Organizational behavior management (OBM) is the application of the science of behavior analysis in the workplace. OBM practitioners strive to improve the performance of individuals and groups by using direct observation of behavior and related measures of results. Practitioners identify and apply contingencies of reinforcement to achieve immediate and long-term behavior change through direct intervention and by transferring behavior-analytic skills to members of organizations. Individual performers’ progress in achieving desired results is the core metric by which OBM’s success is measured.

The domains of OBM are the structures, systems, processes, and related behavior patterns of individuals and groups within organizations. Although the techniques apply to any system of work, such as a classroom, volunteer group, or public enterprise, most of what OBM practitioners do, and the majority of reported research and case studies, take place in for-profit corporations.

Areas of focus across OBM encompass a range of organizational issues, including but not limited to:

- organizational strategic and tactical alignment to achieve desired outcomes;
- individual and group behavior change (coaching, training, computer-based instruction);
- performance improvement (selection, retention, development, fluency, quality, sales, service, instructional design, and design of motivational systems);
- safety (behavior-based, front line; safety leadership; total safety systems);
- organizational change (analysis, strategy implementation, leadership effectiveness);
- health and wellness (tactics, feedback, systems for worker and patient health).
The 21st century conditions of work are rapidly adapting to advanced technology changes taking the place of routine practices of the last century. More highly skilled workers are needed in almost every industry. Populations of well-trained workers in the United States are aging, with retirement looming. The need to replace skilled workers places a premium on hiring people who adapt and learn quickly. The lessons of the recent recession, caution in hiring, and getting more from less, are shaping a leaner workplace. Tools to facilitate new learning are increasingly in demand. Technological advances provide ease in entering international marketing and sales, training of employee groups, obtaining and serving distant customers, and setting up satellite offices.

The laws of behavior remain the same regardless of approaches within or across businesses. Consultants will be at a premium who design fluency into evolving content, help companies adapt to innovative practices, and stabilize a diverse workforce while achieving results. All these skills are present in the OBM tool chest.

As we move into the 21st century, practitioners of OBM are designing solutions that are sustainable. Such solutions need to pinpoint, measure, and reinforce the right skills of employees. These solutions build systems of consequences into the fabric of work, placing a premium on reinforcers available in the workplace to create enduring patterns of high performance and business success. Work need not be punishing. Twenty-first century workplaces can build in reinforcement systems such that employees “know no distinction between working and playing” (Jacks, 1932).

The chapter has four sections. Section 1 begins with a reexamination of Skinner’s rarely quoted and valuable writings about what work and the workplace can be. We describe how management practices have evolved in the 20th century. The section ends with selected early behavior-analytic efforts to shape workplace practices. Section 2 highlights core skills required to practice OBM. Section 3 examines how human resource systems define the culture of the workplace through a range of reinforced behavior patterns. The authors suggest that principles of behavior analysis be designed directly into the framework of an organization’s structures and processes to sustain individual and group efforts to achieve performance excellence. Section 4 discusses the emerging behavior systems perspective that moves beyond linear views of systems control. This behavior systems perspective is horizontal (work flow) and vertical (contingencies of reinforcement). The authors promote a new contextual view that sustains effective and fluent workplace behavior without the need for most of the current manager-led processes of supervision that are intended to guide workplace behavior today.

An Annotated History of OBM and its Historical Roots

Back to the Future. Skinner’s early, sometimes seemingly offhanded, insights into workplace behavior are stunning, seminal, and lasting. Skinner’s writings are rarely explored for the directional and design significance that they hold for OBM practices today as illustrated by this small sample of his writings.

Skinner’s writings from 1948 onward emphasized designing systems that allow behavior to find its purpose through contingencies of reinforcement. Behavior systems management or contingency management is a better term for the application of
Skinner’s theory of organizations, rather than behavior management or behavior modification.

Many things that Skinner wrote are as fresh today as when they were written, up to seven decades ago. Other ideas have been supplemented and elaborated in directions he probably did not anticipate. Skinner discovered fundamental behavioral processes, not mere social constructions. These processes have a basis in reality to the same extent that fundamental laws of physics are universal. Skinner’s insights have contemporary relevance because the principles of behavior he articulated (his “truths”) are scientific truths that have weathered the test of time and situational generality.

