Gene Pease Barbara Beresford Lew Walker

# Developing Human Capital

## Using Analytics to Plan and Optimize Your Learning and Development Investments

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# Developing Human Capital

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# Developing Human Capital

*Using Analytics to Plan and Optimize Your Learning and Development Investments*

**Gene Pease**
**Bonnie Beresford**
**Lew Walker**

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# Contents

# Foreword

I think of myself as an information management and analytics expert, not a human resources (HR) or learning expert. However, I am a sociologist by educational background, and I have frequently dabbled in HR topics—specifically in the HR analytics area. I am occasionally told that someone likes my book, *Human Capital: What It Is and Why People Invest in It*. I thank them graciously. The only problem is that I didn't write that book—Thomas O. Davenport did (I have a different middle initial). But I take the fact that people attribute it to me as an indication that I have fooled some people about my human capital expertise.

In any case, in this foreword I will focus primarily on the broader trend to think more analytically about almost everything, and what that means for HR. Almost every industry is becoming more analytical these days. Retail, banking, and other consumer businesses have long been analytical, and they are becoming more so. Even the holdouts, such as the entertainment industry and business-to-business firms, are starting to make more analytical decisions. Traditional manufacturing firms have gotten the "big data" message, and are popping sensors into their "big iron" devices to measure and optimize their performance.

Virtually every business function is adopting more analytical approaches to management as well. Supply chain optimization and manufacturing quality assessment (Six Sigma) have been going on for decades. But now the softer functions are increasingly using hard metrics and statistics. Marketing, for example, is undergoing dramatic change. Once satirized by *Dilbert* as the department that requires a "two-drink minimum," marketers are increasingly generating targeted and personalized offers, making decisions about which digital ads to place where in milliseconds, and optimizing their investment decisions on a monthly basis.

The implications for HR are obvious. HR was the other soft function in terms of using analytics. Decisions in that function were typically among the most intuition- and experience-based ones you could find in a company. Whether it was whom to hire, whom to fire, what to pay, and how to develop, HR and line managers relied on their gut or the seat of their pants. As Lew Walker notes in the Introduction to this book, "HR was not an area where analytical minds came to launch a career."

But if every industry and every function are becoming more analytical, HR will too. In fact, this has been going on for a while. HR thought leaders like Jac Fitz-enz, John Boudreau, and Gene Pease himself have written books on analytical HR several years ago. Laurie Bassi has related human capital orientation to stock prices. Companies like Google have transformed how they hire and evaluate their people—HR analytics have replaced time-honored wisdom.

In fact, HR and marketing are alike in some key ways. Just as marketing's view of customers has become more individualized and personalized, HR's view of employees is more oriented to the individual as well. Just as the goal of marketing has become "one to one," the goal of HR has become to address a "workforce of one," as my former colleagues Sue Cantrell and David Smith put it in a book by that name. This means more metrics, more analysis, and more automated recommendations for HR as we go forward.

However, learning analytics is perhaps the last frontier for HR analytics. As the authors note later on in this book, learning and knowledge were historically perceived to be good things for their own sake, and there was precious little evaluation of the effects of learning in the workplace. Just as with marketing investments, however, we can now determine whether a firm's learning investments are paying off.

This book is well-timed. It comes at a point, as the authors note in the first chapter, when there is enormous generational change in organizations, and great change as well in what people want from their jobs. Learning is more important than ever. It also comes at a time when we can equip almost any HR and learning process with instruments for measuring and recording data. Modern HR information systems keep track of employee assignments, evaluations, and even productivity. The dependent variables—those factors we are attempting to explain and predict—are well taken care of.

The independent variables around learning that drive business outcomes are also increasingly measurable. In the old days, we could know only that a person was sitting in a classroom or was not. Low-level employees might be asked to take a test to measure recall. Now, however, with increasingly online learning materials, we can measure all sorts of factors as learning inputs: how much time the learner spent with the content, whether he or she lingered over a particular section, and even whether linked websites were investigated for further learning. And of course it's very easy to test whether something was learned—not only right after the studying, but later on as well.

