1 The Good Apples

Meet Nick, a handsome, dark-haired man in his twenties seated comfortably in a wood-paneled conference room in Seattle with three other people. To outward appearances, he is an ordinary participant in an ordinary meeting. This appearance, however, is deceiving. The other people in the room do not know it, but his mission is to sabotage the group's performance.

Nick is the key element of an experiment being run by Will Felps, who studies organizational behavior at the University of South Wales in Australia. Felps has brought in Nick to portray three negative archetypes: the Jerk (an aggressive, defiant deviant), the Slacker (a withholder of effort), and the Downer (a depressive Eeyore type). Nick plays these roles inside forty four-person groups tasked with constructing a marketing plan for a start-up. In effect, Felps injects him into the various groups the way a biologist might inject a virus into a body: to see how the system responds. Felps calls it the bad apple experiment.

Nick is really good at being bad. In almost every group, his behavior reduces the quality of the group's performance by 30 to 40 percent. The drop-off is consistent whether he plays the Jerk, the Slacker, or the Downer.

"When Nick is the Downer, everybody comes into the meeting really energized. He acts quiet and tired and at some point puts his head down on his desk," Felps says. "And then as the time goes by, they all start to behave that way, tired and quiet and low energy. By the end, there are three others with their heads down on their desks like him, all with their arms folded."

When Nick plays the Slacker, a similar pattern occurs. “The group quickly picks up on his vibe,” Felps says. “They get done with the project very quickly, and they do a half-assed job. What’s interesting, though, is that when you ask them about it afterward, they’re very positive on the surface. They say, ‘We did a good job, we enjoyed it.’ But it isn’t true. They’d picked up on the attitude that this project really didn’t matter, that it wasn’t worth their time or energy. I’d gone in expecting that someone in the group would get upset with the Slacker or the Downer. But nobody did. They were like, ‘Okay, if that’s how it is, then we’ll be Slackers and Downers too.’ ”

Except for one group.

“It’s the outlier group,” Felps says. “They first came to my attention when Nick mentioned that there was one group that felt really different to him. This group performed well no matter what he did. Nick said it was mostly because of one guy. You can see this guy is causing Nick to get almost infuriated—his negative moves aren’t working like they had in the other groups, because this guy could find a way to flip it and engage everyone and get people moving toward the goal.”

We’ll call this person Jonathan. He is a thin, curly-haired young man with a quiet, steady voice and an easy smile. Despite the bad apple’s efforts, Jonathan’s group is attentive and energetic, and they produce high-quality results. The more fascinating part, from Felps’s view, is that at first glance, Jonathan doesn’t seem to be doing anything at all.

“A lot of it is really simple stuff that is almost invisible at first,” Felps says. “Nick would start being a jerk, and [Jonathan] would lean forward, use body language, laugh and smile, never in a contemptuous way, but in a way that takes the danger out of the room and defuses the situation. It doesn’t seem all that different at first. But when you look more closely, it causes some incredible things to happen.”

Over and over Felps examines the video of Jonathan’s moves, analyzing them as if they were a tennis serve or a dance step. They follow a pattern: Nick behaves like a jerk, and Jonathan reacts instantly with warmth, deflecting the negativity and making a potentially unstable situation feel solid and safe. Then Jonathan pivots and asks a simple question that draws the others out, and he listens intently and responds. Energy levels increase;

people open up and share ideas, building chains of insight and cooperation that move the group swiftly and steadily toward its goal.

“Basically, [Jonathan] makes it safe, then turns to the other people and asks, ‘Hey, what do you think of this?’ ” Felps says. “Sometimes he even asks Nick questions like, ‘How would you do that?’ Most of all he radiates an idea that is something like, *Hey, this is all really comfortable and engaging, and I’m curious about what everybody else has to say*. It was amazing how such simple, small behaviors kept everybody engaged and on task.” Even Nick, almost against his will, found himself being helpful.