Skinner did not write much about the application of his principles to existing organizations. Nevertheless, he often proposed that the best policies for individual success in organizations were those that eliminated coercion, direct supervision, and restrictive rules. Contingency-shaped, fluent, behavior patterns (sometimes called self-managed patterns) allow the performer to achieve worthy performance primarily through natural reinforcers of work. He was not particularly interested in designing workplaces to implement rules of conduct that limited adaptive patterns, but rather in designing a workplace that reinforced the adaptive behavior patterns that were most effective or efficient for a given situation. When dealing with behavior in the context in which it occurs, Skinner (1953) stated:

> Behavior is a difficult subject matter, not because it is inaccessible, but because it is extremely complex. Since it is a process, rather than a thing, it cannot be held still for observation. It is changing, fluid, evanescent . . . But there is nothing insolvable about the problems that arise from this fact. (p. 15)

Skinner (1987) had much to say about coercive management and wrote that pay by the day or week is often mistakenly called positive reinforcement. Instead, its real function is to establish a standard of living from which the worker can be cut off. As he saw it, production in industry depends in great part on subordination, discipline, and acceptance of managerial authority. Traditional management approaches, natural or contrived, do little to establish positively reinforcing consequences. Conventional wage and salary systems pay for time. There are time clocks and time sheets, part-time and full-time employees, overtime, under-time, vacation time, and sick time. In Skinner’s view, people should be paid for what they produce. As productivity improves, the time at work should decrease. He would not set hours or time as a condition for pay. Skinner cared more about contingency and effect.

With respect to direct supervision, Skinner wrote “that we cannot foresee” all future circumstances (1948). “You do not know what will be required. Instead, you set certain behavioral processes which lead the individual to design his own ‘good conduct’ when the time comes (1948).” In general, by allowing natural consequences to take control whenever possible, appropriate behavior is more likely to occur. Skinner (1987) argued that we promote the survival of the individual, the culture, and the species by allowing natural consequences to prevail.

Contrived reinforcers must eventually be terminated as natural reinforcers take over in both education and therapy. Skinner (1987) argued that the teacher or therapist must be able to withdraw from the life of the student or client before teaching or therapy can said to be complete. In the same vein, the manager as traditional
overseer will no longer be needed to maintain employee performance. Rather naturally occurring reinforcers will replace the manager’s work to a large extent.

Skinner (1948) examined competition between workers. Philosophically, he argued that recognizing and admiring the exceptional achievement of one person over another was the wrong strategy if “...it points up the unexceptional achievements of others. We are opposed to personal competition.” Daniels (2009) has written of the pitfalls of “employee of the month” recognition and other awards that pit performers against one another. Such strategies set up competition that can suppress, not promote, accomplishment, thus limiting performance (Hake & Olvera, 1978; Hake, Olvera, & Bell, 1975).

Skinner (1969) drew a distinction between rule-governed and contingency-shaped behavior. He wrote:

- Contingency-shaped behavior has many fewer unwanted by-products.
- The person feels free . . . doing what he/she [needs] wants to do.
- Behavior that can be shaped by nonsocial contingencies is as universal as those contingencies themselves.
- Contingency-shaped behavior is more likely to be associated with joy.
- Contingency-shaped behavior is likely to have a greater variety or richness.
- Contingencies contain reasons which rules can never specify.

Skinner had much to say about rule-governed behavior. For example, the likelihood of following a rule is mainly controlled by the consequences that follow it. Rules of conduct civilize us in many ways, but contingency-shaped responses both control the likelihood of rule following and provide flexibility and fluidity in responding to demands of the workplace. Understanding the dynamic relationship between behavior and reinforcement is critical to establishing and maintaining rules in settings where it is imperative that rules are followed (i.e., high hazard conditions).

Skinner also was concerned about entropy in which management moves from positive reinforcement, with minimal direct supervision and rules, back to the traditional coercive, closely supervised, rule-governed organization. As units expand in size, an absence of skill in how to manage many people may reinforce coercive strategies.

