ai in talent development

capitalize on the ai revolution to transform the way you work, learn, and live

margie meacham
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Tips on How to Use This Book

How many books have you bought lately?

I realize that no matter how many books you buy, the decision represents an investment of your money and time, and I take your decision to buy AI in Talent Development seriously. So, I’d like to ask you to think about how many nonfiction books you’ve purchased over the years. Play with me for a moment and write down a number. (It’s OK if this is a wildly imprecise guess; it’s just a starting point for building your plan to get the most benefit from this book.) Now, how many of those books have you actually finished? Write that number down. Finally, of those books, how many practical ideas do you think you implemented as a direct result of reading them? I imagine that you’re very busy, that the demands of your profession and the limited amount of resources available force you to make hard choices about how you spend your time. Because your time is precious to me—and I want this book to make the final list of books that you have read and used—I’m offering a few suggestions for maximizing your time and getting the most tangible benefits possible from your reading experience.

Tell Someone You Are Reading This Book

Why do organizations like Alcoholics Anonymous encourage their members to share their plans and challenges with other members? It’s because they understand the power of social commitments to keep us on track. If you want to finish any project, one of the best ways to achieve that goal is to tell everyone you know what you’re doing. Today’s social media environment gives you a chance to let
everyone in your circle witness your excitement and commitment. It’s not just a nice “photo op” for your Facebook page; it’s an effective tool for stimulating creative ideas and putting those ideas into practice.

**Take Notes by Hand**
The note-taking process has a powerful effect on the learning process. While you are reading, you’ll form questions, ideas, and plans to apply what you read to your situation. These tenuous thoughts are the beginnings of true learning, the start of new neural pathways that you must nurture if you intend to get the greatest benefit possible from this book. If you already keep a journal, you know the power of this habit to focus your thoughts and shape your choices in life. If you’ve been thinking about keeping a journal, or you’ve fallen off the habit and would like to reboot this powerful practice, let this book be an opportunity to begin.

**Review the Table of Contents as a Preview**
No doubt you will feel more interested in some topics than others. Take note of those feelings—that’s your brain beginning to link your prior experience to the new experience of reading this book. It’s also a great place to start writing. Just capture questions, ideas, and other thoughts that flash into your mind as you review the titles of the chapters.

**Pick a Place That Interests You and Start Reading**
Some of you will want to start with chapter 1 and continue in linear fashion. (This is how I personally like to read an informational book, but that doesn’t mean it’s the right approach for you.) Start with the chapters that seem most interesting to you. If you feel the need to go back to an earlier chapter to pick up some background information, you can always do so later.

**Avoid Skimming**
But here’s the challenge: Just because you’re turning the pages doesn’t mean you are actually reading. You may be skimming. Skimming is a technique for skipping over letters, words, and even sentences and paragraphs to gain a general sense of reading material. It used to be taught in grade school as a first step toward reading a textbook or research paper, to prepare you to get as much out of the content as possible. When you skim something, your brain connects information you already know with information you see on the page.
It is an excellent method for preparing you to understand and integrate new information. Unfortunately, many of us have learned to get by with skimming a webpage, an email, or a report and never quite get to the reading part.

Viewing text on screens tends to encourage us to skim, rather than take the time to actually read and think about what we’re reading. This behavior is becoming so common that college professors and employers are concerned that people may not even know how to read for deeper understanding anymore (Wolf 2018).

**Access the Glossary Whenever You Encounter an Unfamiliar Term**

While most of the terms used in this book have become fairly common knowledge, you may sometimes be surprised by the difference between the definition as you “know it” and the one you find discussed in this book. Don’t be too concerned about these differences. In researching this book, I found that many experts disagree on the definitions. In the interest of consistency, I’ve standardized my definitions using the “Machine Learning Glossary” published online by Google. No doubt there are many other sources available, but this one is frequently cited by artificial intelligence (AI) developers, so I’m comfortable sharing it with you.
Wake Up and Smell the Coffee

The sound of steaming hot water flowing through ground coffee, followed by the unmistakable aroma of Sumatra beans, tickles my brain into a foggy sense of arousal. I can taste the earthy richness inside my head, and I know it’s time to start another day.