The story of the good apples is surprising in two ways. First, we tend to think group performance depends on measurable abilities like intelligence, skill, and experience, not on a subtle pattern of small behaviors. Yet in this case those small behaviors made all the difference.

The second surprise is that Jonathan succeeds without taking any of the actions we normally associate with a strong leader. He doesn’t take charge or tell anyone what to do. He doesn’t strategize, motivate, or lay out a vision. He doesn’t perform so much as create conditions for others to perform, constructing an environment whose key feature is crystal clear: *We are solidly connected.* Jonathan’s group succeeds not because its members are smarter but because they are safer.

We don’t normally think of safety as being so important. We consider safety to be the equivalent of an emotional weather system—noticeable but hardly a difference maker. But what we see here gives us a window into a powerful idea. Safety is not mere emotional weather but rather the foundation on which strong culture is built. The deeper questions are, *Where does it come from? And how do you go about building it?*

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When you ask people inside highly successful groups to describe their relationship with one another, they all tend to choose the same word. This word is not *friends* or *team* or *tribe* or any other equally plausible term. The word they use is *family*. What’s more, they tend to describe the feeling of those relationships in the same way.[*]

“I can’t explain it, but things just feel right. I’ve actually tried to quit a couple times, but I keep coming back to it. There’s no feeling like it. These guys are my brothers.” (Christopher Baldwin, U.S. Navy’s SEAL Team Six)

“It’s not rational. Nobody who’s purely rational about it does the kinds of things that happen here. There’s a teamwork that goes way beyond team and overlaps into the rest of people’s lives.” (Joe Negron, KIPP charter schools)

“It’s a rush, knowing that you can take a huge risk and these people will be there to support you no matter what. We are addicted to that feeling.” (Nate Dern, Upright Citizens Brigade comedy troupe)

“We are all about being a familial group, because it allows you to take more risks, give each other permission, and have moments of vulnerability that you could never have in a more normal setting.” (Duane Bray, IDEO design)

When I visited these groups, I noticed a distinct pattern of interaction. The pattern was located not in the big things but in little moments of social connection. These interactions were consistent whether the group was a military unit or a movie studio or an inner-city school. I made a list:

- Close physical proximity, often in circles
- Profuse amounts of eye contact
- Physical touch (handshakes, fist bumps, hugs)
- Lots of short, energetic exchanges (no long speeches)
- High levels of mixing; everyone talks to everyone
- Few interruptions
- Lots of questions
- Intensive, active listening
- Humor, laughter
- Small, attentive courtesies (thank-yous, opening doors, etc.)

One more thing: I found that spending time inside these groups was almost physically addictive. I would extend my reporting trips, inventing excuses to stick around for another day or two. I found myself daydreaming about changing occupations so I could apply for a job with them. There was something irresistible about being around these groups that made me crave more connection.

The term we use to describe this kind of interaction is *chemistry*. When you encounter a group with good chemistry, you know it instantly. It's a paradoxical, powerful sensation, a combination of excitement and deep comfort that sparks mysteriously with certain special groups and not with others. There's no way to predict it or control it.

Or is there?

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On the third floor of a shiny modernistic building in Cambridge, Massachusetts, a group of scientists is obsessed with understanding the inner workings of group chemistry. The MIT Human Dynamics Lab is a humble set of offices surrounded by a riot of workshops and offices that contain, among other things, a British telephone booth, a mannequin wearing pants made of aluminum foil, and what appears to be a miniature roller coaster suspended from the ceiling. The lab is run by Alex (Sandy) Pentland, a soft-spoken computer science professor with bright eyes, a bushy gray beard, and the easygoing assuredness of a country doctor. Pentland started out his career studying satellite photos of beaver dens, establishing a research method that never really changed: using technology to reveal hidden patterns of behavior.

