

INFORMAL LEARNING

*Rediscovering the Natural Pathways
That Inspire Innovation and Performance*

Jay Cross

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John Wiley & Sons, Inc.

Praise for *Informal Learning*

“Outstanding! Finally, a book that walks its own talk. Jay Cross forces us to look at informal learning in a new way—the right way—helping casual observers and seasoned practitioners understand how people truly learn. I’ve waited a lifetime for this book.”
—Marcia L. Conner, author, *Learn More Now* and *Creating a Learning Culture*, managing director, Ageless Learner

“When you look back at your most powerful and deep learning, it’s informal. It’s in context. It has meaning. And it’s guided by realities that rarely get addressed in formal training programs. Accepting this thinking is fundamental to designing learning and performance experiences realistically. Acting on it is necessary for success.”
—Gloria Gery, author, *Electronic Performance Support Systems*

“Jay Cross understands learning like no one else. In *Informal Learning*, he taps a fabulous array of real-life examples to provide practical insights for individuals and organizations to learn and succeed in the knowledge economy.”
—Ross Dawson, author and chairman, Future Exploration Network

“*Informal learning* is something a lot of people are talking about, but [that] no one quite seems . . . to get a grasp of. Jay Cross is putting the pieces of the puzzle together in his new book, whose direct and conversational style is perfect for the topic. Now you may object that a book is too formal a way to [teach] about informal learning. And Jay may even agree. When he lists the major sources of our learning, he mentions everyone from your sister to your boss, but he does not mention books. Well, don’t believe him. Reading this one will prove that there is life yet for splendid learning in good old books.”
—Etienne Wenger, CP Square

“Jay Cross is a brilliant writer, synthesizer of ideas, and advocate for optimizing the development of human capital. Organizational development professionals, human resource directors, people managers, those concerned with ‘the social life of information,’ read this book. It will cause you to think and act!”
—Edward L. Davis, author, *Lessons for Tomorrow: Bringing America’s Schools Back from the Brink*

“Life is all about learning, and learning to learn is the most valuable investment an organization can make. If you are eager to learn how organizations can truly boost the potential of their high-performance individuals, *Informal Learning* is the first readable, nontechnical visual map to the fascinating journey of getting better at learning more.”
—Robin Good, chief editor, Robin Good Online Publishing Network

“You’ll learn more reading this book than sitting in lectures. Jay will make you think and worry. Those are good things, in my view.”
—Allison Rossett, San Diego State University

“As usual, Jay has his finger on the pulse of trends in corporate learning. He combines a thorough and engaging review of the rationale and manifestations of informal learning with a compelling perspective on its value. This book is a must read for anyone in the learning field today.”
—Brenda Sugrue, director of research, ASTD

“The world has been waiting for this book. Learning will never be the same again.”
—Jane Knight, e-Learning Centre and Learning Light

“Jay Cross is one of the pioneers in the field, one of the first to understand how the Internet changes learning in the workplace. This book shows you how to improve learning in the workplace by working with, not against, new technologies and does so in an engaging and informative manner. A must for any corporate trainer’s bookshelf.”
—Stephen Downes, National Research Council of Canada

“Corporations are just beginning to warm up to what Jay Cross has known for a long time: The water cooler is the new corporate university, and idle chatter—the productive kind—should be encouraged, not stamped out. Read this book if you want to understand how the learning most people think of as unimportant and unproductive is probably the most powerful learning of all—and how to amplify that.”

—Jerry Michalski, Sociate

“Jay Cross distills years of experience and timeless wisdom into simple principles for what really works. He gracefully blows away the cobwebs of popular myths and misconceptions so that we can see the truly effective and astonishingly easy ways we can best support collaboration and learning.”

—Verna Allee, founder, ValueNet Works, author, *The Future of Knowledge*

“Learning happens on the job, in the break rooms and around the water cooler. As life and business get faster and more complex, informal learning is the only option. How can you design learning structures and environments that support informal learning? Ask Jay. He got e-learning before anyone else. Now he gets informal learning. He just plain ‘gets it.’ And now that he’s written a book, you can get it too.”

—Dave Gray, CEO, XPLANE

“During the many chats and exchanges I have had with Jay, I’ve always felt I learned a lot from his insights, wisdom, and wit. Therefore it seems almost a contradiction in terms that Jay is putting all his thoughts and observations on informal learning into a book, the container par excellence of formal learning as we know it. In between the informal chats with Jay, this book will do great for me now, until our next meeting!”

—Rebecca Stromeier, managing director, ICWE, Online Educa

“Jay’s book demonstrates that informal learning is linked to innovations in business management, employee motivation, communities of practice, and productivity. If you have been a hermit for the past few years, reading this book will quickly bring you up-to-date and push your thinking ahead to the coming decades.”

—Curtis J. Bonk, professor, Indiana University, and president, SurveyShare, Inc.

“Learning cannot be left to chance! The skill sets required by the new business environment of the twenty-first century can no longer be served by the traditional training methods of the twentieth century. How we even think about learning must change. Jay Cross is right on target. Every learning and business executive should read this important book. It will raise your consciousness about informal learning as the most important component of an enterprise learning environment.”