In a Skinnerian style of management, day-to-day management is performed by self-managed individual employees or by employee teams. Skinner’s Walden Two Planners (those we call executives and their support teams today) connect the employee teams to the external environment or meta-contingencies. Organizational goals developed by the planners cascade with increasing specificity through middle and line management to individual workers and work teams. Each performer is connected to and informed of, the outcomes needed to sustain the business and/or its culture. Planners analyze revenue and conditions (e.g., consumer preferences, the market, resources, governmental regulations, competition, changes in technology) to increase profits. Behavior Systems Analysts (human resource specialists) translate the planners’ strategies into employee motivational systems and performance measures. They also identify and remove constraints on performance such as poor scheduling or work methods. Mentors or coaches (managers or supervisors) help employees gain skills and guide their development along a number of dimensions. In the best
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Skinnerian future, systems are designed to recognize mentors (today’s supervisors) for ensuring that their employees succeed. In that future, systems that reinforce effective employee behavior are central to company success.

**Early Management Experts.** There was no Burrhus Frederick Skinner at the turn of the 20th century and thus no behavior analysis as known today. But there were skillful people applying technology that changed human behavior. Several early American management experts systematically observed behavior and applied new methods for doing work.

Frederick Winslow Taylor (1911) introduced the time card, functional oversight of workers’ performance, differential piece-rate compensation, and other methods of decreasing cost and increasing productivity and wages. He introduced aligning specific behaviors with desired results. Even though he was a controversial figure (Stewart, 2009), many elements of his efforts made significant changes in production. These elements continued to evolve and later were directly adopted by Toyota as part of its approach to manufacturing. To this day, his work is considered the beginning of much of modern management. He stated that managers should:

1. Replace rule-of-thumb work methods with a scientific study of the tasks.
2. Scientifically select, train, and develop employees rather than having them train themselves.
3. Provide detailed instruction and supervision to each worker on that worker’s discrete task.
4. Divide work between managers and workers with managers applying scientific management principles to plan the work and workers performing related tasks.

Taylor was influenced by the technological revolution seen in the industrial revolution of the early 20th century. His dictate that man was second to the system was just one of the fallacies that guided his assumptions about behavior. Nevertheless, before him, the system of how work was to be done was ill formed and often illogical.

Taylor insisted on minute examination and reexamination of behavior at each step required to achieve particular outcomes. The process of defining critical tasks by refining pinpointed behaviors was done through a process that looks very much like backward chaining today (Keller & Schoenfeld, 1950). Kaplan and Norton (1996), Daniels and Daniels (2004), and Abernathy (2011), among others, have continued to refine this analysis of behavior at each organizational level.

Other early management experts, Gilbreth and Gilbreth (1917), advocated that workers engage in the smallest, most effective behavioral unit possible. The work of the Gilbreths, along with that of others, increased attention to efficiency (minimal time and effort to achieve a result) and effectiveness (the quality or effect of the behavior). The technology of machinery shaped the emergence of these new management practices. For example, the growth of assembly lines required a focus on efficiency, time, motion, and related elements of human performance.

Quality guru W. Edwards Deming found an audience in Japan after World War II to introduce more effective manufacturing processes. He gained ground in the United States where his quality approaches (Deming, 1986) were widely adopted. They are used in almost all manufacturing plants today. OBM practitioners
in manufacturing settings should understand the quality processes (e.g., statistical processes) that grew from Deming’s advocacy (Mawhinney, 1987). Lean, Six Sigma, Kaizen, Total Quality Management, and other engineering management processes, provide useful approaches for effective technical process management. However, such linear designs rarely take into account the effects of contingencies of reinforcement occurring along the way. Examining these engineering processes provide behavior analysts a starting place for identifying naturally occurring contingencies of reinforcement that could be built into the process to achieve the desired effect.

Near the end of his life, Deming indicated that manpower, a component of his analysis, was critical to the rest of the quality chain, but he acknowledged knowing little about how to motivate behavior. Today OBM practitioners add value by addressing motivating elements, such as behavioral drift and unintended consequences, that arise even from well-designed process flow maps and quality tools (McCarthy, 2011). Still, the science of behavior analysis remains outside the purview of many who design improvement processes. In addition, some in OBM are unaware of the highly refined tools of quality and process engineering that can help to clarify and sustain well-designed systems of motivation.