“Good morning, Margie,” the soft voice of my digital assistant purrs. “This is your requested wake-up call. The time is 5:30 a.m. It’s 33 degrees Fahrenheit outside right now, expected to rise to a high of 58 with partly cloudy skies. You have three appointments today and one critical task. Would you like to review them now?”

Two cups of coffee later, I’m sitting at my desk, with the day’s agenda dutifully presented by my digital assistant. I find myself avoiding my noncritical task for the day—working with my new transcranial direct current stimulation (tDCS) headset, designed to transmit electrical signals to and from my brain, so that I can monitor and control my brain waves to become more productive and creative. I understand the potential benefits of this brain-machine interface (BMI), but I haven’t broken this new one in yet. I put it off for now and prepare for a nice morning walk with my dogs. I remind myself that it might eventually be possible to communicate more directly with my furry loved ones if I work harder on the emerging technology waiting on my desk, but then I look into my puppy’s eyes. I don’t need a machine to tell me that she loves me—and is impatient to get outside.
As usual, I’m paired with my phone so I can use my speech-to-text app to outline a new online course during the walk. When I get back, I let my virtual content editor clean up my grammar and make a few suggestions to the first draft. I notice that the app has confused a couple of technical terms, so I take the time to give her feedback. Unlike a human counterpart, “she” won’t make the same mistake again.

The day is also beginning for thousands of other teams of humans and machines.

Mike slips into the seat of his self-driving car and prepares for his morning commute. He knows he is supposed to pay attention to the road, but he’s got an incoming text he needs to answer. Anyway, it’s early and there’s no one else on the road. What could possibly happen?

Ashley is fighting a cold and struggles to keep up with the timetable set for her by a computer program. She worries that her performance may be downgraded if she can’t keep up.

Raul, an online news editor, plans the top stories for the day and sends the list to the “staff.” An algorithm will organize the content, write the headlines, select the images, and post the stories online. He’ll review them and make tweaks as needed. He sits back with a cup of coffee in his hand and looks around the newsroom. A few years ago, it would have been a noisy place, bustling with energy and crowded with reporters, news writers, graphic artists, and editors, all buzzing like bees around their computer screens with an addictive sense of urgency. Now, as he sits alone in the quiet space, there’s only the gentle hum of the fluorescent lights and the periodic pinging sound announcing new arrivals in his inbox.

Avnish is a CFO at a Fortune 100 financial services company. While he is getting his first cup of coffee, an investment program has been selling and buying stocks and balancing the company portfolio all night, using an algorithm he helped design, even though he has no idea how it actually works. Returns are up. He dictates an update message for his boss to his personal assistant.

Mary receives a call from her doctor; the results of her mammogram, analyzed by an AI, have come back. She wonders if she can trust the results. Her doctor explains that the AI can recognize cancer much more accurately and efficiently than human analysts. He asks her if she is sitting down.

Bao is 10 years old. He’s learning math at a difficulty level several years above that, however. His artificial tutor started presenting him with more challenging content after his stellar performance on several assignments and tests.
He never knows if “teacher” will be giving him a video lecture, a new game to play, or some other interesting assignment. He isn’t drinking coffee, but he’s so excited about school that he can’t wait for another day to begin.

Alyssa is a marketing executive working on a new product launch. The new doll was designed by an AI, based on data transmitted from thousands of current dolls already in circulation. Most of the parents have no idea that the doll is capturing data about their children at play and transmitting it over the Internet.

Asha has just received a new list of candidates for the open engineering job on her team. She sighs as she goes down the list and notes that there are no women or people of color in the top 20 candidates selected by her company’s résumé-screening program and wonders if she should be concerned.

Marco is a college professor considering how he will handle the results of the plagiarism alert he just received. He routinely uploads papers written by his students to be sure that their work is original. A bot searches for possible existing text that matches what the student has provided, and also identifies any passages that, based on wording and composition choices, appear to have been written by someone else. One of his best students appears to have uncharacteristically resorted to lifting large portions of her paper from other sources. The question Marco must answer is, “Why?”