—Frank J. Anderson, Jr., president and chief learning officer, Defense Acquisition University

“We’re moving into an age where informal learning is recognized for what it is—our greatest service provider! You want to know how we’re going to get there. This book by emergent learning guru Jay Cross is here to help you.”

—Peter Issackson, Intersmart, Paris

“In *Informal Learning*, Jay Cross presents, with dramatic clarity

- How and why people can learn at a lightning-fast pace, even in what seem to be the stodgiest organizations or environments
- How entire organizations can be transformed overnight
- How enterprises that understand learning, social networking, and the full potential of the Internet can position themselves to anticipate changes, leap on opportunities, and enjoy extreme success
- How to create conditions that nurture creative, responsive individuals who keep the organization flexible, dynamic, and thriving.”

—Susan Smith Nash, <http://www.beyondutopia.com>, Leadership and the eLearning Organization

About This Book

Why is this topic important?

Workers learn more in the coffee room than in the classroom. They discover how to do their jobs through informal learning: talking, observing others, trial and error, and simply working with people in the know. Formal learning—classes and workshops—is the source of only 10 to 20 percent of what people learn at work. Corporations overinvest in formal training programs while neglecting natural, simpler informal processes. This book describes how visualization, impromptu conferences, organizational network analysis, conversation space, and communities of purpose fuel innovation and agility. In short, informal learning is generally more effective and less expensive than its formal counterpart.

What can you achieve with this book?

After reading this book, you should be able to:

- Recognize informal learning when you see it
- Apply informal learning practices in your organization
- Co-create a culture that nurtures natural learning
- Replace training events with learning environments
- Seed communities of practice for bottom-up knowledge dissemination
- Make your organization more agile, resilient, spirited, and open
- Focus on performance

How is this book organized?

This book is divided into four major parts. "Concepts" examines the incredible acceleration of time, a working definition of informal learning, how informal learning benefits organizations, and why learning ecosystems will crowd out training programs. "Learners" focuses on the individual and the skills and attitudes that make for a successful informal learner. "Cases" are stories of informal learning in action in a variety of companies. "Just Do It" advises how to bring informal learning into your organization. Additional material includes the "In a Nutshell" as Appendix A (because repetition improves learning), two other appendixes, a glossary, and a list of related resources. A Web site for the book, <http://informL.com>, contains supplemental material, updates, and links to community.

About Pfeiffer

Pfeiffer serves the professional development and hands-on resource needs of training and human resource practitioners and gives them products to do their jobs better. We deliver proven ideas and solutions from experts in HR development and HR management, and we offer effective and customizable tools to improve workplace performance. From novice to seasoned professional, Pfeiffer is the source you can trust to make yourself and your organization more successful.



Essential Knowledge Pfeiffer produces insightful, practical, and comprehensive materials on topics that matter the most to training and HR professionals. Our Essential Knowledge resources translate the expertise of seasoned professionals into practical, how-to guidance on critical workplace issues and problems. These resources are supported by case studies, worksheets, and job aids and are frequently supplemented with CD-ROMs, Web sites, and other means of making the content easier to read, understand, and use.



Essential Tools Pfeiffer's Essential Tools resources save time and expense by offering proven, ready-to-use materials—including exercises, activities, games, instruments, and assessments—for use during a training or team-learning event. These resources are frequently offered in looseleaf or CD-ROM format to facilitate copying and customization of the material.

Pfeiffer also recognizes the remarkable power of new technologies in expanding the reach and effectiveness of training. While e-hype has often created whizbang solutions in search of a problem, we are dedicated to bringing convenience and enhancements to proven training solutions. All our e-tools comply with rigorous functionality standards. The most appropriate technology wrapped around essential content yields the perfect solution for today's on-the-go trainers and human resource professionals.

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PREFACE

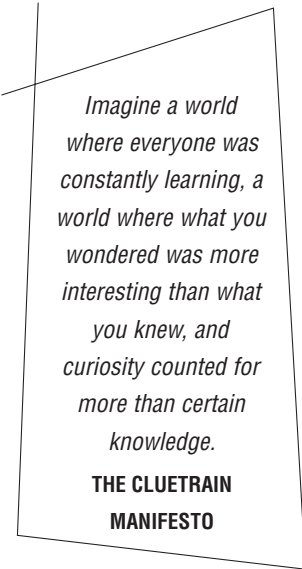
THIS IS A BOOK about knowledge workers, twenty-first-century business, and informal learning. I first heard the term *informal learning* from the late Peter Henschel, then director of the Institute for Research on Learning (IRL), who told me:

People are learning all the time, in varied settings and often most effectively in the context of work itself. “Training”—formal learning of all kinds—channels some important learning but doesn’t carry the heaviest load. The workhorse of the knowledge economy has been, and continues to be, informal learning.

For thirty years, I’d been designing, cost-justifying, and marketing formal training programs. Now this distinguished-sounding fellow was telling me that people learned more by accident. Back in California, Peter and I met at IRL to talk further about informal learning, communities of practice, anthropological research, and learning as engagement. I reflected on how I had acquired my professional skills: watching master performers, trial and error, bull sessions with friends, faking it, reading magazines, and, above all, just talking with others. Conversation was a more effective teacher than school.

