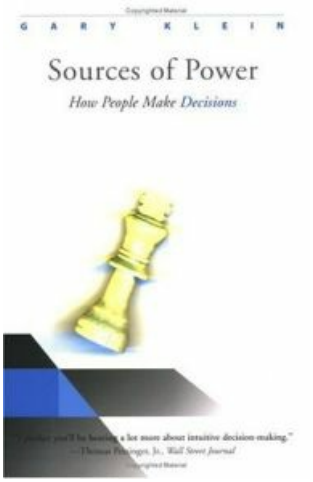

Book Sources of Power

How People Make Decisions

Gary Klein
MIT Press, 1998
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Recommendation

In this original, honest and sometimes amusing book Gary Klein studied expert decision makers, such as firefighters, soldiers and chess masters, who operate under highly challenging conditions. He shares his early assumptions about how they made decisions, but his research reveals that his initial theories were wrong. He has learned what good decision making requires and shares that expertise in tightly focused chapters rich with examples. *BooksInShort* recommends this book to anyone interested in decision making, and especially to those who make high-stakes determinations under dynamic conditions: leaders, strategists, futurists, investors and businesspeople.

Take-Aways

- Experts don't rely on analytical, academic decision-making processes.
- Skilled decision makers use accumulated expertise to read situations, create possible solutions and act immediately.
- "Intuition" helps decision makers see crucial patterns in a situation.
- Experienced decision makers visualize possible solutions with focused "mental simulation."
- Experts identify context-specific "leverage points" to improvise solutions.
- Successful problem solving moves through a repeating cycle, not a linear path.
- "Experts see the world differently."
- Stories and metaphors help problem solvers organize and frame challenges.
- Successful teams share expertise, practices and a social network while communicating intentions on a deeper level.
- People who lack expertise and can't predict others' behavior make poor decisions.

Summary

"Decisions and Models of Decision Making"

Most people make decisions badly. However, firefighters, military leaders and chess masters, for instance, make critical decisions under extreme pressure every day. If they are wrong, the least they can lose is a career-defining game: the most is someone's life. These experts reach their decisions in "high stakes," time-pressured situations. They must act despite scarce information, ambiguous objectives and ill-defined methods. Often they must "juggle complex goals," recognize relationships and perceive differences while immersed in dynamic circumstances that change second by second. Yet these experts routinely make good decisions. How are they able to think through the issues, choose among options and direct their will while avoiding the paralysis of self-doubt?

> "Intuition depends on the use of experience to recognize key patterns that indicate the dynamics of the situation."

They eschew the "rational choice strategy" taught in many business schools. In that model, you identify and evaluate your options, weigh different aspects, produce ratings and choose the alternative that scores the most points. But decision-making pros don't use any aspect of this model. When asked, many experts couldn't remember making decisions or even considering alternatives. Their know-how allowed them to read a situation quickly – even immediately – to identify patterns and act. They determined and pursued fresh options in the midst of application. They generated alternatives only when their first actions failed.

> "The distinctions between problem solving and decision making blur in natural settings."

Studying experts' processes leads to a different model of decision making: the "recognition-primed decision model" (RPD). This model generates solutions immediately, based on the practiced recognition of a situation's patterns. Decision makers project these solutions forward in their imaginations and test them by visualization, "not by formal analysis and comparison." This model doesn't necessarily generate the best response; it quickly chooses the "first workable option," which is the preferred option under time pressure. The RPD model emphasizes action. It depends on experience, so rookie decision makers may need to employ "analytical methods." People can learn to use RPD by exercising "deliberate practice," accumulating experience, getting feedback and "reviewing prior experiences" to deepen their skills.

Where Decision Makers Get Their Power

People who make difficult decisions regularly draw on many "sources of power," including "intuition," "mental simulation" and the use of "leverage points."

> "Experts see the world differently. They see things the rest of us cannot. Often experts do not realize that the rest of us are unable to detect what seems obvious to them."

Decision makers using intuition call on a depth of expertise that distinguishes "key patterns" to diagnose a situation. Intuition sometimes seems like a "sixth sense" urging immediate action, as when a veteran firefighter leads his team out of the flames just before a building collapses. Intuition can be a tool, enabling you to anticipate what will happen next. To increase intuition, deepen your "experience base."