Outside, on Marco’s college campus, it looks like a sluggish light show. Intelligent lighting turns on and off, based on the anticipated needs of the people and applications that rely on artificial light in the early-morning hours. The system saves the college millions of dollars a year in energy bills, reduces its carbon footprint, and makes the campus safer at any time of day or night.

Minutes after lifting from the tarmac, 250 people have settled into their long flight from New York to London. The crew have activated the autopilot feature and are enjoying their first morning beverages, too.

This book is about artificial intelligence and its promise to change our lives. How many of the scenarios you’ve just read are examples of AI that are already in existence?

All of them.

**What Is Intelligence?**

You might think that the logical place to begin a discussion of artificial intelligence is with defining biological-based intelligence, particularly human intelligence, but this approach runs into problems almost immediately. Experts in
psychology have yet to agree on a single definition of human intelligence (Nesse-rier 1979). The ongoing debate includes discussions about how to measure intelligence, what behaviors demonstrate intelligence, and whether intelligence is an inherited or acquired trait.

The question of intelligence is sometimes combined or confused with the question of consciousness, particularly when combined with the concept of artificial intelligence. A full treatment of the subject could fill many books, and would venture across the fields of medicine, psychology, philosophy, ethics, and law, in addition to neuroscience and artificial intelligence. While a full discussion is well outside the scope of this book, two specific concepts are worth mentioning. They are the “hard” and “easy” problems, first identified by philosopher David Chalmers.

Chalmers correctly identified that neither consciousness nor intelligence is a single phenomenon; rather, each is a collection of behaviors. He suggested that, rather than try to understand this collection of behaviors, we begin with two questions, which he called the “hard and easy problems” (Chalmers 1995). The “easy” problem, which has proved by no means easy at all, is to explain how experience enters the brain through the senses and is coded into something that has meaning for us. The “hard” problem is understanding how to combine those sensations into a cohesive experience that is unique to each individual. If we are ever able to understand how this happens, we may be able to create a form of intelligence that demonstrates an inner life similar to our own.

As you review some of the resources provided for further reading, you may encounter these hard and easy questions. Keep in mind that, so far, science is making much more progress on the easy ones.

In his 2002 book, Cosmos, scientist Carl Sagan summarized the problem well. “Knowing a great deal is not the same as being smart; intelligence is not information alone but also judgment, the manner in which information is coordinated and used.”

For our purposes, I like the definition put forth in the Encyclopedia of the Human Brain:

“Intelligence can be defined as the ability purposively to adapt to, shape, and select real-world environments” (Sternberg and Kaufman 2002).
This definition can apply to humans as well as “intelligent machines” and gives us a place to begin talking about how the two can work together.

**What Is Artificial Intelligence?**

Google defines AI as “a nonhuman program or model that can solve sophisticated tasks.” Notice that this definition makes no mention of mimicking human behavior or exhibiting human emotions. That’s because most AI developers are not really concerned with such things. While science fiction, social media, and the popular press often focus on creating machines that relate to us in “almost human” ways, most AI professionals today are far more interested in building computerized systems that do specific, complex things. Google also leaves the definition of sophisticated up to us. Over time, our understanding of the tasks an AI can perform will probably evolve. It’s an elegant definition and really has very little to do with human intelligence.

This definition of AI as a single-task solution is sometimes called specialized AI to distinguish it from the broader vision of general AI, or artificial general intelligence—a hypothetical, nonhuman system that is capable of performing a wide range of sophisticated tasks, from writing a symphony, to performing brain surgery, to baking a cake. General AI has yet to be achieved, and most experts believe we are very far from achieving it. It remains the stuff of dreams and nightmares, depending on your views on creating an entirely new race of sentient beings.

More recently, deep learning expert François Chollet has offered this term: cognitive automation. He explains: “Our field isn’t quite ‘artificial intelligence’—it’s ‘cognitive automation’: the encoding and operationalization of human-generated abstractions, behaviors, or skills. The ‘intelligence’ label is a category error” (Chollet 2020).

I agree with him. Because we have failed to define human intelligence in any meaningful sense, it is pointless to try to replicate it in machines. Yet the term AI is unlikely to go away. So, for the time being, let’s agree to use AI as a catchall term for a wide collection of use cases and programming approaches that allow us to create machine-based solutions to everyday problems. It’s not very precise, but it works.