Peter was right. Most learning about how to do a job is informal. If your organization is not addressing informal learning, it’s leaving a tremendous amount of learning to chance. Is that okay? Not any longer. This is a knowledge economy.

Most corporations invest their training budget where it will have the least impact, as shown in Figure P.1:



*Imagine a world
where everyone was
constantly learning, a
world where what you
wondered was more
interesting than what
you knew, and
curiosity counted for
more than certain
knowledge.*

**THE CLUETRAIN
MANIFESTO**

*Informal learning,
that's what we call the
learning that takes
place out of school.*

DON NORMAN

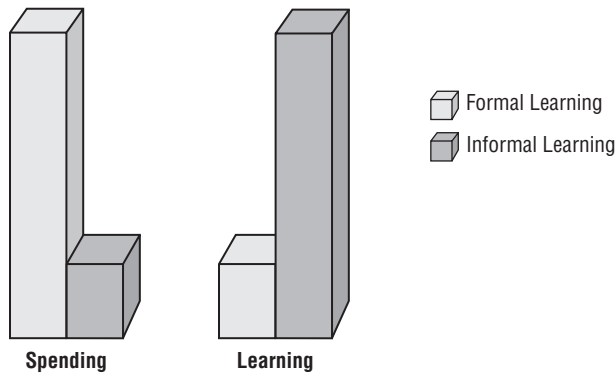


FIGURE P.1. The Spending/Outcomes Paradox

In July 2002, a three-day event entitled Creating a Learning Culture rekindled my interest in informal learning. Convened by Marcia Conner at the University of Virginia's Darden School of Business in Charlottesville, it was clear from the start that this was not going to be the typical graduate school colloquium. Marcia told us *we* were the experts, so no one was going to be teaching at us from the front of the room. We were seeking discovery, not answers. Here are a few of the comments from the fifty assembled gurus and rebels:

"Institutions suck the life out of people. I want to be fully alive, not just going through the motions."

"Our DNA makes people so much alike. We should build on our similarities, not our differences."

"You don't stop work to learn. Learning is the work."

"People like change; it's exciting. People don't want to *be* changed."

The Darden event encouraged me to think even further out of the box, and in 2003 I wrote a white paper entitled "Informal Learning, the Other 80 Percent," which described IRL's findings and added Marcia's and others' suggestions on what to do should an organization choose not to leave learning to chance. The following is excerpted from that white paper:

Learning is not what you think it is

Most of what we learn, we learn from other people—parents, grandparents, aunts, uncles, brothers, sisters, playmates, cousins, Little Leaguers, Scouts, school chums, roommates, teammates, classmates, study groups, coaches, bosses, mentors, colleagues, gossips, co-workers, neighbors, and, eventually, our children. Sometimes we even learn from our teachers.

*Informal, adjective:
casual, familiar, easy,
congenial, simple,
unpretentious.*

ALLWORDS.COM

**MULTI-LINGUAL
DICTIONARY**

Informal learning is effective because it is personal. The individual calls the shots. The learner is responsible. It's real. How different from formal learning, which is imposed by someone else. How many learners believe the subject matter of classes and workshops is "the right stuff"? How many feel the corporation really has their best interests at heart? Given today's job mobility, workers who delegate responsibility for learning to their employers become perpetual novices [p. 1].

Many people agreed with what I was saying but were at a loss as to what to do about it. A publisher approached me, and in early 2005 I began digging deeper into the concept of informal learning. I've since read eighty books, interviewed more than a hundred people, and visited heaven knows how many Web sites. I've concluded that we are on a journey from an industrial world ruled by certainty, precision, and logic to a natural world characterized by unity, unpredictability, and complexity.

The industrial age has run out of steam. A quick scan reveals unhappy workers, overcrowded cities, polluted skies, volatile economics, crumbling values, the eradication of leisure, and general malaise that too much is going on. These are the death throes of a model that has outlived its usefulness. It is time to close this chapter and head for new territory.

Join me in exploring how informal learning can boost your organization's performance and enable your workers to lead more fulfilling lives.

August 2006

Jay Cross
Berkeley, California

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- Busy people who gave their time to help me explore the world of informal learning: Don Norman, David Sibbet, Don Novello, Larry Prusak, Verna Allee, George Leonard, Tom Stewart, Steve Denning, Steve Rae, Rob Cross, Etay Gafni, John Sperling, Gloria Gery, Kevin Wheeler, Tony O'Driscoll, John Adams, Ned Davis, Craig Weber, Jerry Michalski, Ted Cocheu, Valdis Krebs, and Paul Duguid
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- Others who shared their insights and shaped my perspective: Brenda Sugrue, Bill Bruck, Curt Bonk, Bill Mitchell, Brian Behlendorf, Chris Pirillo, Clark Aldrich, Dale Dougherty, David Grebow, Don Tosti, Doug Engelbart, Doug Kaye, Elizabeth Doti, Eugene Kim, Gary Dickelman, Herwig Rollett, Jim Schuyler, Lance Dublin, Lee LeFever, Loretta Daniels, Marc Rosenberg, Mary Hodder, Michael Spock, Mike Parmentier, Murray Gell-Mann, Paul Mace, Rob Hathaway, Ross Button, Ross Mayfield, David Weekly, Christian Bauman, Bruce Cryer, Bill Veltrop, Seth Kahan, Terri Griffith, Tom King, Tom Malone, Trace Urdan,