> "The biggest danger of using mental simulations is that you can imagine any contradictory evidence away."

To employ mental simulation, visualize a situation and project it into the future "through several transitions." Good decision makers include three factors in their simulations and project them through no more than six steps. If they must involve more factors or stages, experts group them to work with a smaller number.

> "We are impressed when someone with expertise...knows...what to do in a difficult situation; we are also impressed when someone invents a new procedure on the spot."

Use simulations to understand what has happened or what might occur. Identify the parameters of your simulation: where you will start and end, and what drives change. Create an "action sequence" and run the simulation. Review it for completeness, applicability and coherence. Simulations are useful but dangerous in that "you can imagine any contradictory evidence away" by selecting the facts you prefer for your simulation. Instead, consciously seek alternative explanations. Help planners find the flaws in their forecasts by asking them to project their strategies forward, imagine their plans falling apart and diagnose the factors causing failure.

> "The past and the future are part of experts' experiences. They grow out of the ability to run mental simulations."

Mental simulation isn't easy, but it can help you develop "situation awareness" that can lead you to reach decisions in circumstances where traditional analytical methods don't apply. Generating simulations during a situation will help you quickly prioritize clues, highlighting an advantage of the RPD model: Users act to solve a problem almost immediately. Contrast this methodology with the traditional rational choice strategy, which calls for weighing alternatives one at a time. That contemplative approach works better in organizational contexts in which you face defined goals and the need to justify your decisions, or in situations where conflict may arise over your choices and where you have the option to seek the best overall alternative.

> "Cognitive task analysis is the description of the expertise needed to perform complex tasks."

Experienced decision makers identify leverage points where their efforts will produce the greatest return. These points are analogous to handholds in rock climbing: No rule tells you how to find them. Instead, handholds (and leverage points) shift according to "the conditions of the climb and the climber." High-level decision makers seek leverage points in practices as varied as chess, new product development or international policies. You're more likely to find leverage points in fields in which you are an expert.

Decision Making and Problem Solving

Academicians discuss decision making and problem solving separately, but the distinction collapses "in natural settings." Reviewing one stage of a problem at a time is a linear approach. However, identifying leverage points – whether positive ones, which help you, or negative ones, which others might use against you and which you must guard against – showcases the "nonlinear aspects" of problem solving. Skilled innovators construct working solutions by looking at a problem from different perspectives and trying a number of attacks. They work in a cycle: They first identify the issue, which sets the search for an answer in motion. Then they "represent the problem," an exercise which can range from framing the issue broadly to proposing a specific diagnosis. From there, they harness leverage points to "generate a course of action" and evaluate the results. They may identify a new problem, or use what they've learned to represent the problem in a new way.

> "Metaphor does more than adorn our thinking. It structures our thinking

Acknowledging the processes involved in this cyclical, context-dependent approach grounds innovation in reality. Focus on defining your goals, examining the situation, creating simulations, and so on. Applying this nonlinear process can strengthen planning. Too often, people develop plans in great detail, even as the situation diverges from their starting point, making their efforts both futile and wasteful. Realize that it is easy to make plans too complex, too specific and too rigid. Replace such plans

with simpler, more "modular" strategies that allow you to try one step at a time and check your results against reality.

How Experts Think and Train Others to Think

True experts see the world differently. Their accumulated experience allows them to detect patterns and details that novices miss, and to notice "anomalies." They don't just see the events in front of them. They see the larger picture in order to link current events with past causes and future effects. Experts shift their "time horizon" appropriately. When necessary, they focus on the moment, but they have the ability – based on their "mental model of the task" – to look ahead to anticipate future needs more accurately. They see how situations unfold, not just on the surface, but also in their underlying functions and principles. They recognize opportunities for action and moments for improvisation, while taking their own capacities into account. They develop an awareness of their own limitations by analyzing their performance, tracking instances when they lose "the big picture," and using the lessons of their poor performance to improve their future actions.

> "Whenever we make a request – ask for an errand or give a command – we need the person to read our mind."