**Initial OBM Applications.** Early applications of behavior analysis in the 1950s, 1960s, and 1970s influenced OBM methods today. In the interest of brevity, the authors encourage the reader to explore the workplace-changing strategies of applied behavior analysis pioneers whose work gave rise to OBM. Sources include Balcazar, Hopkins, and Suarez (1985), Andrasik (1989), Dickinson (2000), Alvero, Bucklin, and Austin, (2001), and Abernathy (2012a). Compilations of readings in OBM are available in the works of Austin, Clayton, Houmanfar, and Hayes (2001), O’Brien, Dickinson, and Rosow (1979), and Frederiksen (1982).

Owen Aldis (1961) is considered to be the first to expose a broad American business readership to how managers could use operant principles to address workplace issues in his *Harvard Business Review* (HBR) article entitled “Of Pigeons and Men.” Aldis’s piece, however, had no demonstrable effect on the business community nor in demand for future articles on OBM in the HBR.

Tom Gilbert (2011) was probably the first behavior analyst to conduct actual behavioral observations in typical work settings. In the late 1950s and 1960s, he observed how candy and pharmaceutical sales representatives, forklift truck and yellow pages salesmen, interacted with customers. Quotable advice offered by Gilbert include: “Look before you listen” (observe before you interview) and “Observe accomplishments” (find examples of successful behavior). Such advice is essential for good practice today. In addition, Gilbert identified how to operationalize worthy performance. He compared the accomplishments of the one who achieves the strongest result (sales, production, quality, efficiency) in a given setting (the exemplar), with what is possible for all performers in that environment.

Ayllon and Azrin (1965) applied operant principles to a closed psychiatric ward at Anna State Hospital. Their application contains many elements relevant to OBM today. They removed psychotropic medication from psychiatric patients in an enclosed area of the hospital while persuading leadership of the hospital to sponsor the program, and remove institutional barriers to setting up a token economy for some patients. Reinforcement was provided when behavior occurred in desired, directionally correct, ways. The patients were not getting dressed, so getting dressed was one of the behaviors that earned tokens which were exchanged for back-up reinforcers.
Working as a tour guide and working at a mini-store on the ward, earned tokens. Those behaviors were not artificial, but functional, skills that were adaptive to life outside the institutional environment.

Over time, as the individual’s behavior came under environmental control, the reinforcers were changed to choices made by the individual such as time outside by oneself, choice of clothing and décor, selection of roommates or a room alone, and conversational events in social settings (Ayllon, personal communication, November 2012).

Ayllon and Azrin’s token economy was an example of how to arrange working conditions to shape desired behavior. It introduced a unit-wide system of behavior control inside a hospital workplace (in effect, the company) that changed many patterns of behavior through the appropriate arrangement of consequences in the form of individually-selected reinforcers. As in any work setting, people got paid (the token) as they exhibited specific patterns required to do their “job” of adapting. Ayllon and Azrin’s work stands as a uniquely designed demonstration of and profound respect for, how organizational environments can be arranged to help people make good behavioral choices that advance their freedom and dignity.

In the mid-1960s, Aubrey Daniels’ implementation of a similar token economy system in a hospital system prepared him for applications of this technology in business. He used the term performance management in his introduction of behavior analysis to the workplace and in the first edition of his textbook in the 1980s (Abernathy, 2012a; Daniels & Daniels, 2004). Daniels was the founding editor of the Journal of Organizational Behavior Management (JOBM). He continues to champion the notion that managers and supervisors should use positive reinforcement strategies to influence employee behavior whenever possible. His insistence on teaching managers to use positive reinforcement as their core methodology to help employees achieve rapid and sustained behavior change continues to find practitioners in countries around the world. Those practitioners report that the concept is revolutionary compared to conventional management practices, which are often based on techniques of aversive control and extinction.

Edward J. Feeney had no formal training in behavior analysis. He attended a seminar on the topic and applied his new knowledge at his organization, Emery Airfreight. The successful projects were reported in the 1972 Business Week article “Where Skinner’s Theories Work.” The result was an increased interest in OBM in the business community.

