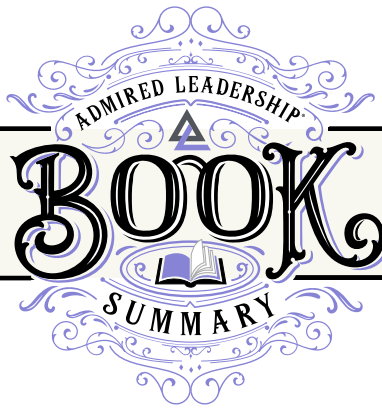




Eight Minutes, Not Eight Hours



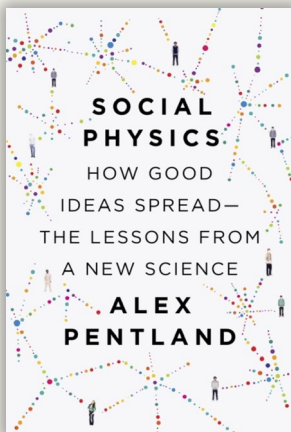
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Social Physics

How Good Ideas Spread – The Lessons from a New Science

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Alex Pentland, a scientist at MIT's Media Lab, examines how big data can improve society and all groups/organizations within it. The central idea of his book is that the way ideas flow predicts and influences behavior patterns better than anything else (pg. 4). Idea flow refers to how behaviors and beliefs spread by way of social learning as well as (good or bad) social pressure (pg. 20). The term "Social physics" focuses on living laboratories where data points are gathered on people's every act and interaction in their personal/professional lives through "sensors on cell phones, postings on social media, purchases with credit cards, and more," while focusing on protecting the security and privacy of the participants (pg. 9). It's based on the idea that "social phenomena are really made up of billions of small transactions between individuals," and that social learning is "the major driver of habits and norms,"—not individual thoughts and emotions as traditional psychology would have it (pp. 10-16).

Key Quote

"Can a company's performance be measured by looking at just the patterns of interactions?" (pg. 92).

KEY POINTS AND CONCEPTS

Explorers

Pentland is convinced that "the most consistently creative and insightful people are explorers" (pg. 26).

Most explorers share similar attributes: They spend a lot of time seeking new people and different ideas without initially trying to find the best. They then winnow down newly-discovered ideas to get the best ones by way of continually bouncing them off all of the people they meet. This gets them

“diversity of viewpoint and experience.” They also distinguish the best ideas by seeing which ones “provoke reactions of surprise or interest from a wide range of people” and thus, come up with a wide range of opportunities to learn from the successes and failures of others (pp. 26-29).

Pentland’s team found that the best explorers within the famous Bell Labs engaged in “preparatory exploration” as follows: They developed open lines of communication with experts ahead of time, thus “setting up a relationship that will later help the star producer complete critical tasks.” They have stronger engagement with people in their networks so that they “rarely spent time spinning their wheels.” Their inter-employee networks were more diverse so that they could “adopt the perspectives of customers, competitors, and managers” (pg. 35).


We can all follow their lead.

- a. Copy others’ success. When combined with one’s own individual learning, it’s dramatically better than just individual learning (pg. 39).
- b. When your own information is unclear, rely on social learning (pp. 39-40). However, too heavy a reliance can lead to group-think in an echo chamber with everyone thinking they came to the idea independently and thus are more confident about the idea.
- c. You know you don’t have enough diversity when everyone is going in the same direction. Explore further or even “bet against the common sense” (pg. 40). When people who know the herd’s flow are going against it (think contrarians), they likely have independent information and believe in it enough “to fight the effects of social influence” (pg. 40). Find them and learn from them. If there is “consensus among a large subset of them,” a good strategy is to follow that consensus. Following that consensus is “reliably more than twice as good” as following the most successful person in the group (pg. 41).
- d. There can be too much idea flow. Pay attention to where “ideas are coming from, and... actively discount common opinions and keep track of the contrarian ideas” (pg. 41).


Idea Flow

Through this, we “learn new behaviors without the dangers or risks of individual experimentation” (pg. 44).

What makes the difference between an energetic vs. stagnant company or one with cohesive vs. frantic direction? People usually say it’s all about how well managed the company is, but research by Pentland and his team uncovered a few things that go against the prevailing advice. We know that spreading information can impact behavior, as can personal factors such as one’s friends, stress/happiness levels, personal beliefs, etc., but when it comes to shaping behaviors, those factors pale in comparison to simply seeing first-hand what others are actually doing (pg. 48). And it’s not just friends. In fact, what the broader peer group does can be far more influential than actions of close friends (pp. 48-49). In communication, “information by itself is a rather weak motivator,” but “seeing members of our peer groups adopting a new idea provides a very strong motivation” (pg. 65).



