives. Social media around friends and relatives will be more motivating and garner more loyalty. You're more likely to check your Facebook page five times a day than your LinkedIn page, because the former is about friends and relatives.



## 70

## LAUGHTER BONDS PEOPLE TOGETHER

How many times a day do you hear someone laugh? Laughter is so ubiquitous that you don't even stop to think about what it is and why people do it.

There's less research on laughter than you might think. But a few people have spent time researching it. Robert Provine is one of the few neuroscientists studying laughter. He has concluded that laughter is an instinctual (not learned) behavior that creates social bonding.

Provine (2001) has spent many hours observing when and why people laugh. He and his team observed 1,200 people spontaneously laughing in different locations. They took notes on gender, situation, speaker, listener, and context. Here's a summary of what they found:

- ★ Laughter is universal. All humans in all cultures laugh.
- ★ Laughter is unconscious. People can't actually laugh on command—it will be fake laughter if they try.
- ★ Laughter is for social communication. People rarely laugh when they're alone. They laugh 30 times more often when they're with others.
- ★ Laughter is contagious. People will smile and then start laughing as they hear others laugh.
- ★ Laughter appears early in babies at about four months old.
- ★ Laughter isn't about humor. Provine studied over 2,000 cases of naturally occurring laughter and most of it did not happen as a result of humor such as telling jokes. Most laughter followed statements such as "Hey John, where ya been?" or "Here comes Mary" or "How did you do on the test?" Laughter after these types of statements bonds people together socially. Only 20 percent of laughter is from jokes.
- ★ People rarely laugh in the middle of a sentence. It's usually at the end.
- ★ The person who is speaking laughs twice as much as the person who is listening.
- ★ Women laugh more than twice as much as men.
- ★ Laughter denotes social status. The higher up on the hierarchy you are in a group, the less you will laugh.

## TICKLE LAUGHTER VERSUS JOY LAUGHTER

Diana Szameitat (2010) and her team studied laughter produced from tickling versus laughter from other sources. They had people listen to recordings of people laughing while being tickled versus laughing without tickling. When people listened to regular laughter without tickling, they showed activity in the medial frontal cortex of the brain. This is a region that is usually associated with social and emotional processing. When people listened to laughter during tickling, they showed activity in the same region, but also activity in the secondary auditory cortex. Tickle laughter sounds different.

The researchers think that laughter might have started in animals as a reflex-like reaction to touch, and then became differentiated over time through various animals and species.



### Other animals laugh, too

It's not just a people thing. Chimps tickle each other and even laugh when another chimp pretends to tickle them. Jaak Panksepp studies rats that laugh when he tickles them. You can watch a video on YouTube showing Panksepp tickling rats: <http://bit.ly/gBYCKt>

### Takeaways

- \* Most online interactions are asynchronous and therefore don't afford a lot of opportunity for social bonding through laughing.
- \* Synchronous communication online should lead to more bonding if it allows for laughter.
- \* You don't necessarily need humor or jokes to get people to laugh. Normal conversation and interactions will produce more laughter than intentional use of humor or jokes.
- \* If you want people to laugh, then laugh yourself. Laughter is contagious.

## 71

## PEOPLE CAN TELL WHEN A SMILE IS REAL OR FAKE MORE ACCURATELY WITH VIDEO

Research on smiling started as far back as the mid-1800s. A French doctor named Guillaume Duchenne used electrical currents with research subjects. He would stimulate certain facial muscles and then take pictures of the expressions that people made (**Figure 71.1**). This was painful and many of the pictures look like the people are in pain.



**FIGURE 71.1** Guillaume Duchenne took photos of people whose facial muscles were electrically stimulated

### REAL OR FAKE?

Duchenne identified two different types of smiles. Some smiles involve contraction of both the zygomatic major muscle (which raises the corners of the mouth) and the orbicularis oculi muscle (which raises the cheeks and makes the eyes crinkle). Smiles that contract both of these muscle groups are called Duchenne smiles. In a non-Duchenne smile only the zygomatic major muscle contracts; in other words, the mouth turns up, but the eyes don't crinkle.

After Duchenne, several researchers used these ideas to research smiling. For years it was believed that Duchenne smiles were the ones that were seen as genuine, that it was not possible to “fake” a smile, because up to 80 percent of people can’t consciously control the muscles around the eyes that make them crinkle. Why all the interest in whether a smile is real or fake? Because people are quicker to trust and like other people who are showing what are believed to be genuine emotions rather than fake or contrived ones.

## QUESTIONING THE 80 PERCENT FIGURE

Eva Krumbhuber and Antony Manstead (2009) decided to research whether it was true that most people couldn’t create a fake smile that looks real. They found the opposite of what was previously believed. In their research, when photos were taken of people pretending to smile, 83 percent of the people could produce fake smiles that other people thought were real.

They also decided to test videos rather than just photos. What they found was that it was harder to fake a smile in a video, but not because of the crinkly eyes. People could tell real from fake by paying attention to other factors, such as how long they held the smile, and whether they saw other emotions besides happiness, for example, a flicker of impatience. The video made it easier to detect a fake smile because it lasted longer and was dynamic, instead of just a snapshot.

### Takeaways

- \* Pay attention to smiles in videos. People will be able to determine a fake smile versus a real one better in a video than in a photo. If they don’t think the smile is real, they’re less likely to trust you.
- \* It is possible to fake a smile and to fake a crinkly-eye smile, but it is easier to fake a smile in a static picture than on a video.
- \* People can tell whether a smile is real or not by looking for conflicting emotions. They are looking at many parts of the face, not just the eyes.
- \* If a smile looks real, it will engage the viewer and build trust.