Dale Brethower (1972) introduced a different kind of analysis to arrange and control behavior, from a focus on shaping individual behavior to producing well-designed behavior systems. Behavior systems analysis improves traditional work process systems involving input, throughput, and output to more effectively address performance. It is one of those early prescient indications of what would become a 21st century call to action to help clients achieve long-term OBM success.

In 1978, West Virginia University’s (WVU) Psychology Department was the first to offer a subspecialty in behavioral systems when it introduced a behavioral systems track into its Ph.D. program (Hawkins, Chase, & Scotti, 1993). The faculty, many of whom went on to consult in applied business practices (e.g., Krapfl, Maley, Noah, Harshbarger), encouraged the examination of the contingencies of reinforcement present in the context of work as the source for guiding individual achievement.
Faculty at WVU encouraged their students to consider the cultural context and contingencies that may not be directly apparent in the work that is performed. Today, the context of work is still rarely explored closely enough to understand the controlling variables that operate on classes of behavior. A systems approach relies less on rules of conduct by which behavior is initiated than on exploring the unintended contingencies of reinforcement that maintain counterproductive patterns. By introducing a larger framework for individual performers, they introduced an approach to behavior change that was similar to the earlier work by Ayllon and Azrin, among others. They also exhibited an interest in the controlling variables found in verbal behavior and private events. Since this initial work, some of the faculty of that era have gone on to suggest an even more robust system of contextual control, described at the end of this chapter (Harshbarger & Maley, 1974).

**OBM Practices and Research**

**Essential OBM Consulting Skills.** Many variables contribute to effective consulting. First and foremost, continuous education in behavior analysis—basic, applied, and conceptual—is essential to deriving novel solutions to novel problems and to enhancing the everyday experiences of employees at all levels of operational authority. Although such knowledge is necessary, it is not sufficient to produce a successful practitioner. We highlight four areas important to long-term success: (1) functional analysis, (2) shaping, (3) relationship skills, and (4) ethical behavior.

*Skills in Functional Analysis.* As originally used by Skinner (1938), functional analysis refers to identifying the conditions in the environment that establish both antecedent and consequence control over behavior. One cannot solve behavioral problems without a functional analysis. OBM practitioners consider how systems, processes, and conditions of work affect individual performers to become antecedent and consequence sources of behavior change. Providing a functionally-analytic perspective in explaining why people do what they do helps clients see how to evaluate environmental controls to develop and sustain desired behavior patterns.

*Shaping: The Wellspring of OBM Success.* Shaping involves differentially reinforcing successive approximations to the goal or target behavior. Nothing is more important than doing just that—reinforcing directionally correct patterns of behavior through the precise application of shaping. While many people are creative, adaptive, and successful in shaping behavior without behavior analysts as guides, introducing managers to the rigors of technically correct shaping provides insights that enhance their ease in managing other’s successful acquisition of skills.

*Relationship Skills.* Agnew (2012) proposed that how well the consultant serves as a potential reinforcer for client behaviors is important. She meant that relationships, how likeable the consultant coach is, matters to his or her success. Because behavior analysts are often involved in coaching others, and clients select those they want to work with, positive social skills help to maintain relationships and increase the opportunity to shape success. While not the only factor in success, such positive relationships increase the likelihood that the client does the work required to achieve behavior change.
Among the interpersonal skills that Bailey and Burch (2010) considered useful were networking, behaving ethically, gaining influence, handling power, and what they called demonstrating broad curiosity about the behavioral world around them. These qualities can help to strengthen work in companies and they increase the probability of returning the next morning to do it again. Being alert to one’s own effects is a large and never ending obligation of an OBM consultant.

**Ethical Behavior: Slippery Slopes and Unintended Consequences.** OBM practitioners are not immune from the effects of the businesses in which they work. We need to be alert to the slippery slope of reciprocal relationships. Ethics is defined as a system of moral principles and rules of conduct with respect to a particular class of human actions or by a particular group or culture. It also refers to the moral principles by which individuals evaluate their own conduct. What is ethical is most often defined by the effects of behavior on outcomes, both short- and long-term, not simply by the intention to do good.