"Human signaling looks like other animal signaling," Pentland says as we sit down at a coffee table in his small homey office. "You can measure interest levels, who the alpha is, who's cooperating, who's mimicking, who's in synchrony. We have these communication channels, and we do it without thinking about it. For instance, if I lean a few inches closer to you, we might begin mirroring."

Pentland leans closer, raises his bushy eyebrows, and opens his eyes wider. It's a little disconcerting when I find myself doing it too, almost

against my will. He smiles reassuringly and leans back. “It only works if we’re close enough to physically touch.”

Pentland introduces me to a scientist named Oren Lederman, who, as it happens, is in the midst of analyzing a group working on the spaghetti-marshmallow challenge. We walk down the hall to Lederman’s office to look at the video. The group consists of three engineers and a lawyer, and their tower is coming together nicely. “This group’s performance is probably better than the MBAs but not as good as the kindergartners,” Lederman says. “They don’t talk as much, which helps.”

This is not just Lederman’s opinion—it is fact. As we speak, a river of data from the group’s performance is rolling across his computer screen, including the percentage of time each person spends talking, the energy levels of their voices, their speaking rates, the smoothness of turn taking, the number of interruptions, and the amount each person’s vocal pattern mimics the others. Lederman has captured this data using a small red plastic device the size of a credit card that contains a microphone, GPS, and an array of other sensors.

The device is called a sociometer. It samples the data five times per second and wirelessly streams it to a server, where it is rendered into a series of graphs. These graphs, Pentland informs me, are only the tip of the data iceberg. If they desire, Lederman and Pentland can equip the sociometers to capture proximity and the percentage of time each participant engages in face-to-face contact.

All in all, it is the kind of real-time, deep-dive data that you could imagine being used to measure presidential polling results or a golf swing. But this is a different kind of game. The sociometer captures the proto-language that humans use to form safe connection. This language is made up of belonging cues.

Belonging cues are behaviors that create safe connection in groups. They include, among others, proximity, eye contact, energy, mimicry, turn taking, attention, body language, vocal pitch, consistency of emphasis, and whether everyone talks to everyone else in the group. Like any language, belonging cues can’t be reduced to an isolated moment but rather consist of a steady pulse of interactions within a social relationship. Their function is to answer

the ancient, ever-present questions glowing in our brains: *Are we safe here? What's our future with these people? Are there dangers lurking?*

"Modern society is an incredibly recent phenomenon," Pentland says. "For hundreds of thousands of years, we needed ways to develop cohesion because we depended so much on each other. We used signals long before we used language, and our unconscious brains are incredibly attuned to certain types of behaviors."

Belonging cues possess three basic qualities:

1. Energy: They invest in the exchange that is occurring
2. Individualization: They treat the person as unique and valued
3. Future orientation: They signal the relationship will continue

These cues add up to a message that can be described with a single phrase: *You are safe here*. They seek to notify our ever-vigilant brains that they can stop worrying about dangers and shift into connection mode, a condition called psychological safety.

"As humans, we are very good at reading cues; we are incredibly attentive to interpersonal phenomena," says Amy Edmondson, who studies psychological safety at Harvard. "We have a place in our brain that's always worried about what people think of us, especially higher-ups. As far as our brain is concerned, if our social system rejects us, we could die. Given that our sense of danger is so natural and automatic, organizations have to do some pretty special things to overcome that natural trigger."

The key to creating psychological safety, as Pentland and Edmondson emphasize, is to recognize how deeply obsessed our unconscious brains are with it. A mere hint of belonging is not enough; one or two signals are not enough. We are built to require lots of signaling, over and over. This is why a sense of belonging is easy to destroy and hard to build. The dynamic evokes the words of Texas politician Sam Rayburn: "Any jackass can kick down a barn, but it takes a good carpenter to build one."