All this means that there will soon be models that explain and predict what business benefits have accrued from what learning content. The models will be at the individual, departmental, business unit, and organizational level. They will ultimately prescribe a set of learning materials that optimize performance for each learner. In short, analytics will tell us how each employee can achieve his or her ultimate performance potential.

I will leave it to these highly capable and experienced authors to relate the details of how to apply analytics to learning. They have plenty of evidence and examples of such application. As I read the book, it seemed highly likely to me that corporate learning would have a much more analytical future. If you want to be ahead of—or at least fully aware of—that trend, you've come to the right place. Keep reading, and remember that we are monitoring each word you read. (Just kidding!)

THOMAS H. DAVENPORT
President's Distinguished Professor, Babson College
Fellow, MIT Center for Digital Business
Cofounder and Director of Research,
International Institute for Analytics
Author of *Competing on Analytics* and *Big Data at Work*

# Preface

When I collaborated on our first book, *Human Capital Analytics: How to Harness the Potential of Your Organization's Greatest Asset* (John Wiley & Sons, 2012), big data and the power of analytics were hot topics in a wide variety of circles. Yet not much had been written on predictive analytics, and almost nothing on applying predictive analytics to human capital. The same can be said for learning and development (L&D) investments. Quite a bit has been written about measuring learning investments, primarily using assumptive methodologies that have been around for more than 50 years. But very little, if any, literature applies predictive analytics to L&D investments. As I come to the culmination of a decade of work in this field, I'm focused on how you can apply advanced methodologies and statistics to the organization's largest investment: its people.

I am fortunate to have collaborated on this book with two thought leaders who have decades of experience in corporate learning: Bonnie Beresford, PhD, and Lew Walker. Bonnie and I collaborated for more than four years at Capital Analytics (now Vestrics), where she oversaw the delivery of our analytical services. Lew is the Vice President of Learning Services at AT&T and responsible for one of the world's largest learning organizations. AT&T, under Lew's stewardship, has won numerous awards for its corporate learning.

Business leaders recognize that the value of a modern company is in the intangibles, most of which consist of some form of human capital: expertise, customer relationships, employer brand, intellectual property, and business processes. The companies that thrive and prosper are those that get the most out of their human capital, which requires a deep understanding of what is going on with their workforce, how investments affect it, and how to communicate changes effectively with all parts of the enterprise. The human resources (HR) industry is just beginning to grasp the value of understanding human capital, and is evolving to make a strategic contribution to business goals. Rigorous analysis that uncovers the true impact of investments, thereby showing how to optimize those investments, is necessary for organizations to outperform their competitors in today's unsparing environment.

This book shows how to accomplish the holy grail of learning analysis: optimizing investments using predictive analytics. The book imparts the major lessons we have learned from many years doing this work. We begin by summarizing the forces changing the workforce, and then jump into building a measurement strategy and framework. From here we discuss how to align the curriculum with business outcomes. The last chapters show how to improve upon the reporting basics and get beyond return on investment (ROI) to predictive analytics. It's here that we introduce our Level 6 of the Kirkpatrick/Phillips model, which we call optimization. Many of the chapters are accompanied by a case study from a world-leading company that illustrates the chapter topic to show how our lessons are applied in complex environments.

We hope this book will be read by the leaders of human resources, leaders in L&D, and their colleagues outside of HR. We believe it will inspire you to apply the same tools used to evaluate and improve finance, marketing, and operations investments to human capital investments. We also hope to show practitioners that the lessons learned in this book, and lots of hard work, will result in better L&D investments that ultimately drive organizational strategic goals.

GENE PEASE

# Acknowledgments

I am blessed to have my mother, Deanne Pease, and my wife, Pamela Pease, for their continued love and support. They make me strive to be the man my dog, Bailey, thinks I am. I also want to acknowledge a few pioneers who have inspired me in this journey of optimizing human capital: Donald Kirkpatrick, Jack Phillips, Jac Fitz-enz, Tom Davenport, Ed Lawler, John Boudreau, Mike Echols, Jeffrey Pfeffer, and Marshall Goldsmith.

