

Please, read the text under! Team-work is important! If you do not contribute well to your team, you should not be a part of it! Please, drop the course by the end of the 5th week if you are putting in less than 4-8 hours per week with your group. The group leaders of each group should report to their contact person how the work is progressing, as well as document the design process.



Geoff Colvin

Senior Editor at Large, Fortune Magazine at Time Inc.

What Really Makes Teams Work

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And what we lose when we take groups online

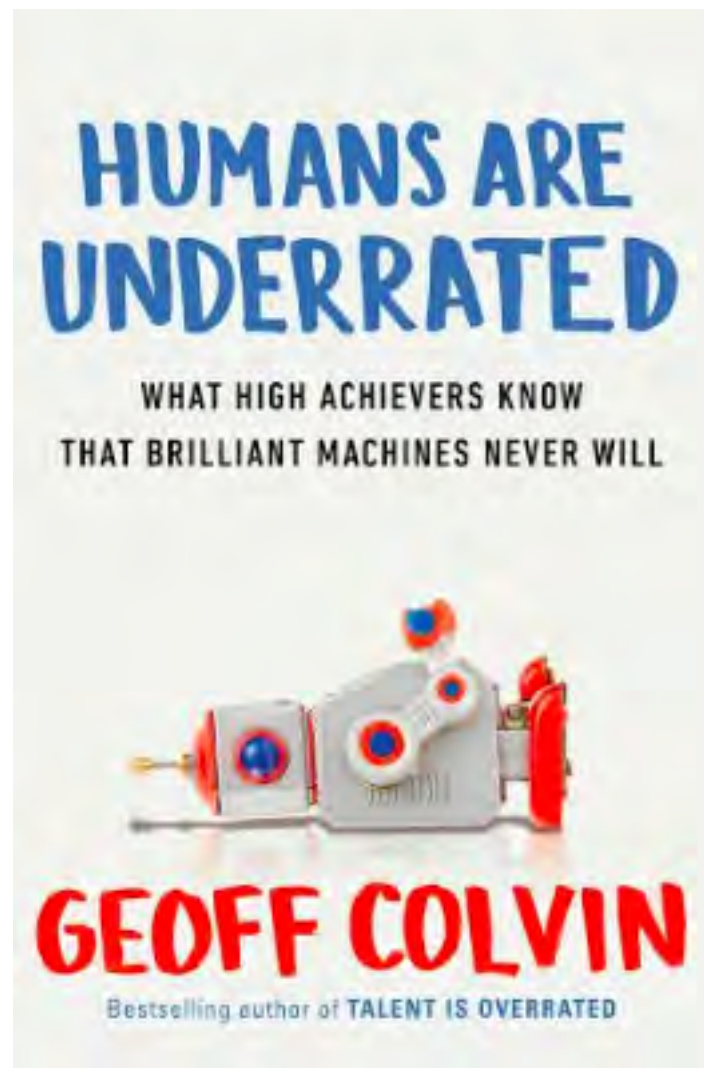
Despite what you might think, as information technology has grown more powerful and influential, the importance of human groups—as distinct from individuals—in creating knowledge has increased enormously.

The trend is starkly clear in a massive study of 20 million research papers in 252 fields within science and engineering, the social sciences, and the arts and humanities over 50 years, plus 2 million patents of all kinds over 30 years. In nearly 100 percent of the fields, more research is being done by teams, and the teams are getting bigger.

A few factors have combined to produce this historic shift. As knowledge increases, people must specialize in narrower slices of it to achieve mastery. For almost any given problem, more people's contributions are required to find the best response.

The trend is so broad that it has apparently become self-reinforcing: As teams increasingly produce higher quality work than individuals, individuals become less likely to match it and thus more likely to become part of teams striving to produce even better work. The result is that humans working in groups are more crucial to the success of organizations (and whole economies), and the ability to work in groups is more crucial to the success of individuals.

So what makes teams effective?



MIT Professor Alex Pentland is one of the researchers who has provided the greatest insight into this question. His Human Dynamics Laboratory invented the sociometric badge, an unobtrusive device that people in a group wear on their clothing. It typically measures the tone of voice a person uses, whether people are facing one another while talking, how much they gesture, and how much they talk, listen, and interrupt one another. It does not record what people say; in explaining team performance, the words themselves turn out to be practically irrelevant.

While researching groups, Pentland and his lab found that the members of the very best teams interact in three distinctive ways. First, they generate a large number of ideas in short contributions to conversations; no one went on at great length. Second, they engage in what Pentland calls “dense interactions,” with group members constantly alternating between advancing their own ideas and responding to the contributions of others with “good,” “right,” “what?” and other super-short comments that signal consensus on an idea’s value, good or bad. Third, everyone contributes ideas and reactions, taking turns more or less equally, ensuring a wide diversity of ideas.

The most important factor in group effectiveness turned out not to be what everybody thinks – cohesion, motivation, leadership. Instead, it’s the social sensitivity of the team members, their skills of social interaction. That’s what encourages those patterns of “idea flow,” to use Pentland’s term. Those three elements of interaction were about as important as all other factors—individual intelligence, technical skills, members’ personalities, and anything else you could think of—put together.