While the development of general AI remains beyond our grasp, the applications of specialized AI and cognitive automation are many, including:
• designing automobiles and airplanes to increase efficiency and reliability
• studying medical images to identify potential cancers and other illnesses
• designing new products based on the most popular features of existing ones
• matching individual cancer patients to the treatments most likely to benefit them
• analyzing large data sets to identify trends and opportunities in financial markets
• writing advertising copy and news stories
• winning sophisticated, strategy-based games against human opponents
• monitoring equipment and identifying components that are about to fail
• identifying investment opportunities based on trending patterns in global markets
• analyzing soil contents and recommending additives to increase crop yields
• finding vaccines and antidotes for new diseases
• maintaining optimal temperatures and other environmental factors for sensitive equipment
• using facial recognition to identify wanted criminals in a crowded airport
• analyzing pilot psychometrics to adjust instrument displays to account for flight fatigue.

In a field that is evolving as rapidly as AI, we can expect definitions to continue to change. Even leaders in the field struggle to define it, but, much like Supreme Court Justice Potter Stewart’s explanation of obscenity, we know it when we see it. When wrapping your head around the concept, it might help to think about this explanation from business analyst David Schatsky: “AI is something machines do.”

The Evolution of AI
The singularity is a term you’ll find in science, science fiction, and artificial intelligence. It was coined by mathematician John von Neumann to define a theoretical moment when the artificial intelligence of computers surpasses
the capacity of the human brain. The term is borrowed from physics and quantum mechanics, where the term gravitational singularity is used in the study of black holes. These events are all considered singular because we are unable to predict what happens next; the disruptive degree of change associated with the event is simply too great for our current body of knowledge. The term has since been appropriated by the artificial intelligence community because the creation of a machine that thinks like a human is an event that will change everything in our experience, and it is hard to imagine exactly what that new world will look like.

It is hard to say when the singularity will occur, or whether we will even recognize it when it happens. It may be that our convergence with computers will be so gradual that we will never see a sharp line, but more of a blending—like colors turning from one shade to another.

When does blue become blue-green?
When does a biological computer become a brain?
When do we stop being human and become something new?

A Brief History of AI
Humans have been using machines to augment our capabilities for a long time, so it’s only natural that we’ve come to a point where we’re looking to replicate our cognitive processes in some of those machines.

1763: Mathematician Thomas Bayes develops Bayesian inference, a decision-making technique that becomes adopted for teaching machines (and people) how to make decisions using pattern recognition and predictions based on probability.

1837: Charles Babbage invents “the analytical engine,” a machine designed to perform mathematical calculations. The machine requires instructions—a program—to perform this task. His colleague Ada Lovelace writes the first program to work on his prototype. Many historians consider Babbage to be the inventor of what would later be called the computer, and Lovelace the first programmer.

1898: Inventor and electrical engineer Nikola Tesla suggests that it might be possible to build a machine that is operated through a program, using a “borrowed mind” and wireless communication.

1939: Westinghouse unveils Elektro, the first robot. This machine can deliver a recorded response to a limited number of questions, walk, smoke a cigarette, and blow up balloons. He is accompanied by his robotic dog, Sparko.
The machine is an entertaining curiosity, and not a serious attempt at artificial intelligence, but it draws attention to the potential of what would eventually become known as robotics.

1943: Warren S. McCulloch and Walter Pitts suggest that building a network of artificial neurons could create a machine that could think, using the neurons’ on-or-off firing system (later binary code).

1950: With his famous opening line, “I propose the question, ‘Can machines think?’” Alan Turing predicts that machines might one day mimic the cognitive functions of humans. He proposes a test to identify this phenomenon, which later becomes known as the Turing Test. While the test sidesteps the definition of intelligence altogether, Turing proposes that as long as we can be convinced that we are communicating with a person, we can consider that machine to be “intelligent.”