—Gene Pease

I extend much gratitude to my parents, Molly and Bill, who have forever encouraged me to persevere and chase my dreams.  I also thank my wonderful clients over the years who have provided me with the opportunities to push the measurement envelope.  Many thanks, too, to my colleagues at BBDO Detroit and Capital Analytics who fed my enthusiasm for uncovering the mysteries hiding within the data. Finally, and most important, this journey of a first book would have been impossible without the unending support and understanding of my partner Lee, who stood by my side while I chased this dream. Thank you, Lee.

—Bonnie Beresford

I want to thank my wife, Karen, who is not only my life partner but has been a coach, mentor, and cheer leader.  To my three sons, Greg, Corey, and Colin, by looking through their eyes I continue to see a whole different world.  Lastly to all the people I have worked with, I will always be grateful to the relationships and camaraderie as they have helped shape me as a person.

—Lew Walker

# Introduction

**Lew Walker**

Not long ago I had the opportunity to meet with Gene Pease from his organization, Capital Analytics, Inc., now Vestrics. As our discussion was concluding, Gene left me a copy of his first book, *Human Capital Analytics: How to Harness the Potential of Your Organization's Greatest Asset*. When Gene asked if I would be interested in collaborating on this book, I was excited to be given the chance to offer a perspective from the front lines. If you are like me, it's a challenge to find time to update your skills or read a book with more than 200 pages, but as I had a few minutes here and there, I started reading. After quickly coming to the conclusion that I was not doing the book justice by only reading pieces and parts—and being very interested in the subject—I dedicated time to read it cover to cover. I found that it offers a road map to measure human capital, but more important, how to derive business value via measurement and calculation. From a practitioner's perspective it showed a clear and comprehensible point of connection between the arcane world of measurement and statistics and the "what have you done for me lately?" mind-set that learning professionals deal with day in and day out today.

Over my professional career I have led every function within a human resources (HR) organization, and some outside it. From that vantage point, I've discovered that measuring the impact that training and development have on learners and organizations is the most critical measurement performed within HR.

Organizations make significant investments in their workforces. Compensation, benefits, and opportunities for career growth are all used to engage the workforce and motivate employees to be successful. The essential goal of any organization is for its employees to perform at their highest level. Yet do we really understand the impact of this investment in training? This book left me with a clear picture of how to provide even greater value through training. We have to continue to educate ourselves relative to the importance of measurement, and we need to ensure that business stakeholders see value beyond the less sophisticated ways to measure such as simply asking, "Did they like the training?"

The book resonates with the word *optimization*. The world is changing, the ways people communicate are changing, and business models are changing. While technology continues to make us more productive, are we optimizing our productivity? Change is difficult, but it keeps us focused on the need to visit and revisit our models and assumptions. The value of optimization is to provide a framework in which to isolate the impact, improve the outcome, and make better decisions.

## SHOW ME THE MONEY

Working with business leaders, I've found they are most concerned with outcomes. How often do we hear them say, "Sounds great, but how is this going to help me solve my problem?" or "increase sales?" or "provide better customer service?"

I remember some years ago having a discussion with a senior executive about investing in training for a group of high-potential managers. After reviewing the proposal and cost, he said, "I believe the best way to develop skills is by placing people into stretch jobs. The ability to manage adversity by stretching them is the best skill builder you can use. But Lew, if you can show me that by sending them to training they will perform better, then I will consider funding it." Of course, I had no way to prove this other than by relying on the traditional belief that training is the way to raise people's skills.

This leads me to one of the most important steps we have taken in the field of learning: widespread use of statistically relevant metrics and analytics. CEOs, CFOs, CMOs, and other C-level executives are driven by metrics and analytics. For these roles there is a history of standard metrics that help shape decisions. But do we in the field of learning make it a point to speak the metrics and analytics language? Or do we use *learning*-speak?

## LEARNING METRICS ARE BUSINESS METRICS

When I started my HR career in the mid-1980s as a personnel representative, HR was not an area where analytical minds came to launch a career. In fact, when I started working as the head of HR for a small wireless start-up in the early 1990s, I reported to the CFO. The CEO believed that HR needed the guiding hand of someone who understood the numbers. I am not a numbers person by nature, but I have always been an eager student, with a strong desire to understand how data can be used to help businesses succeed.