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Another study found that age, gender, and religion could predict what people will do about 12% of the time but measuring exposure to others “through all channels of communication” accurately predicted people’s actions a whopping 48% of the time (pg. 52). Why? It’s more efficient. It suggests that “the best strategy for learning is to spend 90% of our efforts on exploration” (copying those who are doing well) and 10% on “individual experimentation and thinking things through” (pg. 54). If someone else put in the effort to learn something useful, why think through it all over again?


Engagement

Another strikingly different activity of Bell Labs’ star performers: instead of just seeing themselves as a member of the team, they push everyone to come together to reach consensus and contribute to a shared goal (pg. 63). This in fact creates “trustworthy cooperative behavior conducive for successful business partnerships” (pg. 64). But this has to happen among all members—not just between leaders and members, or just between members and a group only, as in a group meeting (pg. 77). The key is to incentivize. Traditional economic incentives aren’t really that effective, but ones which are aimed at people’s social networks are very powerful (pg. 66).


FunFit Study: The Media Lab team created social network incentives to encourage people to remain physically active during cold winter months. Each person had two “buddies” and they gave cash rewards to people based on the activity of a central “buddy” (pg. 67). Compared with incentivizing people directly, encouraging people to change activities and behaviors based on money their buddies could earn was four times more efficient. Buddies who had lots of interactions with each other, it worked almost eight times better than a traditional individual incentive approach. So, people are actually more motivated to do something that benefits others than when they alone reap the benefits. The effects stuck, too. People receiving social network incentives “maintained their higher levels of activity even after the incentives disappeared” (pg. 68).

The number of direct interactions is also a reliable predictor of how much behavior will change and how well a person will keep up the change, because it’s related to trust. This works because social network incentives generate positive social pressure (pg. 69). So to be most effective, focus on people “who have the strongest social ties and the most interaction with others” (pg. 70). In another part of the FunFit study called ‘Peer See’, people had access to what buddies were doing. Without even adjusting the networks or idea flow, simply allowing people to see what others were up to was “twice as effective as just rewarding people individually” (pg. 70).

Applying these principles to internal social media networks, Pentland’s team studied more than a thousand companies and millions of social media activities for one year. They came away with some specific lessons: A burst of engagement causes activity to swell most effectively. For example, if someone received three or more invites to join a network within half an hour, they were almost certain to join the social network if the invites were from people who were already engaged with them. If someone got as many as 12 invites over that



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same period of time from people they weren't engaged with, it had little effect. Another best practice: "reward people for how much their coworkers use the network." This reward system can kick-start new habits, while the average social incentives are "unconnected to real social relationships and so feel awkward and fake" (pp. 73-75).

Collective Intelligence


The Media Lab team studied hundreds of small groups and found that typical factors which are supposed to drive group performance (cohesion, motivation, individual satisfaction) weren't really important—neither was individual personality or skill.

Collective intelligence is mostly independent of the participants' individual intelligence (pg. 91). What is important is the structure of idea flow, whether or not the conversational turn-taking was spread out and how socially intelligent the group's members were (pg. 88). Women are typically better signal-readers in social settings, so "groups with more women tended to do better" because they had a big impact on idea flow (pg. 88). The biggest determinants of good performance are: many short contributions instead of a few long ones; responsive comments ("good," "that's right," "what?" etc.) that do or don't confirm ideas, which serve to build consensus; and diversity of ideas with everyone taking turns to come up with contributions and reactions (pg. 89).



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One exception is when a decision has to be made quickly. There might be no time to build consensus, or emotions may be running high with groups having a hard time working together. In this case, a leader should be a facilitator, intervening as briefly as possible (pg. 90).



"Can a company's performance be measured by looking at just the patterns of interactions?" (pg. 92). The team looked at Bank of America call centers to analyze call handle time, which is a standard determinant of how much it costs to run a call center. For example, reducing this time by just 5% can save the company \$1 million per year. The primary productivity factors were found to be the overall amount of employee interaction and level of engagement—"the extent to which everyone is in the loop" (pg. 94). Pentland's team simply asked all employees to take a team break instead of staggering individual lunches, which increased both face-to-face interaction and engagement. When this was enacted at every BoA call center, it was projected to save \$15 million per year due to the increase in productivity (pg. 95).