1955: John McCarthy coins the term artificial intelligence at a conference convened at Dartmouth College in Hanover, New Hampshire. The conference is one of the first times that computing scholars contemplate the use of human language to program computers. By-products of this historic event include the use of neural nets to simulate human thought-processing, and the definition of machine learning as a “truly intelligent machine [that] will carry out activities which may best be described as self-improvement,” the ability of a computer to form abstract conclusions and “orderly thinking.” While the ambitious conference doesn’t achieve everything it set out to do, it establishes the blueprint for progress in AI and machine learning that continue to influence the present day (McCarthy et al. 1955).

1997: IBM’s “supercomputer,” Deep Blue, becomes the first computer to beat a human chess champion in a match against grandmaster Garry Kasparov. Many doubt that a machine could really have performed so well and accuse IBM of cheating. The computer is “too human” to be credible.

2011: IBM Watson defeats the best human players in the popular television game show Jeopardy! Although a stunning achievement, the victory is nowhere near as “intelligent” as it appears. Watson is running a simple program that searches a database and provides a response faster than its human competitors. It is, however, one of the first times that a computer is able to understand and respond to human speech, paving the way for many uses of natural language processing in future applications.

2016: Russia deploys AI to successfully influence the U.S. presidential election by using bots to post comments in social media designed to mislead
voters and suppress voting activity by certain types of people. This is not the first
time—nor the last—that Russia and other actors have successfully influenced
the outcome of an election (Kamarck 2018).

2017: DeepMind’s AlphaGo caps a series of victories against humans in
what is considered the most complex game in the world, Go. In a three-game
match, the machine defeats world champion Ke Jie, who comments, “I thought
I was very close to winning the match in the middle of the game, but that might
not have been what AlphaGo was thinking” (Russell 2017).

2020: As the world scrambles to battle the devastating coronavirus pandemic,
researchers around the world use machine learning to sift through mountains
of research to find existing medicines that might provide an effective cure,
while others put together AI programs that methodically test every chemical
and compound known on Earth to see if it might be the answer. The speed,
thoroughness, and efficiency of these efforts far surpass anything mere mortals
could have accomplished alone. When this nightmare is finally over, many will
owe their lives to an algorithm somewhere that found something that eventually
led to a cure, a vaccine, or a treatment that slowed or reduced the progress of
the virus.

Where Is AI in Learning and Talent Development?
The International Data Corporation (IDC) forecasts that businesses worldwide
will be spending $77.6 billion on cognitive and AI systems by 2022. The highest
anticipated spending is for:

- automated customer service agents
- automated threat intelligence and prevention systems
- sales process recommendations and automation of repetitive tasks
- automated preventive maintenance
- pharmaceutical research and discovery
- consumer shopping advisors and product recommendations
- digital assistants for enterprise knowledge workers
- intelligent data-processing automation.

Yet, when we look at talent development, we see that organizations are
lagging behind in many respects. According to one 2020 benchmarking
study, 6 percent of Fortune 500 employers include chatbots in their recruit-
ing and onboarding experience, and 8 percent deliver recommended jobs
based on candidate profiles. In a related study, 14 percent of Fortune 500
companies offer new and prospective employees semantic search capabilities (Starner 2020).

There are many notable exceptions, however, and although I cannot possibly mention them all, here are a few that come to mind.

A recent ATD conference featured a chatbot to increase participant engagement and reinforce content delivered by thought leader Bob Pike during the conference. “Bob Bot” was written by learning consultant Trish Uhl and built by AI development company Mobile Coach.

Ashok Goel, a professor at Georgia Institute of Technology, famously used an AI program to simulate a teaching assistant in 2016. “Jill Watson” supported students in the computing science master’s program, answering questions about course content and clarifying assignment directions. She communicated with students through email. The original version of the program was so effective that some students nominated Jill for an award for being an outstanding TA. Today the program continues to grow, and a new, more advanced AI, Jill Social Agent, was released in 2020. Now everyone knows that Jill is an AI, and she continues to serve as an example of practical AI applied to education.

In India, educators are attempting to overcome a severe shortage of qualified teachers with innovative AI approaches. In many schools, Indian students are interacting with AI for:

- **Adaptive practice:** The algorithm selects appropriate practice activities based on individual performance to keep the student interested and challenged just enough to work hard to get to the next level without becoming discouraged.
- **Personalized content:** An AI “teacher” provides content tailored to the academic level of each student, based on previous performance data.
- **Macro diagnostics:** Algorithms predict the needs and performance of large groups of students based on historic performance data tracked during these individual engagements with AI.