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- Clark Quinn, who gave me solid advice throughout the project, and the other members of the Meta-Learning Lab: Claudia Welss, Claudia L'Amoreaux, and Bill Daul
- Marcia Conner, an ageless learner who inspires me to think different
- The late Peter Henschel, who first turned me on to informal learning
- Jane Hart, who reviewed the entire manuscript and provided wise counsel
- Dave Gray and the other guys at XPLANE for helping me (and you) visualize what informal learning is all about
- Bob Horn, who makes genius look simple and is a true pioneer in the field of informal learning
- Smokey the Wonderdog, who was always cheerful, got me up mornings, never doubted that I would pull this off, and was a constant source of inspiration
- My darling wife Uta, for being there

INTRODUCTION

WORKERS LEARN MORE in the coffee room than in the classroom. They discover how to do their jobs through informal learning: asking the person in the next cubicle, trial and error, calling the help desk, working with people in the know, and joining the conversation. This is natural learning—learning from others when you feel the need to do so.

Training programs, workshops, and schools get the lion's share of the corporate budget for developing talent, despite the fact that this formal learning has almost no impact on job performance. And informal learning, the major source of knowledge transfer and innovation, is left to chance.

This book aims to raise your consciousness about informal learning. You will discover that informal learning is a profit strategy, that it flexes with change, and that it respects and challenges workers. You will see how hard-nosed businesses use organizational network analysis, conversation space, and communities of purpose to fuel innovation and agility. You will read stories of dozens of companies that have prospered by putting informal learning techniques to work.

Learning is that which enables you to participate successfully in life, at work, and in the groups that matter to you.

WHO SHOULD READ THIS BOOK

This book is first and foremost for decision makers. Informal learning is neither the training department's job nor a human resource function. Nurturing informal learning is an implicit part of every manager's job.

This book is for executives who know in their hearts that their organization's approaches are not sufficient to prepare their workers for the future. It is also for knowledge workers who are taking charge of their own learning.

Learning is like breathing, so much a part of our lives that we're unaware of it until a mentor or a book refocuses our attention. When you know what to look for, you can leverage it to your advantage.

Chief learning officers and training managers also will read this book because it proposes a framework for learning that is more spontaneous, cost-effective, and enjoyable than what has come before.

