
2.1 CRUCIAL EXPERIMENTS: WHO'S TALKING NOW?

The Social Situation

Ouija boards are spooky stuff, right?

No one seems to be in charge, yet fingers slide a pointing device toward letters that form words and then sentences. It is as if the Ouija board has a mind of its own. Many believe those messages are coming from the “great beyond,” “the other side,” or departed ancestors.

The Ouija board evolved out of the spiritualist movement in the United States. Spiritualists tried to connect the dead with the living, but it had the strangest beginnings, supported by the confessions of the Fox sisters who started it. The oldest sister Leah (age 33 at the time) discovered her younger sisters Margaret (age 13) and Kate (age 10) had a unique ability:

[They] could make weird noises by cracking the joints in their toes, and used this ability to trick their superstitious mother into believing that a ghost was present. . . . Leah took her two younger sisters to Rochester, New York, where they set up shop . . . bringing forth spirits of the deceased to communicate with the paying customer . . . mediums added a board (the planchette, a forerunner of the Ouija board) that could be used to spell out the messages of the spirits. (Benjamin & Baker, 2014, p. 18)

So now you know the origins of the Ouija board: two toe-cracking teenagers.

The Ouija board experienced a wave of popularity during and after World War I, when many families desperately wanted to communicate with the sons, fathers, and brothers who had vanished into the fog of war. However, the most interesting question about the Ouija board is where the words and sentences are coming from. If dead people are not directing movements on a letter board, then who is communicating?

Theory and Method

This case study demonstrates the value of crucial experiments when testing new therapies.

Answers to the Ouija question arrived from an unexpected source. **Facilitated communication (FC)** was a technique intended to help people with disabilities communicate, now part of the renamed Institute on Communication and Inclusion (ICI, 2020). FC became popular in the late mid- to late 1990s, when many families desperately wanted to communicate with their sons—and daughters—who had vanished into the mysterious disease called autism (and other developmental disabilities).

FC offers a seductively simple solution to complex neurological problems. A trained “facilitator” physically supports the hand, arm, sleeve—whatever seems to work—of a person who cannot verbally communicate. As that person’s hand hovers over an alphabet board, the facilitator senses the individual’s intended movement toward a letter and guides his or her pointed finger to that letter. Those single letters became connected to words that formed sentences that, over time, were structured into paragraphs: Just like a Ouija board.

The central question about FC is the same as the Ouija board question: Who is communicating? The first research tool that most social psychologists reach for is the **controlled experiment**. Controlled experiments require at least two conditions that can be compared, and (ideally) random assignment of participants into one of those conditions. As you will see, social psychologists have many other research tools available to them. But they favor experiments because, with a little ingenuity, they can create a **crucial experiment** that will provide an unambiguous answer to a relevant question. A crucial experiment decisively concludes whether a hypothesis is valid and/or whether an intervention is effective.

The central danger of FC is the warning credited to the philosopher Sir Francis Bacon in the 1600s: We humans “prefer to believe what we prefer to be true.” Could the small army of sincere, hard-working, well-educated facilitators be deceiving themselves about the effectiveness of FC? In the case of FC, there were just two questions:

1. Is FC real?
2. Who is communicating?

FC: The Movement

FC was more than a revelation; it was a revolution with a small “army of believers.”

The army included social workers, loving parents, academics, and mid-level professionals. According to the American Psychological Association (APA, 2003), FC soon “was spreading like wildfire all over the U.S. and Canada.” With the help of FC, individuals once labeled as unintelligent and unteachable “scored well on standard IQ tests, wrote brilliant essays, and even composed poetry.”

FC was a revolution in how we thought about and helped care for people with so-called disabilities. Their communication problems were *motor* difficulties, not *mental* disabilities (Biklen, 1990). What a discovery! The passion among advocates for people with disabilities has always been to treat people with the same dignity and respect as so-called normal people. Their motives were pure, even noble. Now they were the leading edge of a humanitarian revolution (APA, 2003).

FC: Trouble in Paradise

“Dear Mom and Dad. I could never tell you what was in my heart. Now I can: ‘Thank you.’”

Messages expressing profound love and gratitude weren’t the only facilitated messages being sent to parents. An FC facilitator with just one hour of training had facilitated an important message to the Wendrow family in Bloomfield, Michigan. Their daughter Aislinn had been diagnosed with autism at the age of two.

“My dad gets me up. . . . He puts his hand on my private parts,” the adolescent Aislinn supposedly had typed, with the help of her FC facilitator. And just like that, Julian Wendrow became labeled as a sexual predator. The Wendrow family previously had been strong believers in FC, but now they *knew* that—at least in their case—it couldn’t be true.

Two days later, Aislinn met with investigators at a county facility—but with the same facilitator at her side. Things got worse. Now Aislinn, through her facilitator, reported that the sexual abuse had been chronic, involved photographs, and that her 13-year-old brother Ian had been forced to participate.