You can apply these practices to train people in your organization. Start by identifying their "sources of expertise." Who knows what and how did they learn it? Next, "assay the knowledge" by analyzing the tasks these experts engage in to see precisely what is involved. This leads to the third step, in which you "extract the knowledge," and the fourth, in which you "codify" it, making tacit know-how explicit so you can organize it into routines that nonexperts can follow.

> "The cognition of a team can be inferred from three sources: the team's behavior, the contents of the team's collective consciousness and the team's preconscious."

Storytelling offers a way to organize concepts into meaningful patterns. Stories explain and create relationships. They place "agents" in a situation in which they must solve a problem, explain their tools and tactics, and indicate their "intentions." Stories touch on "causality" and "context," and often highlight "surprises" that the problem solvers encounter along the way. Combining these factors in story form helps people learn and teaches them lessons. Stories often appear in politics – all good conspiracy theories start with a good story – and in the justice system, where the better story often wins the case. Stories also apply in business and innovation. For example, "AT&T's best software programmers" worked their progress reports into narratives to guide their actions, and then reworked them into better stories as they learned more. Prompt the experts you know to tell and retell their stories to extract their knowledge. Such accounts are the verbal equivalents of mental simulations.

> "Experts...see inside their own thought processes – the process of metacognition, which means thinking about thinking."

In a related fashion, people use "analogues and metaphors" to frame how they think about choices. For instance, you approach a political issue differently if you perceive it as a casual conversation rather than as a meaningful struggle. Metaphors also help people generate new solutions. For example, Steve Wozniak and Steve Jobs borrowed the metaphor of a desktop in organizing the Macintosh computer interface. Metaphor often resides at the core of equipment design. You can use "analogical reasoning" to deal with a poorly defined problem. Analogies can "function like experiments" by relating disparate causal factors to each other. Analogies also can help predict what might happen in new situations; the most fitting analogue serves as the finest predictor.

> "Poor outcomes are different from poor decisions. The best decisions possible given the knowledge available can still turn out unhappily."

Frequently, people cooperate to solve problems, either in a brief, spontaneous fashion, or as part of a team's mission. When you work with someone else and you communicate a dilemma, you present an expectation that often goes unrecognized: You essentially are asking someone else to read your mind. That is to say, when you ask someone to do something, he or she has to correctly divine the intention behind your words. This always is challenging, but it is particularly difficult during decision making or problem solving, when both intention and circumstance may be shifting and unclear. To work around this dilemma, you and your listeners must extend yourselves. Consciously state your intent and ask about theirs. Be explicit in team settings. State your overall goals for the task, then clarify its specific objectives. Outline the steps in your action plan and the reasoning behind it. Indicate what decisions the team has to make, what obstacles it might encounter and what constraints could hold it back.

> "People become problem solvers when they...create a new course of action, improvise, notice difficulties way in advance, or figure out what is causing a difficulty."

Communicating these factors will help you build a "team mind." However, the best collective entities share other traits as well. Teams such as US Forest Service firefighters work well together because they practice enough to keep sharp. They function in stable groups that collaborate for extended periods and promote from within. They form a cohesive social network, or even several networks, within their service and with other organizations. Successful teams share "practices and routines," and develop a consistent team identity. Their "competencies" and their group identity feed (and are fed by) the team's cognitive and metacognitive abilities: These teams think together and reflect jointly on how well they function. By contrast, members of poorly performing teams don't communicate their intent well, they change rosters too often and too quickly, and they lack the trust born of consistent social interaction.

The Sources of Poor Decisions

Experts once believed that bad decisions derive from bias and faulty thinking, but the reality is more complicated. Stress factors can contribute to weak decisions. For instance, time pressures can force you to act with less information, noise can capture your attention and blind you to situational cues, and stress itself can weaken your working memory. Uncertainty can erode your decision-making ability. If you can't gather information or recognize the patterns in a situation, doubt can freeze you. People make poor decisions when they can't properly assess an issue that constantly changes, they "have to predict human behavior," or they can't get enough repeated experience to build their skills. Similarly, when circumstances offer little useful feedback or when time horizons are extended, bad decisions may result. "Making public policy" and raising children are but two examples in which most of these instances apply.

About the Author

Gary Klein, founder of Klein Associates, Inc., is the author of *The Power of Intuition* and the co-author of *The Working Mind*.