ORGANIZATION OF THE BOOK

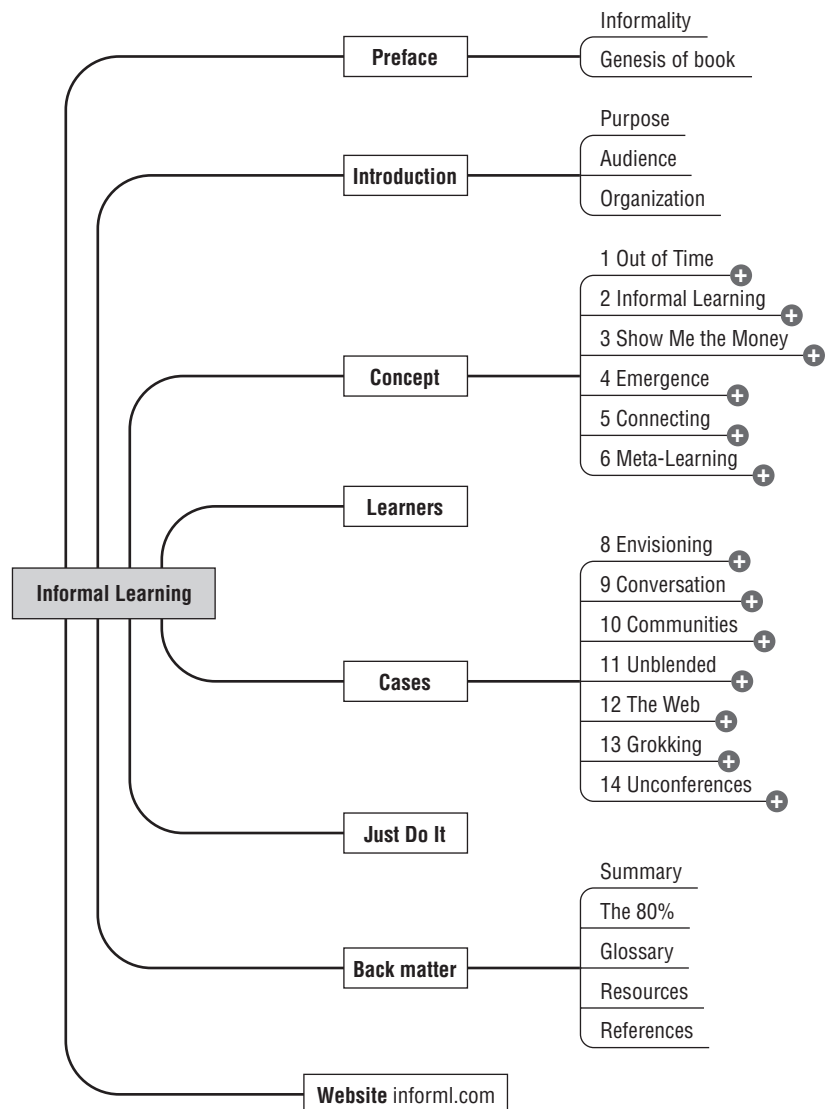


FIGURE I.1. Mind Map of *Informal Learning*

- The Concepts chapters examine the incredible acceleration of time, a working definition of *informal learning*, how informal learning benefits organizations, and why learning ecosystems will crowd out training programs.
- The Learners chapter offers short-cuts for skills that individuals must master to succeed as informal learners.
- The Cases chapters tell stories of informal learning in organizations.
- The Just Do It chapter advises how to bring informal learning into your organization. We look at governance and trust. Experience teaches the importance of envisioning opportunity, keeping it simple, and avoiding the pitfalls.
- At the end of the book are appendixes, a glossary, and resources for implementing informal learning.

The companion Web site at <http://informl.com> provides new developments, additional examples, and a community of interest.

Since we're going to focus on informal learning, we will not be dealing with compliance training or certification programs. Books on those topics crowd the shelves of your local library and bookstore. Four out of five companies that follow are American; your culture may vary. Finally, this book does not address schooling or how children learn.



OUT OF TIME

/ AM OUT OF TIME. You bought the beta edition of this book. Things change so fast that all books are dated by the time they are published. Check the book Web site for extensions and updates (<http://informl.com>). Of course, the site is beta, too, but at least it is more recent. Nothing gets finished anymore. The world is moving too fast for closure. Our lives are in beta.

Everything is faster, more interconnected, and less predictable. Getting aligned with this new world is the road to profit and longevity for organizations, well-being and fulfillment for individuals. This book won't give you the answers, but it will set you on the right path.

THE HYPERINFLATION OF TIME

When I was growing up in Hope, Arkansas, a ticket to the Saturday afternoon double feature cost fifteen cents. A Pepsi cost a nickel. Penny candy cost a penny. Motel 6 once charged six dollars a night. It's not that everything in the old days was dirt cheap. Rather, the value of money has changed.

The same thing is now happening to time. More happens in a minute today than in one of your great-grandmother's minutes. Not only is more and more activity packed into every minute, the rate of change itself is increasing. Measured by the atomic clock, the twenty-first century will contain a hundred years. Measured by how much will happen, in the twenty-first century, we will experience twenty thousand current years (Kurzweil, 2005).

A plot of the acceleration of time resembles a hockey stick. We have just left the blade and are shooting up the handle. We cannot keep driving into

Two billion years ago, our ancestors were microbes; a half-billion years ago, fish; a hundred million years ago, something like mice; ten million years ago, arboreal apes; and a million years ago, proto-humans puzzling out the taming of fire. Our evolutionary lineage is marked by mastery of change. In our time, the pace is quickening.

CARL SAGAN



the future with the same old ox-cart; the wheels would fall off. The vehicle we ride into the future must be very responsive, for we are sure to encounter many surprises. There's no map to what's up ahead.

Everything flows. That's life. Now everything flows faster. Survivors will be those who are most responsive to change. Unlearning obsolete routines is the secret of long life. Anything that is rigid is probably a vestige of earlier, slower times.

TIME GUSHES FORWARD

When I was ten or eleven, Disney's nature movie *Living Desert* provided my first experience of time-lapse photography. A seedling sprouted, grew, bloomed, and died in a couple of seconds on the screen. Withered green disks of cactus plumped up and grew little buds, and the buds miraculously turned into fat red prickly pears. Living things were always growing. I'd failed to notice that before because they changed too slowly for me to perceive.

Stopping time has fascinated me ever since, be it Eadward Muybridge's photographs capturing a horse with all feet in the air or Harold Edgerton freezing a bullet in flight. Read Stewart Brand's marvelous book *How Buildings Learn* (1994), and you realize that a fifteen-second animation of a century of New York's Park Avenue would show buildings going up and coming down again and again, an immense railroad yard sinking beneath the earth, and mansions being replaced with gleaming skyscrapers, the scene morphing from cabin to brownstone to a Mies van der Rohe glass box.

Even the most permanent things are temporary when you shift to the long term and convert eons to seconds. A stream trickling across flat land carves the Grand Canyon. The floors of seas rise to form mountains. If dinosaurs get half an hour on screen, we humans get only a few seconds.

Three or four hundred years ago, a nanosecond in geological time, we adolescent humans convinced ourselves that we were the center of the universe, that we were in control, and that we could bend nature to our will. Descartes told us it was all in our heads. Newton explained how things moved (logically). Englishmen and Scots invented industry. Frederick Taylor told workers "You are not paid to think." Hierarchy flourished.

Those days of certainty are over. We no longer control the universe (actually we never did). We are simply another thread in the fabric of life. A hundred years after Einstein, everything is beginning to feel relative. The watchmaker has left the stage. Uncertainty is the rule. We are all in this together.

NETWORK EFFECTS

Networks are growing faster than vines in the rain forest, reaching out, and encircling the earth. Denser connections yield faster throughput. The exponential growth of networks is the underlying reason that everything is speeding up.