Julian was sent to the county jail for 80 days. Solitary confinement gave him time to consider a possible 75-year sentence. Aislinn’s mother, Tali, was released on bail, but with a tracking device. Ian was interviewed (without parental consent) by zealous police. They badgered him until he finally admitted that sometimes his father showered with Aislinn—something not uncommon for children with severe developmental difficulties.

The two children were shuffled around foster homes until Ian finally was placed in a juvenile facility. “I was moved in with kids who were like at the time 17, 18,” Ian reported. People “who had actually been abused . . . it was scary” (Berman & Balthaser, 2012).

The Wendrow family slowly discovered that they were not the only family victimized by FC.

FC: Crucial Experiments

Crucial experiments can be disturbing.

In the crucial experiments for FC, the experimental procedures were simple, direct, and friendly. The whispering test arranged for an experimenter might say the word *baseball* to the person with autism, then “Please type out the word I just whispered in your ear.” If the facilitator had not heard the word *baseball*, but the person with autism could be facilitated to type *baseball*, then FC must really work.

The results would be crucial for facilitators, too. What would it do to *your* sense of self to discover that your good intentions had divided a family and imprisoned innocent parents? Most of the facilitators were well-educated individuals; certainly most of them were well meaning. Critical thinking probably had been taught in their college classes. But it might have been no more than an abstract idea, quickly forgotten after passing some multiple choice test.

Now critical thinking really mattered.

Results and Discussion

Why would anyone want FC to fail if it really worked?

And who would want FC to succeed if it were not real? If autistic children are being sexually abused, then we all need to know about it and make it stop! But we also don't want to separate innocent, loving, dedicated parents from the children who desperately need them. FC failed one crucial experiment after another, and the more tightly controlled the experiment was, the worse that FC performed.

Failure 1. The Message-Passing Test

The whispering test was a version of the message-passing test.

Both tests asked two crucial questions: (1) Is FC real? (2) Who is communicating? The message-passing test required only three brief stages.

1. Show a familiar object, such as a key, to the person with a disability.
2. Allow the facilitator either to (a) see the key, or (b) not see the key. (Do this several times, randomly changing back and forth between the two conditions.)
3. Ask the person with a disability to name the object each time, with the help of their facilitator.

If the person with autism is not able to type out the word *key* unless the facilitator already knows the answer, then FC is not real, and the communication is coming from the facilitator. In one experiment (Wheeler et al., 1993), the researchers tested “the 12 most competent producers of facilitated communication.” The researchers loaded the dice in favor of FC being real. But the only correct responses (e.g., typing the word *key*) occurred when the facilitator also had seen the key.

Failure 2. The Naming and Description Tests

FC failed other crucial experiments.

Montee and colleagues (1995) asked seven clients with moderate to severe mental retardation to name pictures and describe activities they had just engaged in. These seven particular clients had been communicating fluently using FC for 6 to 18 months. Once again, the experimenters were loading the dice in favor of FC—but they still couldn't get FC to work. This time, they used pictures and activities.

When both facilitator and client saw the same picture, FC seemed to work with a success rate of about 75%. But when the facilitator did not see the same picture, the success rate was 0%. When both facilitator and client saw the same activity, FC seemed to work with an 87% success rate. But when the facilitator did not know about the activity, the success rate was 0%.

The American Psychological Association reviewed all the evidence regarding FC (or what is now called “supportive typing”) and concluded that “there was no scientifically demonstrated support for its efficacy” (APA, 2003). The American Academy of

Pediatrics (1998), through a committee on children with disabilities, issued a similar statement:

In the case of FC, there are good scientific data showing it to be ineffective. Moreover, as noted before, the potential for harm does exist, particularly if unsubstantiated allegations of abuse occur using FC. Many families incur substantial expense pursuing these treatments, and spend time and resources that could be used more productively. (p. 432)

Did crucial experiments, official medical authorities, and scientific societies convince the hardcore believers in FC that it was bogus? Would they have convinced you? If the case study of the Wendrow family wasn't enough to make you skeptical, maybe the case of disability scholar Anna Stubblefield (summarized by Sherry, 2016) may persuade you to be cautious.

Stubblefield was a professor and believer in FC. She received a 12-year sentence for sexually assaulting a disabled man who, she claimed, had given her permission via FC. Sherry (2016) wrote that

The (conscious or unconscious) power of the person guiding the hands to manipulate the other person is the key flaw in facilitated communication. Critics liken this process to a Ouija board. Even with the best of intentions, the person who “facilitates” the conversation directs the conversation; they are the authors, rather than the disabled person.

So, who is doing the talking? The facilitators. But just like a Ouija board, they didn't know it was coming from a self whose judgments had been compromised by a group-supported, passionate belief in FC and their own good intentions.