The wireless start-up I was working for was acquired in 1994 and shortly thereafter I was fortunate to be named the head of HR of the acquiring company. I was determined to show the president the power of HR data—turnover, cost per hire, and time to fill—all good standard stuff that I had used with leadership in my previous role. I guess those leaders either didn't understand the data or perhaps weren't terribly interested in how it could be utilized. In any event, the president asked me two simple questions in one of our first meetings: "What is actionable about this data?" and "Will these actions translate into helping me meet and exceed my business objectives?" Suffice it to say I had not really thought through the action part, and quite frankly had not thought much further than the fact that I had produced data.

Generally speaking, HR professionals and business leaders see the value in HR data, but considering data versus outcomes requires different mind-sets. I have always applied these two simple questions asked of me so many years ago: "What is actionable?" and "How will it help my client meet and exceed objectives?" It is a strong argument in support of measuring and analyzing.

I have led training organizations for different companies as part of my responsibilities. Like many, I struggled to provide realistic measurements of the impact of training. Yes, generally everyone agrees you need to train new hires, you need to raise skills of your workforce, and in some cases you need to reskill your workers to take on new jobs. It always reminds me of the motto of Faber College from the movie *Animal House*: "Knowledge is good." However, as learning professionals, we should add, "But even better when we measure and optimize its impact."

## UNDERSTAND THE BUSINESS

Through feedback from many clients, we know that most agree that training is critical to an organization's success. Most also agree that measurement is important. We possess systems that can provide data on training impact. What then is missing? The ingredient that brings this all together is not only a strong knowledge of the needs of the business, but an intimate knowledge of how the business operates. This knowledge ensures you can speak the language of the business, understand how it operates, and serve as a credible adviser. When combining knowledge of the client's business with the skill set of a learning professional, learning interventions can be identified that will impact the client's key business metrics.

## BE THE BUSINESS

A few years ago I was discussing learning metrics with a senior client whose organization I supported. When I concluded, he said, "This is all great, but what I want to know is: What have you done to improve my AHT [average handling time] in my call centers?" Having learned my lesson over the years, I was prepared to reinforce the importance of leading with business-impacting metrics. For this and most business leaders, if you're not delivering the training they need, your other learning metrics are meaningless.

So, are learning metrics meaningless? Of course not. A balanced approach—one where you are utilizing metrics that measure the operational actions of your learning team along with those that reflect the learning impact on the client's goals and objectives—is important to you and your client.

In order to maximize your learning outcome and to measure the impact to the client's objectives, it is critical to understand what the measurable impact will be on the learner. First, what are we looking for—increased sales, better call quality, reduced installation time? Second, can the business unit provide the data we need to assess impact—or in some cases, is there a will to provide the data in the time frame in which the measurement is taking place? Finally, are there other initiatives being introduced that may affect the outcome—for example, a new compensation plan, or new processes that reduce installation time?

I have observed, and I think most HR professionals would agree, that business objectives are a critical piece of learning metrics. A few years ago, our company initiated a strong focus on NPS (Net Promoter® Score).[1] NPS measures your customers' willingness to recommend your products and services.

In order to reflect the training objectives, the Level 1 survey must ask learners to weight their *willingness to recommend* the training and the instructor, rather than how much they liked them. Accordingly, we recently changed the statements to "I would recommend this course to coworkers" and "I would recommend this instructor to a coworker." This simple change from "like" to "would recommend" shifted the scores downward. The most significant outcome from making this change was that it provided a different (lower) result than what we'd seen in the past. We believe that using "would recommend" unmasked deficiencies in our content and delivery. This allowed us to do more investigation and make the appropriate changes. Our overall measurement philosophy is centered on NPS.

## ON THE HORIZON AND BEYOND

What I find fascinating about the Digital Age is the vast amount of information that can be used to improve our daily lives and make us more productive. Take playing a video game, for example. The objective generally is to win. I remember in the late 1970s and early 1980s there was an arcade game called Asteroids. The tools used to play the game were pretty simple: one button to rotate the spaceship, one button to move it, one button to fire missiles at the asteroids, and one last button to escape when you had no other alternative but to be crushed by the asteroids. I spent a small fortune trying to master that game (which, by the way, I never did). Fast-forward to the present; video games today are more complex. I could not even begin to explain to you what each button does on an Xbox controller, but my players (i.e., students) manipulate those buttons as if they were extensions of their hands.