Human interaction is so powerful that increasing it just a little improves group performance a lot. For example, Pentland and his lab investigated a huge Bank of America call center where the emphasis was

on productivity; reducing the average call handle time at that one call center by just 5 percent would save the company \$1 million a year. The bank grouped employees into teams of about twenty, but they didn't interact much, in part because their work was entirely solitary, sitting in a cubicle with a phone and a computer. They were unlikely to run into each other very often anyway because the bank staggered break times in order to keep staffing levels steady. Here was a team that barely justified the term.

Yet the members did interact a bit, and when Pentland asked them to wear the sociometric badges for six weeks, he found that the best predictor of team productivity was how much the members interacted in the little time they had, and what he calls engagement, the degree to which all team members were involved in the interaction.

Which leads to a seemingly obvious conclusion: If lots of interaction and broad engagement are the most powerful drivers of a group's performance, then hasn't technology brought us to the doorway of nirvana? Aren't e-mail, texting, and social media the greatest gift to groups in history? The answer is no, or at least not necessarily. Social interaction is the very essence of being human, as we've seen—a phenomenon so highly evolved that we're still discovering all the ways in which it happens, sometimes affecting us deeply without our even realizing what happened. We didn't develop these wondrous abilities in the electronic age, and a lot of them just don't work online.



Evidence is clear that face-to-face interaction is far richer and more effective than is the fragile, meager digital version in building trust, cooperation, and the patterns of behavior that make groups effective. Is anyone surprised? We humans were interacting face to-face long before we developed language, and today even when we're talking, it isn't what we say that matters most. After badging hundreds of groups in face-to-face interaction and collecting billions of data points, Pentland and his colleagues realized that unspoken social signals – who's talking, how much, in what tone, interrupting or not, facing toward whom and away from whom, gesturing how – told them all they needed to know about the performance of a group. They didn't need to hear any words. Pentland's striking finding is that "usually we can completely ignore the content of discussions and use only the visible social signals to predict the outcome of a negotiation or a sales pitch, the quality of group decision making, and the roles people

assume within the group." But most of those visible social signals aren't available in digital communication.

When digital interaction is effective, it's most likely between people who already have a face-to-face relationship. Some 61 million U.S. Facebook users got a "go vote" message on election day 2010, part of an experiment by political science professor James Fowler and Facebook researchers. A simple informational message about voting had no effect at all; people who got it were no likelier to vote than were those who got no message. But other users received the same message plus randomly selected profile photos of up to six of their Facebook friends who had clicked an "I voted" button on Facebook. Those users were more likely to vote; the message merely informing people that some friends had voted got an extra 60,000 users to the polls. But the real effect was in what happened next: When those users clicked the "I voted" button, triggering a message from them in their friends' news feeds, as distinct from the randomly generated message telling them some friends had voted, an extra 280,000 of their friends voted.

This would seem to be strong evidence of the power of online relationships. But actually it was just the opposite. When the researchers dug deeper, they found that these influential friends weren't just any friends. "Only close friends influenced users to vote in the real world," the researchers found. "Facebook users have an average of about 150 friends, but they are likely to have close relationships with only ten," they reported, and those few friendships, based on face-to-face interaction, made all the difference. "The closest ten friends on Facebook mattered; the other 140 didn't matter at all," Fowler said. "Online networks are powerful . . . but it is those real-world ties that we have always had that are making a difference."

That is, there are Facebook friends, and then there are actual friends. Other research underscores the difference, but your own experience with online-only relationships versus strong in-person relationships is all the evidence you need. Effective teams are built on person-to-person interaction, usually among small numbers of people. Digital media can help sustain strong relationships that were established face-to-face in the real world but cannot create such strong relationships. It's the way we're wired.

It may seem ironic that few people have ever understood that fact better than one of the greatest digital geniuses, Steve Jobs. "Despite being a denizen of the digital world, or maybe because he knew all too well its isolating potential, Jobs was a strong believer in face-to-face meetings," reports Walter Isaacson in his Jobs biography. He quotes Jobs: "There's a temptation in our networked age to think that ideas can be developed by e-mail and iChat. That's crazy. Creativity comes from spontaneous meetings, from random discussions. You run into someone, you ask what they're doing, you say 'Wow,' and soon you're cooking up all sorts of ideas."

It all has to happen in person. That's why Jobs famously designed the Pixar headquarters the way he did. Pixar is the animation studio that Jobs initially funded and eventually ran in the years before he returned to Apple and for several years thereafter. It's arguably the most successful film studio ever, since it has never produced a flop. The *Toy Story* films, *Finding Nemo*, the *Cars* films – of the fourteen features it had produced through 2013, every one was a major financial winner. Jobs wanted to keep it that way, so he insisted that Pixar's new headquarters be designed around a central atrium; he then placed the cafe, mailboxes, conference rooms, and other elements so as to force people to criss-cross it. "We designed the building to make people get out of their offices and mingle in the central atrium," he told Isaacson. He felt so strongly about this that he ordered just two giant bathrooms for the whole building, both off the atrium. That was going too far. An employee revolt killed the idea, but all of the bathrooms to be added were – guess where – near the atrium.

Jobs knew what makes teams work. It isn't e-mail.

Adapted from [Humans are Underrated: What High Achievers Know that Brilliant Machines Never Will](#) by Geoff Colvin. Do you have the skills it takes to make teams work? Take the [Robo Economy Quiz](#) to assess your readiness to create value as the economy changes.