DISCUSSION QUESTIONS

1. FC is enjoying a mild resurgence in popularity. Explain why, in the face of crucial experiments and formal objections from multiple professional societies, people continue to believe in FC.
2. Design a crucial experiment that could test who is doing the talking in a Ouija board. How could you test whether the spirits of dead people were really moving the pointing device on the Ouija board?
3. What do you imagine that the believers in FC thought about themselves at different stages of this case study: during their training, after experiencing its apparent effectiveness, and after learning that it was bogus? Even on an unconscious level, what would motivate an FC facilitator to accuse a client's parents of sexual abuse?
4. Consider other trendy medical or psychological treatments, such as essential oils, crystals, and so on. Choose one example and design an experiment to test whether any positive effects (1) actually exist and (2) are caused by the treatment itself or by a placebo effect.

KEY TERMS

- **Facilitated communication:** A technique intended to help people with severe disabilities express themselves through a helper and a keyboard; scientific evidence indicates it does not work.
- **Controlled experiment:** A research method involving at least two conditions that can be compared; ideally, participants are randomly assigned to one of those conditions.
- **Crucial experiment:** A study that definitively provides evidence that a hypothesis is valid or that an intervention is effective

2.2 ETHNOGRAPHY: GANG LEADER FOR A DAY

The Social Situation

“How does it feel to be Black and poor?”

Sudhir Venkatesh (2008) looked at his clipboard and continued reading: “Your answer options are: Very bad, somewhat bad, neither bad nor good, somewhat good, very good.” Born in India but raised in Southern California, Sudhir Venkatesh is the son of a professor and an academic product of the beautiful beachfront campus of the University of California, San Diego.

He had moved from there to work with a University of Chicago professor studying the lives of young Black men from urban areas. He took his **survey** to Chicago’s soon-to-be-demolished Lake Park housing. He arrived as drug buyers were moving in and out of the area, on foot and by car. Would a survey work in this neighborhood?

Someone grabbed him by the shoulder. Another took his clipboard.

“Who do you represent?”

They suspected a rival Mexican gang on a scouting trip, preparing for an attack on their drug territory. One showed Venkatesh his gun; another waved a knife in front of him. They kept asking him if he spoke Mexican. He tried to explain that he was there to conduct a survey. They returned his clipboard, and Venkatesh pressed forward. He asked, “How does it feel to be Black and poor?” Pause. “Very bad, somewhat bad, neither bad nor good, somewhat good, very good.”

“F—you. You’ve got to be f—ing kidding me.”

He decided that the survey method was not going to work in this situation.

Theory and Method

This case study demonstrates how ethnography enhances social psychology.

You can see things with **statistics** that you can’t see in any other way. You can graph population trends, map voting patterns, calculate probabilities, and observe an epidemic

unfolding. However, using *only* statistics hides other critical observations. That's why Venkatesh started hanging out with J. T., the leader of a Chicago drug gang. Venkatesh was becoming an ethnographer.

Most social psychologists are trained to be experimenters. But ethnographic research is one of the many other discovery tools in the social psychologist's toolbox. For example, Venkatesh could have made discreet **naturalistic observations** by having a Harry Potter-like invisibility cloak, planting a hidden microphone, or taking pictures from behind a parked car.

Those all would have been unrealistic and dangerous. **Ethnography** gains knowledge by openly participating in a community and its culture. Statistics, naturalistic observations, and ethnography are all useful tools (in addition to traditional experiments) developed to collect information in particular situations.

On his next visit, Venkatesh left his clipboard behind.

Ethnography was helping Venkatesh understand Chicago race relations in a new way. He got an insider's look at the supportive communities inside housing projects, the self-sacrificing generosity of chronically poor people, the surprising economics of drug dealing, and the organizational structure of street gangs. You can find the complete story of this case study in Venkatesh's (2008) book *Gang Leader for a Day*.

J. T. was surprised to see that he had returned. Instead of survey questions, Venkatesh asked about oil changes, fancy hubcaps, and whatever else was occupying the rotating shifts of drug dealers when they were not transacting business. He wondered at the openness and lack of a police presence. But he let those questions wait for another day.

During one visit, J. T. suddenly came out shouting to the crew, "Okay! They're ready, let's go over there." Venkatesh wanted to go along, but J. T. simply smiled and said, "Why don't you meet me here next week. Early morning, all right?" Then the entire crew jumped into their cars, drove away, leaving Venkatesh standing alone.

It took Venkatesh 4 years and some serious discussions with his professors to realize that what he was seeing as an ethnographer also might create legal trouble for himself and the university (pp. 185–186). He mentioned to a couple professors about

how J. T.'s gang went about planning a drive-by shooting—they often sent a young woman to surreptitiously cozy up to the rival gang and learn enough information to prepare a surprise attack—my professors duly apprised *me* that I needed to consult a lawyer.

If he learned of a plan to harm someone, then Venkatesh had a legal obligation to tell the police. It was okay to talk with the gang after a fight. However, he could not go to any planning meetings. There was, at least in Illinois at that time, no such thing as a researcher–client privilege such as journalists and lawyers have with their clients.