I had a chance to catch up recently with Nanette Miner, author of the book *Future-Proofing Your Organization by Teaching Thinking Skills*. Her research indicates that the first skills to be replaced by AI automation will be those that are repetitive, routine, dangerous, or tedious. Replacing these jobs will free up humans to do what we do best: Create, synthesize, adapt, and envision possibilities. “This will require a major shift in the workplace as well as in education. We must encourage young minds to ask ‘What if?’ and ‘Why not?’ As adults,
we must rediscover that same ability to continually learn by asking ‘What if?’ and ‘Why not?’ Stretching yourself by taking on new roles will challenge and prepare you, so that the robots can do the mundane tasks you were previously responsible for.”

While I had to look far and wide for examples outside of India and China of AI in actual use in training and education today, there is much more potential than might first appear. The use cases being developed to drive performance in other industries can be easily adapted to applications for learning performance if we know where to look. And there are many voices in the talent development and education fields who speculate about a new future in which AI-enabled learning is widespread and highly effective.

Stella Collins is a learning consultant focused on the application of brain science to enhance learning and performance. We met a few years ago online and soon discovered that we’re tracking many of the same trends in learning technology. I asked Stella for her thoughts about AI in our future. She replied:

“Today, bots can share knowledge, coach you, and advise you on personalized learning choices. AI processes big data to support insights into what learning people need now and predict future requirements. In the future, AI will become more socially and emotionally intelligent, but there’s a long way to go before it will replace human skills like nuance, creativity, empathy, and love. What we’re more likely to do is augment our brains and bodies with AI devices, and that’s not as far off as you may think.”

In 2018, Ria van Dinteren, Katelijn Nijsmans, and I formed the “Brain Ladies,” a global consortium of experts seeking to find new ways to deploy the converging fields of neuroscience and AI to enhance learning. In our 2018 whitepaper, From Learning to Performance: Global Lessons From the Brain Ladies, we point out that “advances in artificial intelligence, robotics, neuroscience, and genetics (to name a few) are transforming the way we live and learn.”

There’s no doubt that many of us recognize the potential of these powerful and deeply intertwined sciences and technologies, but given how many examples are already in common use in other industries, it seems as though we’re falling behind. While we can’t catch up overnight, we can begin by discovering how we can use AI to analyze performance data, tailor learning journeys to individual learners, and interact directly with learners in new and engaging ways.
Much as an AI can come up with a chess move or Go strategy that might never have occurred to a human, we may find that learning itself is transformed once we learn how to unleash the power of AI while we control its effects to accelerate learning and deepen retention.

Maybe we learning professionals just haven’t had time to envision a world in which learning and performance are enabled by AI. Maybe we lack the funding or sponsorship to make it happen right now. Or maybe most of us are just a little afraid of it. One thing is working to our advantage in this effort. Unlike banking, marketing, financial services, customer care, agriculture, and the many other industries that are already deploying AI successfully, the learning profession is founded on many of the same principles that drive AI. That’s because the science of learning and the science of building smart machines are actually part of the same multidisciplinary quest.

**Did You Know That You’re Already Working With AI?**
The fields of artificial intelligence and talent development have been on a collision course for decades. In fact, their convergence has already occurred; it’s just taking many in our profession some time to recognize this fact. From agriculture to transportation, from entertainment to medicine, from banking to social media, AI is a fundamental, disruptive technology that is changing how we humans do practically everything. And talent development is no different. From recruiting to training to compensation, AI is transforming the workplace and the role of the talent development professional. We can choose to become leaders in this transformation and prepare our organizations for the disruptions ahead, or to relegate ourselves to playing catch-up, losing ground as others take advantage of what AI has to offer to enhance learning and performance. This book, told in layman’s terms and filled with practical ideas you can implement today, will help you get on the forward edge of the coming tidal wave of change.