We can say that the tools to play the game have remained generally consistent (buttons, joysticks, etc.), but the ability to learn and measure the player's skill has allowed game creators to increase the level of complexity; participants are now motivated to play and therefore buy new games because they can measure and improve their performance. Internet sites, message boards, and YouTube videos all provide pathways that will improve the players' skill.

In addition, with today's games you can play online and test your skills against strangers. This provides an opportunity to measure your progress. That asteroid game had two players. If your score was good enough you entered your initials on the top 10 board. These measurements surely fueled the competition among all of us who played.

This simple example reinforces the value of measuring progress when we learn. Learning professionals are not alone in their need to utilize predictive measurement. We are all conditioned to expect such feedback. Perhaps more uncertainty leads to a greater need for certainty. From report cards in elementary school to performance appraisals, we live in a world that (whether formally or informally, whether within ourselves or provided by others) measures what we learn.

From what I have observed, learning professionals are simply looking for a reliable way to measure behavior change and how that change impacts business. Implementation of a measurement strategy has to be balanced with the understanding that it needs to evolve as the business evolves.

Supporting our goal to provide continuing value to the business, this book will enable you to gain insight from case studies, providing real-world examples of how to apply and optimize your analytics.

I have observed people calling analytics revolutionary, extraordinary, evolutionary, or all of these. I would rather categorize it as expeditionary: used in an ongoing journey to provide better outcomes for learning professionals, business partners, and ultimately our students who count on us to provide training to improve their skills. This book will serve as a great companion on your expedition.

## NOTE

1. Net Promoter® is a registered trademark of Bain & Company, Inc., Fred Reichheld, and Satmetrix Systems, Inc.

CHAPTER 1

# The New Workforce

*The Millennials are coming!*

—CBS News, February 11, 2009

Learning and development (L&D) generally represents an organization's single largest investment in its people. The American Society for Training & Development (ASTD) estimates that U.S. organizations spent over $150 billion on training in 2011.[1] Our intent with this book is to show you how you can use analytics to better manage the learning and development needs of a thriving organization in a rapidly changing environment. It is no coincidence that the field of human capital analytics is growing in popularity at a time when organizations are managing up to five generational cohorts in the workplace. These generational groups represent different backgrounds, ideals, challenges, and opportunities, many of which can be better understood through the various analytical tactics presented in this book. It's going to take the evidence and insights from analytics for organizations to effectively manage their workforces—and their human capital—for competitive advantage.

## DEFINING THE GENERATIONS

Despite what the buzz around the Baby Boomers and the Millennials may have you believe, there are five generations in the current workforce:

1. Traditionalists (born prior to 1946)
2. Baby Boomers (born between 1946 and 1964)
3. Generation X (born between 1965 and 1976)
4. Millennials (born between 1977 and 1997)
5. Generation 2020 (born after 1997)[2]

For the purposes of our discussion, in this chapter we focus on the three generations with the largest employee presences at the majority of organizations: Boomers, Xers, and Millennials, as well as some of the attendant changes and significant issues facing the workforce. For a more detailed discussion of the future workplace, we highly recommend Jeanne Meister and Karie Willyerd's book, *The 2020 Workplace*.[3]

Figure 1.1 shows how these workforce populations have shifted (and are projected to shift) over time.

While each generation is made up of individuals with unique belief systems and life experiences, we can assume a number of generalizations about each generation based on their collective experiences. As the generation of drugs, sex, and rock 'n' roll, the Baby Boomers came of age during the era of the Vietnam War and Watergate. In their youth, they took to the streets for human rights and the women's movement. They are said to be optimistic, competitive, and questioners of authority. At work, they're motivated by money, they work long hours at the expense of their personal lives, and they pursue upward career mobility.

Generation X is the skeptical generation. They saw the divorce rate triple as they grew up, with parents working long hours at the expense of family life. Experiencing life in a single-parent household became commonplace. Gen Xers were often latchkey children, left to their own devices after school. As adults, they tend to distrust institutions and be highly adaptive to change. In the office, Xers are known