J. T. introduced Venkatesh to soul food. They began spending long hours in restaurants where J. T. did his version of paperwork, while Venkatesh read textbooks and prepared for class. J. T. ran a large organization, but he didn't want to leave a paper trail of evidence. J. T. "could keep innumerable details straight in his mind: the wages of each one of his two hundred members, the shifts each of them worked, recent spikes in supply or demand." J. T. was smart and had taken some college courses.

Results and Discussion

Stereotypes were being destroyed.

Venkatesh would never be able to think about Chicago gangs and drug dealers in the same way. The gangs were structured like corporations and, like many corporations, the really big money—“if you lived to see it,” J. T. cautioned—flowed to the few at the top. J. T. wasn’t there yet. But he was getting close.

A Party in the Park

J. T. sent some of his workers to pick Venkatesh up at a bus stop.

They drove him to a park. When he arrived, Venkatesh found himself at a large barbecue of some 50 people there to celebrate a child’s first birthday, complete with balloons and a large cake. An older woman put her arm on Venkatesh’s shoulder.

“Is this the young man you’ve been telling me about?” she said to J. T.

“Yes, Mama,” J. T. said between bites, his voice as obedient as a young boy’s.

“Well, Mr. Professor, I’m J. T.’s mother.”

“They call her Ms. Mae,” J. T. said.

“That’s right,” she said. “And you can call me that, too.”

Carla, the birthday girl, was a 1-year-old whose father and mother were both in jail for selling drugs. The adults in her building had decided to raise the child. This meant hiding her away from the Department of Child and Family Services, which would have sent Carla into foster care. Different families took turns taking care of Carla. Venkatesh reported that

Ms. Mae talked about how teenage girls shouldn’t have children so early, about the tragedy of kids getting caught up in violence, the value of an education, and her insistence that J. T. attend college.

To Venkatesh, it all sounded so unexpectedly . . . normal: balloons and birthday parties, a community pulling together to help one of their own, proud mothers insisting that their children go to college, peace-building community parties with barbecue, basketball, and card games. Stereotypes that Venkatesh didn’t even know he had were smashed with every conversation. At the same time, J. T. was still the head of a drug gang.

Ethnography: Another Tool in Social Psychologists’ Toolbox

There are many ways to understand human behavior.

Social psychologists favor experiments. But properly conducted **quantitative studies** are not inherently better or worse than properly conducted **qualitative studies** or purely

observational studies. They all require attention to detail, personal integrity, and cautious interpretations. The appropriate research tool depends upon the purpose of the study and the constraints of every situation. We humans are complicated people; we need all of the tools in social psychologists' toolbox.

Some reviewers of *Gang Leader for a Day* have expressed concern that Venkatesh sensationalized parts of the world he entered. However, most social scientists have recognized the added value of Venkatesh's ethnographic approach. Psychologist Robert Sternberg (2008) wrote that "Venkatesh's book is a model for how one can use ethnographic methods to study the practical intelligence of populations that are out of reach for most behavioral scientists" (pp. 730–731).

DISCUSSION QUESTIONS

1. What kinds of information was Venkatesh able to gather and understand because he used an ethnographic approach, instead of a more traditional survey or experimental approach? On the other hand, what are two disadvantages that this study has due to the ethnographic approach?
2. The book *Gang Leader for a Day* is a well-written, entertaining book that is full of both drama and insight. Does the drama mislead the reader by creating sympathies that are really the bias of the writer? In addition, discuss how experimenter bias may have been involved in Venkatesh's writing and conclusions.
3. How does ethnography apply to your life? If an ethnographer were studying you as a case study, what patterns might emerge? What would an observer find most interesting, surprising, and troubling about your life? Which approach would allow the researcher to get to know you better?

KEY TERMS

- **Survey:** A research method in which participants answer set questions, often on scale ranges such as "disagree" to "agree" or "very bad" to "very good"
- **Statistics:** Mathematical analyses of data to find trends and patterns
- **Naturalistic observations:** A research method in which people's behaviors are observed in their authentic settings, often without them realizing they are being observed
- **Ethnography:** A research method in which the scientist openly participates in a community and its social life and culture
- **Quantitative studies:** Research in which the results are represented in numerical form, like scores between 1–10
- **Qualitative studies:** Research in which the results are not numerical, such as interviews or essay questions where participants explain their perspective or experiences

2.3 HEALTH DETECTIVE: THE MISSING PUMP HANDLE

The Social Situation

Superstition and science are fighting over your thoughts.

However, they are not struggling over *what* you think but *how* you think. This case study describes a famous battle that was a turning point in the wars between superstition and science. The battlefield was a cholera epidemic, and the eventual victory was the birth of the public health movement. Social psychology has a role to play in public health. But you have to be able to separate authentic clues from false leads, which is an important part of critical thinking.

Connecting Social Psychology to Public Health

The public health movement saves lives.

It could have saved many more lives during the COVID-19 pandemic. We needed the students partying on Florida beaches to stop partying, religious leaders to stop calling for congregations to gather together in person, and high government authorities to listen to data.

Furthermore, the public health movement needs social psychology students who can do four things:

1. collect meaningful data,
2. listen to the data,
3. communicate data, and
4. use social influence techniques to enact change—even when the audience is not listening.