Social networks, computer networks, communications networks, and any other network you can think up are constructed of nodes and connectors and nothing more. Each new node of a network increases the value of the overall network exponentially because the additional node connects to all the preexisting nodes. Connecting networks to other networks turbocharges their growth.

New linkages distribute information and power, breaking down organizational boundaries and fiefdoms. Networks subvert hierarchy. Perhaps it took longer than we expected, but people were right when they said the Net changes everything.

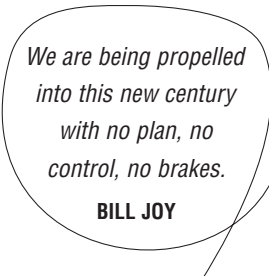
Forty years ago, Intel cofounder Gordon Moore noted that the number of transistors on a chip doubled every year. Later, the rate slowed to doubling every eighteen months, and the exponential growth of computing power per dollar became known as *Moore's Law*. Moore's Law is why the laptop computer you bought not long ago is now selling for half what you paid for it.

Research has found that Moore's Law applies to many areas besides computing. Examples are fields like DNA sequencing, gross domestic product, manufacturing output, e-commerce, educational expenditures, magnetic data storage, wireless data devices, Internet hosts, bandwidth, and miniaturization.

Inventor Ray Kurzweil (2005) plots what fifteen thinkers and reference works consider "the key events in biological and technological evolution from the Big Bang to the Internet" (p. 19). They're taking place at a quicker and quicker pace. The speed of evolution itself is picking up. "Before the middle of this century, the growth rates of our technology—which will be indistinguishable from ourselves—will be so steep as to appear essentially vertical. . . . The growth rates will be . . . so extreme that the changes they bring about will appear to rupture the fabric of human history" (p. 30).

ON A HUMAN SCALE

It's a safe bet that you don't have as much time as you used to. Things used to be simple. People had plenty of time. Suddenly everything is complex, life is out of control, nobody has time, and most workers hate their jobs. The world has changed, and we humans have not kept up.



*We are being propelled
into this new century
with no plan, no
control, no brakes.*

BILL JOY

You don't have to do the math to feel what's going on. Compare your e-mail to a couple of years ago. Are you in control of the situation? Does the incessant arrival of more and more stress you out? What if you receive twice as many e-mails and voice mails next year? Or four times as many the year after that?

People are so overwhelmed with incoming messages that they have little time to cover new ground. You say your company wants innovation? How can people innovate when they hardly have time to get their regular jobs done?

We all face a choice. The first option is to run faster and faster to keep up. A word of warning here: time management courses, self-improvement books, fancy calendars, personal digital assistants, spam filters, tickler files, discipline, and longer hours are not going to get you out of this one. At best they give you a temporary advantage. The second option is to get off the treadmill, admit that the world is not under your control, and embrace the chaos of change. That's what the remainder of this book is about.

In Figure 1.1, my son, three years old in the photograph, is not reading the technology catalogue in his hands. (It's upside down.) He is merely going through the motions. You may be in a similar state. If you are looking for an immediate quick fix to deep-seated organizational and personal issues without study and reflection, don't waste any more time reading here. Thumb through these pages, pluck out a few nuggets, and keep up with your helter-skelter schedule. There's a complete summary in Appendix A.

*Life is either a daring
adventure or nothing.*

HELEN KELLER

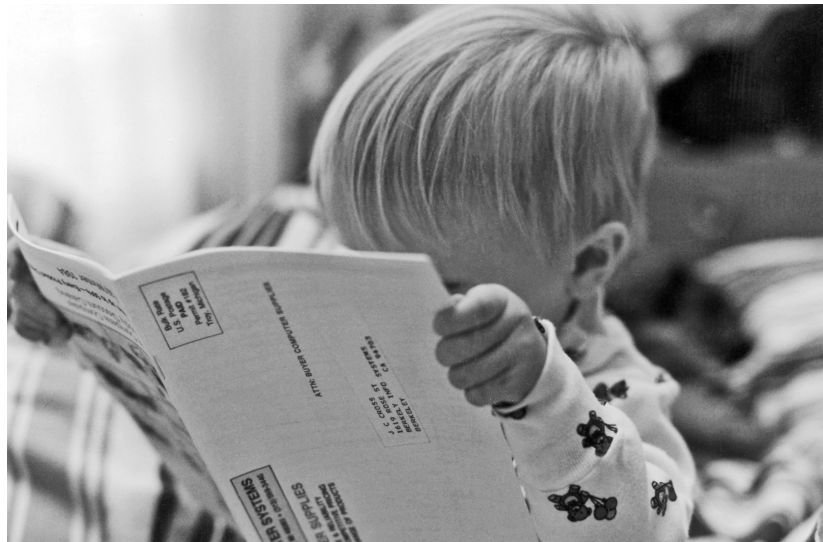


FIGURE 1.1. Young Austin Cross, Going Through the Motions

To get the most out of this book, you must think outside of your comfort zone. You may find yourself nodding in agreement with many commonsense statements, only to reflect that adopting this approach wholesale will require a reversal of the corporate culture you are accustomed to. As Chairman Mao said, “You want to make an omelet, you break a few eggs.”