It's useful to look at the bad apple experiment in this light. Nick was able to disrupt the chemistry of the groups merely by sending a few cues of nonbelonging. His behavior was a powerful signal to the group—*We are not*

safe—which immediately caused the group's performance to fall apart. Jonathan, on the other hand, delivered a steady pulse of subtle behaviors that signaled safety. He connected individually, listened intently, and signaled the importance of the relationship. He was a wellspring of belonging cues, and the group responded accordingly.

In recent years, Pentland and his team have used sociometers to capture the interactions of hundreds of groups in post-op wards, call centers, banks, salary negotiations, and business pitch sessions. In each study, they discovered the same pattern: It's possible to predict performance by ignoring all the informational content in the exchange and focusing on a handful of belonging cues.

For example, Pentland and Jared Curhan used sociometers to analyze forty-six simulated negotiations between pairs of business students who played the role of employee and boss. The task was to negotiate the terms for a new position, including salary, company car, vacation, and health benefits. Pentland and Curhan found that the first five minutes of sociometric data strongly predicted the outcomes of the negotiations. In other words, the belonging cues sent in the initial moments of the interaction mattered more than anything they said.

Another experiment analyzed a competition in which entrepreneurs pitched business ideas to a group of executives. Each participant presented their plan to the group; the group then selected and ranked the most promising plans for recommendation to an outside group of angel investors. Pentland found that the sociometers—which tracked only the cues exchanged by presenter and audience and ignored all the informational content—predicted the rankings with nearly perfect accuracy. In other words, the content of the pitch didn't matter as much as the set of cues with which the pitch was delivered and received. (When the angel investors viewed the plans on paper—looking only at informational content and ignoring social signals—they ranked them very differently.)

"The executives [listening to the pitches] thought they were evaluating the plans based on rational measures, such as: How original is this idea? How does it fit the current market? How well developed is this plan?" Pentland wrote. "While listening to the pitches, though, another part of their brain was registering other crucial information, such as: How much does

this person believe in this idea? How confident are they when speaking? How determined are they to make this work? And the second set of information—information that the business executives didn't even know they were assessing—is what influenced their choice of business plans to the greatest degree."

"This is a different way of thinking about human beings," Pentland says. "Individuals aren't really individuals. They're more like musicians in a jazz quartet, forming a web of unconscious actions and reactions to complement the others in the group. You don't look at the informational content of the messages; you look at patterns that show how the message is being sent. Those patterns contain many signals that tell us about the relationship and what's really going on beneath the surface."

Overall Pentland's studies show that team performance is driven by five measurable factors:

1. Everyone in the group talks and listens in roughly equal measure, keeping contributions short.
2. Members maintain high levels of eye contact, and their conversations and gestures are energetic.
3. Members communicate directly with one another, not just with the team leader.
4. Members carry on back-channel or side conversations within the team.
5. Members periodically break, go exploring outside the team, and bring information back to share with the others.

These factors ignore every individual skill and attribute we associate with high-performing groups, and replace them with behaviors we would normally consider so primitive as to be trivial. And yet when it comes to predicting team performance, Pentland and his colleagues have calculated nothing is more powerful.

"Collective intelligence is not that different in some ways than apes in a forest," Pentland says. "One [ape] is enthusiastic, and that signal recruits others, and they jump in and start doing stuff together. That's the way group

intelligence works, and this is what people don’t get. Just hearing something said rarely results in a change in behavior. They’re just words. When we see people in our peer group play with an idea, our behavior changes. That’s how intelligence is created. That’s how culture is created.”

They’re just words. This is not how we normally think. Normally, we think words matter; we think that group performance correlates with its members’ verbal intelligence and their ability to construct and communicate complex ideas. But that assumption is wrong. Words are noise. Group performance depends on behavior that communicates one powerful overarching idea: *We are safe and connected*.

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* Not coincidentally, many successful groups have adopted the use of family-esque identifiers. People who work at Pixar are Pixarians, and people who work at Google are Googlers. It’s the same with Zappos (Zapponians), KIPP (KIPPsters), and others.