We'll call this case study the Battle of the Cholera Epidemic of 1854, but it also represents your possible future. Table 2.1 shares only a fraction of the most notable regional epidemics and global pandemics listed on a 5-page spreadsheet in Wikipedia. It probably will take several years before we can accurately insert statistics about COVID-19 in Table 2.1. Prompt public health responses to Ebola and Zika helped limit their tragedies.

The Price of Ignorance

Don't blame Sarah Lewis for not knowing.

Sarah and her husband Thomas, a London police officer, were new parents. Life was good. They felt fortunate to be living at 40 Broad Street, close to the good-tasting water from the Broad Street well in London's Golden Square neighborhood.

For the first time in her short life, the Lewis' baby had gotten seriously ill with diarrhea. While Sarah Lewis waited for the local doctor, she rinsed a diaper in some warm water. Then she emptied the bucket in the cesspool in the cellar and accidentally started an epidemic.

TABLE 2.1

Death From Epidemics and Pandemics From Around the World

Relatively Recent Epidemics and Pandemics	Deaths
1899–1923: Sixth cholera pandemic	> 800,000
1915–1926: Encephalitis pandemic	~ 1.5 million
1918–1920: Flu pandemic	> 17 million
1957–1958: Flu pandemic	~ 2 million
1968–1969: Flu pandemic	~ 1 million
1920–present: HIV/AIDS pandemic	~ 32 million
2002–2004: SARS epidemic	< 1,000
2004–2020: Ebola epidemic	< 15,000
2009: Flu pandemic	~ 500,000
2015: Zika virus	~ 100
2019–present: Coronavirus pandemic	?

Source: Adapted from List of Epidemics via Wikipedia.

Emptying soiled water into the cellar or throwing it out the back window was just how it was done in London, 1854. There was nowhere else to take it. And yes, the stench was terrible. But if you needed to live and work in the big city, then you put up with the stench—and the risks.

Cholera was the biggest public health risk in midcentury England. There had been about 20,000 deaths from cholera in 1833 and another 50,000 in 1848–1849. This 1854 epidemic was headed in the same direction, only worse. The death rates were higher and faster than previous epidemics. Think of the impact of those numbers on a relatively small population.

By comparison, the 1941 attack on Pearl Harbor killed “only” 2500 people and launched the United States into WW II. The 2001 terrorist attacks on 9/11 killed about 3,000 people and triggered the War on Terror that the United States has been fighting for two decades. Shouldn’t a terrifying epidemic trigger at least a comparable response to prepare for the next epidemic?

This 1854 cholera outbreak helped launch the public health movement.

If Superstition Wins . . .

Sarah Lewis could not know what she had started.

She did not know that (a) *Vibrio cholerae* was rapidly reproducing in her daughter’s small intestine, and (b) the contaminated cesspool in her cellar was seeping into the

Broad Street well. It wasn't her fault, but the epidemic was under way. Cholera causes dehydration as the body eliminates fluids in every possible way. The cure is clean water. Worried family members naturally rushed to the nearest well trying to save the people they loved—usually the Broad Street well.

The cholera epidemic killed Sarah's baby daughter, her husband, three others in their building, and—in just 2 weeks—about 700 of her friends and neighbors. It would kill thousands more before it ended. The diaper that Sarah Lewis had rinsed was only the beginning of the battle over *how* we think about cholera—and superstition was winning.

Theory and Method

This case study celebrates the power of a really good visual display of data.

Cholera creates fear. “Imagine,” wrote Stephen Johnson (2006) in *The Ghost Map*, “if every time you experienced a slight upset stomach you knew that there was an entirely reasonable chance you'd be dead in forty-eight hours” (pp. 32–33). Survivors of the COVID-19 pandemic understand that feeling. A few coughs and an ache make you wonder: Do I have it? Cholera was a mysterious disease that spawned superstitious explanations and crazy cures.

The Structure of Superstition

No one knew what caused cholera or how it was transmitted.

It might pass over one building but afflict the next door neighbors. Ironically, the idea of a real but invisible world of tiny germs was beyond the imagination of most people. They believed in angels and demons, but the entire idea of germs just sounded crazy! **Germ theory** would just have to wait for better ways to communicate scientific evidence.

Cholera seemed to strike randomly. We humans respond to apparent randomness with explanations, and they don't have to be very good explanations. Many are merely **superstitions**, an excessive belief in supernatural beings or rituals as the cause of events or human behaviors.

Popular but Bizarre Hypotheses

There were many incorrect hypotheses about cholera.

One was that people would be cured through bloodletting (see Chapter 1); the disease could be released if enough blood were removed. That didn't work. Some people believed that cholera was divine retribution: God was punishing humanity for its sins. But some of the most upstanding citizens developed cholera, and many “sinful” men in a nearby workhouse didn't (they had their own well).