KEEPING UP

When the job environment changed only slowly, corporate learning involved acquiring the skills and know-how to do the job. Now corporate learning means keeping up with the new things you need to know to do the job, maybe even daily. The traditional barriers separating training, development, knowledge management, performance support, informal learning, mentoring, and knowing the latest news have become obstacles to performance. They are all one thing and for one purpose: performance.

Learning used to focus on what was in an individual’s head. The individual took the test, got the degree, or earned the certificate. The new learning focuses on what it takes to do the job right. The workplace is an open-book exam. What worker doesn’t have a cell phone and an Internet connection? Using one’s lifelines to get help from colleagues and the Internet to access the world’s information is encouraged. Besides, it’s probably the team that must perform, not a single individual.

The new learning means having great connections: sources that know, advice that helps, alerts to what’s important, and ready answers to questions. Perhaps it’s time to promote the chief learning officer to chief performance officer. Beyond running an in-house schoolhouse, the chief performance officer’s concerns include the corporate news function, the architecture of the work space, the quality of communications, intranet structure, and organization development.

THE FUTURE OF WORK

At the Accelerating Change 2005 conference, MIT professor Tom Malone said, “New technologies are making it possible for the first time in human history to have the economic benefits of very large organizations and, at the same time, to have the human benefits of very small organizations, things like freedom, flexibility, motivation and creativity.”

In *The Future of Work: How the New Order of Business Will Shape Your Organization, Your Management Style and Your Life*, Malone (2004) observes that all networks are alike in that they form and grow in similar stages. At

first, nodes are unconnected. When communication becomes feasible, they evolve into a hub-and-spoke arrangement around a single source of power. As communication becomes cheaper still, all nodes begin to take on power. For example, early humans organized in bands of thirty to forty people (larger groups would have overhunted the local area). When spoken language and writing came on the scene, kingdoms formed. And when printing and mass communication appeared, democracies replaced them. (See Figure 1.2.)

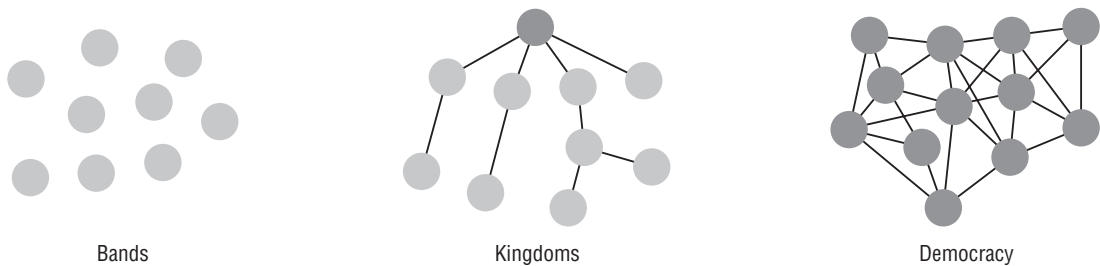


FIGURE 1.2. Human Organization over the Past 10,000 Years

Business went through a similar evolution, albeit in accelerated fashion. When I was a boy, if you needed a prescription filled, you walked to Cox's Drugstore and Mr. Cox filled your prescription. Then Rexall, Walgreen's, and Eckerd's took over the independents. When I buy drugs over the Internet now, I don't know who I'm dealing with any more (Figure 1.3).

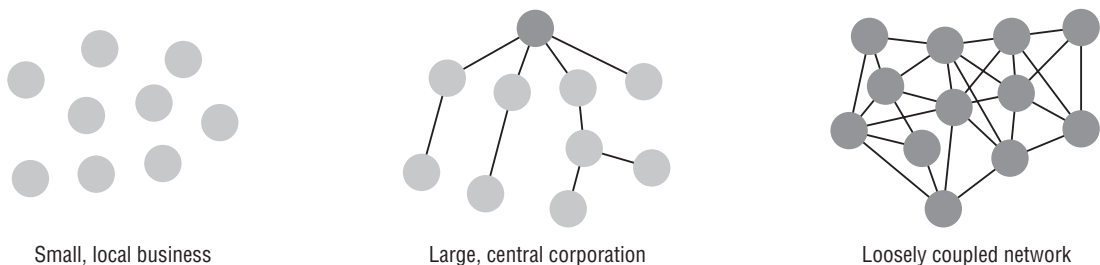


FIGURE 1.3. Evolution of Business in the Twentieth Century

I remember living through this pattern with computers, as shown in Figure 1.4. I wrote my first computer program in FORTRAN IV for an IBM 7094 Mod II at the Princeton Computing Center in 1966. That \$11 million machine had 144 KB of memory and a cycle time of $\frac{1}{4}$ MIP. My IBM X40 ThinkPad cost one-five thousandth as much yet runs five thousand times faster. Price-to-performance has doubled twenty-four times in the last thirty-six years.