**Neuroscience and AI Are Converging**
One of the most exciting developments of the last few years is the way two seemingly unrelated scientific fields, neuroscience and machine learning, have been moving toward each other. As we learn more about the brain, we’re uncovering the secrets of how neurons organize themselves, communicate, recognize patterns, make decisions, form memories, and retrieve those memories. These are all functions that a self-learning AI must also perform to
complete its task. The more we learn about the brain, the more insights we can apply to enhance our AI models. For example, one popular AI model is the neural network, based on the structure of the brain into layers of neurons connected in a nonlinear fashion.

In a similar way, the more sophisticated our AIs become, the greater insights we can gain about how our biological brains work. AI is being used to map the 100 billion neurons in the human brain and discover how these neurons communicate with one another.

Although synergy is an overused word, I can think of no better way to describe the way these two scientific fields are driving each other forward.

But we have some catching up to do first.

In Lewis Carroll’s *Through the Looking-Glass*, the Red Queen tells Alice, “Now, here, you see, it takes all the running you can do, to keep in the same place. If you want to get somewhere else, you must run at least twice as fast as that!”

That’s a good description of where we stand when it comes to preparing for a future that has already begun.

We must start running at least twice as fast as we can.

**Chapter Summary**

In this chapter we established some key terms and concepts, including:

- What is intelligence?
- What is artificial intelligence?
- Where is learning and development in the application of AI?

If you want to start exploring ways to bring the power of machine learning and artificial intelligence to your organization, try the Idea Starter in the Appendix and Resource Guide at the back of the book.

In the rest of the book, we’ll look at some practical applications that are available to us today, starting with chapter 2: “Reboot Yourself With a Robot.”
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About the Author

Margie Meacham, “The Brain Lady,” is a scholar-practitioner in the field of education and learning and president of LearningToGo. She specializes in practical applications for neuroscience to enhance learning and performance. Meacham’s clients include businesses, schools, and universities. She writes a popular blog for ATD and has published the book *Brain Matters: How to Help Anyone Learn Anything Using Neuroscience*.

She first became interested in the brain when she lived with undiagnosed dyslexia as a child. Although she struggled in the early grades, she eventually taught herself how to overcome the challenge of a slight learning disability and became her high school valedictorian, graduated magna cum laude from Centenary University, and earned her master’s degree in education from Capella University with a 4.0.

Meacham started her professional career in high-tech sales, and when she was promoted to director of training, she discovered her passion for teaching and helping people learn. She became one of the first corporate trainers to use video conferencing and e-learning and started her own consulting company from there. Today she consults for many organizations, helping them design learning experiences that will form new neural connections and marry neuroscience theory with practice.
From agriculture to transportation, entertainment to medicine, and banking to social media, artificial intelligence (AI) is changing how humans do practically everything. For talent development, this is no different.

The fields of artificial intelligence and talent development have been on a collision course for decades, and their convergence has already occurred—whether you’ve realized it or not. On the horizon, AI-powered innovations are transforming the workplace and the role of the talent development professional, affecting everything from recruiting to training to compensation. TD professionals must take action now to prepare ourselves and our organizations for the evolving AI revolution.

In this book, Margie Meacham describes the benefits, uses, and risks of AI technology and offers practical tools to strengthen and enhance learning and performance programs. Meacham demonstrates how we can free up time for ourselves by employing a useful robot “assistant,” creating a chatbot for specific tasks, and building personalized coaching tools from AI-processed big data. She concludes each chapter with helpful tips and includes a resource guide with planning tools, templates, and worksheets.

Meacham dispels the fear of AI and points out ways it can help us be better at creativity and critical thinking—what we humans do best.

praise for this book

“AI in Talent Development is the ultimate guide to using artificial intelligence in our modern and evolving world. Margie has done a masterful job of giving talent development leaders the tools they need to put these assets to use in creating a smarter and more engaging corporate education system.”

MARSHALL GOLDSMITH, New York Times #1 bestselling author, Triggers, Mojo, and What Got You Here Won’t Get You There; Thinkers 50 #1 Executive Coach

“Margie’s personable style of writing breaks down the intangible world of AI in a way that is engaging and thought provoking. The contrast between her personal stories and the often impersonal world of AI and machine learning makes this one of the most interesting books about the role of AI in talent (or personal) development on the market.”

SHELLEY TROUT, Managing Editor, eLearningLearning.com