The miasma hypothesis was the most widely accepted explanation: Cholera was thought to spread through the noxious, very stinky air. In a large city where people emptied their waste in their basements and backyards, it just *felt* right to blame cholera on the bad air (as in “mal-aria”). They ignored the evidence that two people could be breathing the same air but only one might develop cholera. Their belief blinded them to

alternative explanations, a problem referred to as **confirmation bias**. For example, they somehow never noticed that the “night soil men” who occasionally removed the muck in the cesspools (and thus had plenty of exposure to the bad air) were not getting cholera.

A fourth hypothesis was generally ignored by everyone but the local physician, John Snow (no, not the one from *Game of Thrones*): the waterborne contagion hypothesis. Snow thought that cholera was being spread through exposure to contaminated water. For most people, this was the most bizarre explanation of all. Wasn't water something that would *help* most diseases? Snow had to come up with a way to convince people.

Results and Discussion

Situations can reveal what people really believe.

The revealing situation in this public health crisis was whether you dared to drink water that came from the Broad Street well (see Johnson, 2006). If you believed the waterborne contagion hypothesis, then no. If you favored the miasma hypothesis, then go ahead and swallow.

Correlations Are Clues; Hypotheses Are Specific

Design precedes data.

Tracking down a disease requires specific, testable hypotheses. You have to think first, before you start collecting data. You're not looking for numbers; you're looking for patterns based on meaningful comparisons. In 1854, the source of the contagion was not all water, or even all local water. It was specifically the water from the Broad Street well, the well right next door to the Lewis family.

But no one had any data, no one even knew how to collect such data, and the formula for the **correlation coefficient** that could clarify the association between two variables did not yet exist. They didn't know it, but they were waiting for someone very much like a modern social psychologist.

They didn't have social psychologists, but they did have John Snow, the founder of the public health movement. There was a pattern to the data, but it could only be seen in two ways: on a map and through the lens of statistics. During the Battle of the Cholera Epidemic of 1854, an illusory correlation linked cholera to the foul air. It was wrong, and belief in it killed thousands of people.

Communicating Data: How Science Defeats Superstition

John Snow didn't need the formula for the correlation coefficient.

But he did need a visual display of data. He used the map of the Golden Square neighborhood, shown in Figure 2.1. The Xs represent all of the nearby wells. Then he added a dot to represent each death of cholera and where the person had lived. The death dots were clearly clustered around one well in particular: the Broad Street well next door to the Lewis family. The map showed data, and anyone could see a strong, positive correlation between how close people lived to the Broad Street well and how likely they were to die of cholera.

FIGURE 2.1
John Snow's Map



Source: Original map made by John Snow in 1854.

John Snow's map communicated this victory of science over superstition. It feels awkward, of course, to think of an event that started out by killing "only" 700 innocent people as a victory. Like the COVID-19 pandemic, many more people died because the authorities would not listen to the wise data coming from public health advocates. Some people also simply didn't believe the data even after they heard them. Even after Snow's warnings about the pump, people kept using it—until he had the handle removed.

The particular viciousness of the 1854 cholera outbreak became the birth pangs of the public health movement. It was a victory that slowly liberated people from the fear of cholera, as well as the actual disease. An upset stomach was no longer cause for existential alarm—but only because of critical thinking and social action that saved countless lives.

DISCUSSION QUESTIONS

1. What do the authors mean by “design precedes data”? Explain this idea in your own words. Include a discussion of why interpreting patterns after they are known (instead of hypothesizing in advance) might lead to hindsight bias.
2. How are scientific findings communicated in psychology? Who are the critical audiences for science communications? How could psychological scientists become better communicators to the general public? John Snow had to convince both government officials and everyday people that his hypothesis was correct. Are social psychologists good or bad at communicating their research findings to the general public?
3. Compare and contrast people’s beliefs and behaviors during the cholera outbreak in London and the COVID-19 outbreak around the world, starting in 2019.

KEY TERMS

- **Germ theory:** The currently accepted idea that most diseases are started and carried by microscopic pathogens
- **Confirmation bias:** The tendency to pay attention to evidence that supports existing beliefs and ignores contradictory evidence
- **Superstition:** Belief in supernatural beings or rituals as the cause of events or behaviors
- **Correlation coefficient:** A number between -1.00 and +1.00 that clarifies the association between two variables

2.4 WITCHCRAFT AND FALSE CONFESSIONS: THEN AND NOW

The Social Situation

Don’t be surprised when another innocent person is released from prison.

The Innocence Project has used DNA testing and other sources of evidence to help untangle one of the strangest observations in the American legal system: the psychology of false confessions. This case study demonstrates that the social psychology of false confessions began with an iconic American legal case: the Salem witch trials.

John Hathorne was the Salem magistrate usually portrayed as the one person most responsible for the tragedies in Salem Village and Salem Town in 1692. However, the lens of social psychology paints a slightly different picture. Hathorne had doubts, and he tried to resolve those doubts with the kind of experiments that are familiar to every psychology major.