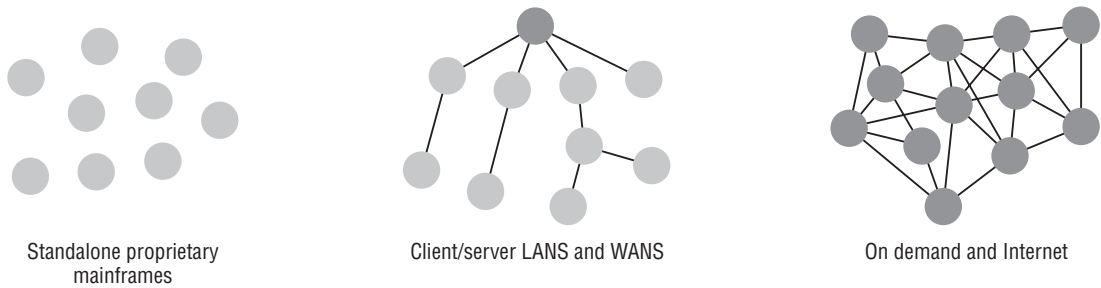


FIGURE 1.4. Evolution of Connectivity of Computers

The 7094 stood alone on a raised floor in a glass box, totally isolated. Twenty years later, top-down client-server networks became the rule. And now the Internet is the model of a completely distributed network.

Training is no exception to the rules of network evolution. In past times, training was individualized; people learned at grandma's knee or in the studio of a master craftsman. With printing came instructor-centric schools. As we enter an age of informal and workflow learning, authority is less centralized than ever before (Figure 1.5.) "Learning is best understood as an interaction among practitioners, rather than a process in which a producer provides knowledge to a consumer," says Etienne Wenger, a social researcher and champion of communities of practice.

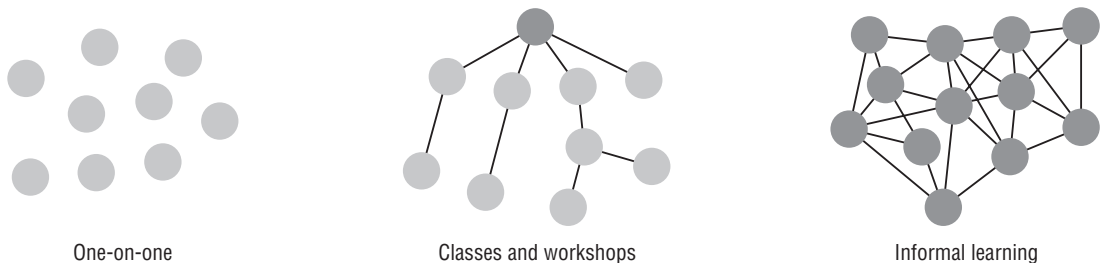


FIGURE 1.5. Evolution of Learning

We've outgrown the definition of learning as the activity of an individual and moved back to an apprenticeship model, though at a higher level. We learn in context, with others, as we live and work. Recognizing this fact is the first step to crafting an effective learning strategy.

We humans exist in networks. We are part of social networks. Our heads contain neural networks. Learning consists of making and maintaining better connections to our networks, be they social, operational, commercial, or

entertainment. Rich learning will always be more than a matter of bits flowing back and forth, but the metaphor of learning as networking gives us a way to describe how learning can be embedded in work itself.

Walter J. Freeman, speaking on the poetry of brains at the August 2005 meeting of the Future Salon, said we focus too much on the individual brain instead of on the collaboration of groups of brains. Working with one another is the essence of Doug Engelbart's goal of 1951: "As much as possible, to boost mankind's collective capability for coping with complex, urgent problems."

We're beginning to consider a new concept of worker. Think of a worker as the sum of employee and support systems, combining the strengths of each into a whole greater than the sum of the parts. The worker's dashboard appears on a phone, personal digital assistant, monitor, or head-mounted display. Bear in mind, however, that this is a two-way dashboard. It empowers the worker to give as well as receive, to collaborate with other people and to be contacted by others.

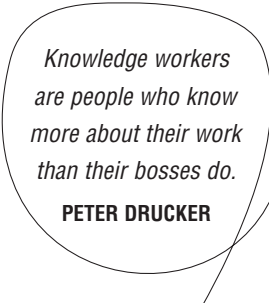
Business Week (12/19/05) calls a business where power is distributed an open-source workplace and notes that "the CEO is no longer omnipotent—and the truly effective ones don't want to be. The best ideas may evolve from the bottom up and sometimes from the outside in. New technologies such as private workplace wikis and blogs are disrupting command-and-control corporate structures. Any employee can create, edit, refine, comment on, or fix an idea. What some used to dismiss as a recipe for chaos is more likely a path to greater productivity."

THE WORK OF THE FUTURE

The work of the future is knowledge work. You're undoubtedly a knowledge worker yourself. See if you don't agree, as I do, with Tom Davenport's statement that knowledge workers "don't like to be told what to do, . . . work best when working with other people in social networks, and are better led by example than by explicit management" (2005, p. 14).

I fit Davenport's description of knowledge worker well. I want to set my own schedule and choose where I work. I think for myself. No one will ever reduce what I do to a flowchart. I like to work on things I help create. I'm always building for the long term while getting today's work out the door. And if I don't feel good about doing something, I probably won't do it well. I work for me first and my organization second.

"What the mind can conceive, man can achieve," preached positive-thinking evangelist Napoleon Hill (1937), and while he was over the top, it's



*Knowledge workers
are people who know
more about their work
than their bosses do.*

PETER DRUCKER