The difference between high and low levels of creativity is informed by "face-to-face exploration outside the group, together with... engagement within the group" (pg. 97). To encourage higher levels, "get everyone talking to everyone else" by changing seating charts, for example (pp. 99-100). Using a formal measurement of creative output called KEYS that was developed at Harvard, the Media Lab researchers found that even between creative days and non-creative ones, you can see a marked difference in exploration and engagement levels, predicting the more creative days with 87.5% accuracy (pg. 102).

As a rule of thumb, for bringing in new ideas, use exploration. For obtaining consensus, foster engagement. When in doubt, just oscillate between the two (pg. 102).

Shaping Organizations

Studying more than two dozen organizations, the Media Lab team found that interaction patterns account for about half of the variation between high performers and low (pp. 105-106). Typically, people focus on individuals or informational content. It's better to see them as "idea-processing machines that harvest and spread ideas" (pg. 105). Move from org charts to monitoring idea flow, and focus on understanding and shaping interaction patterns. Even just seeing patterns of interactions gives you a sense of how to manage them and make adjustments. This "shared understanding then produces [good] social pressure to adopt the agreed-upon patterns" (pg. 107).

Engagement is centered around the idea that "if the people you talk to also talk to each other, then you are in the loop and in good shape" (pg. 107). So, help employees have more diverse connections. Also, when people are more aware of how they interact, they distribute their individual contributions better (pg. 110). The drawback of not worrying about interaction patterns is that you're more likely to get stuck in old ideas, having disconnects in what everyone thinks they should be doing (pg. 114).

If there isn't enough diversity in idea flow, here are some ways to find out and deal with the issue:

From the beginning, ask each person in a group what they think everyone else will say. Leave out this "common knowledge" since it's a given. This is most useful in idea markets like election campaigns, box office returns, etc.


Find good people who accurately predict what other people will do, but who don't act the same way themselves. They must have independent information.

When people have similar opinions, they likely have similar information. Their opinions can't be considered independent but instead have to be counted as one opinion. Find others. (pg. 115).


Explorers ask about what's going on in people's lives, how projects are going, how they're addressing problems, etc. (pg. 117). These are the connectors in organizations who keep everyone in the loop. It's helpful to note that such people "are made, not born" (pg. 118). Talk to people in every situation, especially informal ones: ask "what's new, what is bugging them, and what they are doing about it" (pg. 118).

Social Network Incentives

In time-critical situations, it's not possible to mobilize people by mass media, partly because of how much it costs to reach everyone. The Media Lab team took a unique approach to instantly mobilize crowds through the Red Balloon Challenge. Ten red weather balloons were placed in undisclosed locations around the US and the first person to find all ten won \$40,000. The team offered financial rewards to everyone involved in recruiting the eventual finders of balloons as well as the balloon-finders themselves (pg. 123). Even though a number of odds were stacked against them, they won the challenge in just under 9 hours (pp. 123-124). Direct incentives could have deterred people from referring others, while distributing the winnings inspired many more people to join in (pg. 124).



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This stands in contrast to cubicle workers performing independent tasks, with outputs routed virtually to people whose faces are never seen and all of this overseen by central management. There are little to no peer-to-peer network incentives and people aren't even engaged with management (pg. 126). When there is urgency for people to adopt new behaviors and habits, there's a greater need for group engagement (pg. 127). This often happens naturally, where engagement shoots up because of crises as people try to manage increased workloads due to layoffs, having to establish new interaction patterns, etc. (pp. 128-129). It's the people who have the most invested relationships and who have interacted with the most people who are the most influential on others' behavior (pp. 129-130). It's the same thing with trusted relationships. We "favor those ties over others" and establish better idea flow within them (pg. 130).

Other Applications

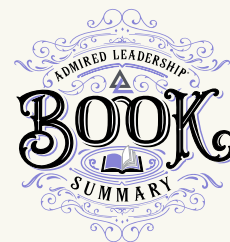
These concepts can be applied to cities and whole societies. Cities can benefit from "systems that are driven by the needs and preferences of the citizens instead of ones focused only on access and distribution" (pg. 138). Even while protecting privacy, you can easily gather mobile phone information to help vulnerable groups, make transportation more efficient (which the team did for the whole city of Zurich), or control outbreaks of disease (pp. 143-158).

Enabling safer and more efficient data sharing should be a greater concern because of the potential benefits of using personal data (pg. 179). Pentland proposes a New Deal on Data that includes guidelines for protecting information and rules for enforcement as well as accountability (pp. 180-181).

Pentland, A. (2015). **Social Physics: How Good Ideas Spread – The Lessons from a New Science**. New York: Penguin Books.

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