If Hathorne had understood the difference between a **single-blind** and a **double-blind** experiment, then the entire Salem witch trials might have ended with nothing worse than a bad case of social embarrassment. Unfortunately, Hathorne didn't know how to conduct a good experiment, but he was close.

We will never know, of course, whether the power of the situation might have overwhelmed him anyway. The rule of law had been suspended as Salem waited for a new charter to arrive from England. In addition, the Puritans really believed in the powers of Satan promoted by their authoritative, Harvard-trained clergyman, Cotton Mather (see Boyer & Nissenbaum, 1976; Burr, 1914/2002; Hill, 2002; C. Mather, 1693; I. Mather, 1684). The Puritans believed that

- a. Satan could give human witches extraordinary powers,
- b. Satan had targeted the Puritans because they were so special,
- c. Indians were preparing another attack on the Puritans,
- d. Salem Town and Salem Village would not resolve their conflicts, and
- e. witches grew stronger when faith got weaker.

Theory and Method

This case study demonstrates how an experiment almost stopped the Salem witch trials.

The legal issue came down to psychological tests. Of course, psychology as we know it did not exist in 1692. But John Hathorne recognized that he needed to discover whether the accusing children were honest witnesses, hysterical, making it all up, or deceived by Satan. He needed to find out if the specters that the children claimed were tormenting them were real. And to do that, he needed to find out whether the accusations of witchcraft were valid.

Specters were witches' images of themselves that enabled a witch to be in two places at once. A witch (usually a woman) could be stirring her soup at home while her specter flew about on a stick tormenting people. The alibi that "I was at home stirring my soup" was useless if specters were accepted as evidence. And the preadolescent girls in Salem Village were giving what was regarded as eyewitness testimony to the extraordinary havoc caused by specters.

Hathorne didn't have the words for it, but he was trying to test for the **reliability** and **validity** of their eyewitness testimonies.

Spectral Evidence

The reports of spectral activity were alarming.

Betty Hubbard described seeing the specter of the accused witch Sarah Good lying on a table with naked breasts, feet, and legs. Samuel Sibley tried to kill the specter (visible only to the girls). Betty Hubbard confirmed that Samuel hit Sarah Good's specter

across the back hard enough to almost kill her (see Norton, 2002, p. 28). In reality, he was just waving a stick around in the air, but it was pure, intense drama to those who believed.

For example, Abigail Williams and Mercy Walcott saw the specter of Deliverance Hobbs biting another girl on the foot. When Benjamin Hutchinson struck at the apparition with his sword, the two girls declared that he had successfully stabbed the specter of Deliverance Hobbs on the side. But then more and more specters started arriving, so many that “the roome was full of them.” Brave Benjamin Hutchinson protected the girls by continually thrusting his rapier in the air.

At last, the girls exclaimed that Benjamin had killed two specters “for the flore is all covered with blod” [the floor is all covered with blood]. Grown men were bravely slashing the air as they battled Satan, their most terrifying enemy. But they could never know whether their blows had landed without the help of two young girls vividly narrating the unfolding battles.

Consider the situation of these preadolescent girls. Even at their tender ages, they already were working hard labor at the lowest rung of the Puritan social ladder. They could only look forward to many more years of hard labor in a cold, harshly disciplined culture. They may have been having the time of their lives manipulating these gallant men into defending them from a terrible fate (see Roach, 2013).

Logic Traps Can Cancel Justice

Lydia Dustin was in a logic trap.

She was 65-years-old and imprisoned on accusations of witchcraft. She was acquitted at trial. However, legal procedures kept her in prison until she could pay her prison maintenance fees. Of course, she could not earn the money needed to pay those maintenance fees because she was in prison accumulating even more fees. Lydia Dustin was still in prison when she died the following spring, murdered by bad procedures.

Trusting spectral evidence presented another logic problem to the Puritans. They were asking liars (the specters speaking through the girls) if they were lying. What can you learn when you ask a liar if she is lying? The Puritans’ courtroom procedures had no way to unravel this conundrum.

There was another logical reason to doubt the reliability and validity of spectral evidence. A powerful Satan might send the specter of an innocent person to do his evil bidding. Hawthorne could not resolve these logic problems . . . unless there was some test that would reveal who was lying and who was telling the truth.

The Experimental Impulse

The Salem magistrates were trying to use critical thinking.

They didn’t get very far but neither have most novelists, playwrights, and filmmakers trying to make sense of the Salem witchcraft trials. Almost every account has misunderstood, avoided, or misled audiences about the presence of doubt during the 1692 Salem witchcraft trials. With the possible exception of the Reverend Cotton Mather, everyone had doubts.

Even the accusers and the magistrates had doubts. They could not tell whether the witches (in the form of specters) were real. But to the social psychologist, those doubts—and how people reacted to their doubts—are the most compelling parts of the story.

Hathorne tried to resolve his doubts with experiments.

Salem's Almost Scientific Touch Test

Imagine the scene.

The pre-adolescent girls are at the front of a crowded meeting house. When an accused witch enters the room, their bodies go into convulsions, their mouths gape open, tongues hang out, and they might not be able to see or hear. They sometimes became trapped in a world of mimicry, compelled to imitate the gestures and words made by the accused witches.

“But I am not a witch,” the accused might protest, throwing her hands in the air.

“But I am not a witch,” the girls would chant back, also throwing hands in the air.

Some of the accused witches would be brought to the front. Their bodies would be inspected for warts or pimples or other signs that little demon “familiar” were feeding off their bodies. It is one of the most bizarre examples of “correlation does not imply causation”: older women tended to be regarded as witches—and they were more likely to have protuberances on their skin. But just having some bumps on your skin didn't really mean you were a witch.

Experiment 1. The Touch Test

The logic of the touch test was simple.

If an afflicted girl were touched by a real witch, then her afflictions would abruptly cease. Why? Because the evil power had been discharged back to its source. The Puritans' understanding of the touch test was exactly opposite to how it had first been used (see Beard, 1882). Originally, a witch touching someone sent their evil powers into the person.

The experimental logic had led those early tests of witchcraft to use a single-blind procedure by taking a supposedly afflicted person and putting “an Apron before her Eyes” to find out if the accuser was faking the symptoms. However, by the time the Puritans got hold of the touch test, its logic had been reversed the same way a whispering game muddles a message as it is passed from one person to the next. The fact that the same test could indicate the presence of a witch using two opposite results is another example of confirmation bias: We believe what we want to believe.

Experiment 2. The Single-Blind Procedure

The importance of a single-blind procedure also occurred to John Hathorne.

The author of *The Scarlet Letter*, Nathaniel Hawthorne, added a ‘w’ to his name to distinguish him from his embarrassing ancestor. But John Hathorne had doubts, and he

tried to resolve them with a controlled experiment. He just wasn't a very good experimenter, and critical thinking would have helped.

And so, on April 22, 1692, such a large crowd of spectators came to the Salem Village meetinghouse that even the window light was shadowed by observers. That critical day's interrogations began with the accusations of witchcraft against Deliverance Hobbs. She did not live in Salem Village, so the tormented girls would not recognize her.

Hathorne and Corwin, the chief interrogators, recognized that this was an opportunity to test whether Deliverance Hobbs was really a witch. If Abigail and Mary could not recognize her when they saw her (even though they had supposedly seen her specter), then the girls must be faking it. When Deliverance Hobbs did enter the room, Abigail Williams and Mary Wolcott could not identify the witch who afflicted them.

However, they quickly created an explanation. Some witch had struck them blind—that's why they couldn't identify her! But they knew she was in the room. In an empty courtroom, a single-blind experiment might have been good enough. But in a crowded courtroom full of eager, gossiping observers, justice required a double-blind experiment that would not allow the girls to hear the whispers that Deliverance Hobbs had entered the meeting hall.

Results and Discussion

Deliverance Hobbs avoided hanging.

She made a **false confession** and named others as witches to avoid being put to death. Those she named who refused to make a similar false confession were hanged. Doubt eventually helped end the Salem witchcraft trials. But those doubts were not expressed early enough or strong enough. The terror only ended after 19 public hangings and perhaps another 11 deaths from neglect in prison. The terror ended when devout Puritans started listening to the stubborn voice of healthy skepticism.

Learning how to conduct experiments on humans is a challenge like no other type of science. Thus, we should not be surprised that in 1692, none of the magistrates had the slightest idea of all the tools in a social psychologist's tool box. Certainly, no one had told John Hathorne about double-blind experiments or random assignment to groups. Hathorne had no way of naming (much less controlling for) confirmation bias, memory distortions, or the effects of having other people in the room when conducting an experiment.

But in 1692, even John Hathorne was trying to do the right thing. So he looked for ways to use preexisting tests and some original experiments to test for the presence of witchcraft. They just weren't very good (reliable or valid) psychological tests. But let's give even the most maligned Puritans, John Hathorne and his fellow magistrates, credit for at least trying. A few of those experiments came tantalizingly close to stopping the Salem witchcraft trials before anyone had to die.

DISCUSSION QUESTIONS

1. Procedures are rules that guide behavior. Following proper procedures is critical to success in surgery, law, experimentation, and even when assembling a bicycle. Identify three other activities or professions whose success depends on following the correct procedures. What happens when procedures are not followed?
2. Imagine that you are a judge in the historic Salem witch trials. Design a valid and reliable way to test for spectral witches.
3. Provide an example of how the word *witch hunt* is used by politicians or other public figures as a way to draw attention away from their own bad behavior. What are the connotations of this term today, and how are those connotations based on the Salem witch trials?

KEY TERMS

- **Single blind:** A study procedure in which participants don't know what condition they are in
- **Double blind:** A study procedure in which neither participants nor experimenters know which condition participants are in until after the results are measured
- **Reliability:** Consistency of measurement or results over multiple testing occasions
- **Validity:** The extent to which claims are really true
- **False confession:** Admitting to a crime you didn't actually commit