Determining what is ethical is not easy. Ethical actions are defined by prevalent values of society and sometimes by subgroup values within that society (Lattal & Clark, 2007). America is a pluralistic society so it is difficult to take one principle (e.g., the Golden Rule) as sufficient to define what is ethical in a given situation. The ethical impact of a behavior may occur long after the original behavior. It is also rare that absolute definitions of ethical actions exist outside of the specific context in which they occur. Finally, ethical conduct may be difficult for the performer to determine. We often do not see the effect of what we do (versus what we say we intend to do).

The use of positive reinforcement does not imply that the reinforced behavior will be positive. The immoral actions of storm troopers, Enron executives, and Bernie Madoff were highly reinforced. Likewise, business behaviors that are reinforced can produce great good or great bad. OBM practitioners need a set of externally generated values that guide what they will and will not do inside companies. That is easy to say but hard to do because we are often not alert to the contingencies in place until long after our actions have had an impact.

All too often, daily choices to beat the competition to market with a new product, or to overlook the team leader who fails consistently to do a safety check at the start of a procedure, may not seem like unethical actions. They are often not evaluated in that way until their impact is felt. The outcomes of today’s actions are often delayed and less than certain, making them more difficult to control. Workplace rules of conduct are often too narrow for the circumstances that arise. In many ways, that narrow definition of ethics, the reliance on individual’s justifying their actions in terms of their intention instead of analyzing their choices by looking ahead (often “guessing”) as to the impact on others, is the hardest part of ensuring that we are behaving ethically. *Striving to be ethical*, and discussing and reviewing what we do and its potentially distant effect, helps us be alert to potentially slippery slopes and to walk carefully when near them.

The authors recommend that students who enter the workplace learn what they can about the ethical dilemmas faced by those businesses. Dilemmas of the workplace may set up unintended consequences or encourage deliberate and obviously unethical outcomes. Over the years, OBM practitioners have worked with behavior on oil and gas rigs, in deep mines, in nuclear facilities, in chemical manufacturing plants, in textile factories, in food-producing industries, and in insurance and pharmaceutical
companies. All of these industries have had ethical problems in serving the public good while seeking to extract maximum profit. OBM practitioners should establish a dialogue with clients to discuss the longer term impact of actions designed to serve an immediate and desired outcome.

**Concern For the Whole Person.** OBM practitioners define a trait as a series of observable behaviors. These behaviors sum to the label applied to the person. Translating traits into behaviors helps to convert everyday terms into robust behavioral concepts and avoids stereotyping that limits the “potential” of individuals to that of their labels (e.g., lazy, shy, uncommitted, hostile, etc.). Everyday terms are important because people use the only words that they have to describe things. It can be exhausting to constantly explain to clients that behavior is shaped by external circumstances. For many, “mechanistic” descriptions of behaviors can make the OBM practitioner appear to be narrowly informed about what makes people do what they do. Dan Pink’s (2011) book, *Drive*, became a best seller partly because his views about motivation resonated with so many, not because of the truth of the science he espoused. Even though the work OBM offers is rich and full of wisdom, our language can create a communications barrier between the OBM practitioner and the client.

The words people use exert powerful control over their sense of wellbeing, their assessment of their capabilities, and how they describe what they say and do. That language includes words such as good decision-making, wise judgment, socially responsible, excellent self-control, wisdom, and maturity. For OBM practitioners, the philosophy of behaviorism provides a depth of behavioral meaning for everyday terms, such as competencies and character. Translating findings from the science provides models for understanding behavioral processes. Together, the philosophy of behaviorism and the science of behavioral processes provide clarity and connection to socially-valued words in applied settings. We have the tools to develop the wise leader, the persistent tool maker, or the creative designer.

Social psychologists, such as Eisenberger (1992), use learning concepts to explain in behavioral terms the development and maintenance of such commonly valued traits as persistence. Latane and Steve (1981) conducted applied research on the conditions that produce behavior demonstrating social responsibility in the natural environment. Understanding what research can offer in predicting when asking for, or giving of, help will occur, helps companies arrange such conditions to increase both business and social responsibility.

The conditions surrounding behavior at work are complex and OBM does not always include all operating contingencies in its analysis. Clinical behavior analysts deal with what people say about their values, beliefs, and actions in ways that OBM does not. They offer insights into dealing with rule-governed behaviors and often address needed changes in an individual’s verbal repertoire to open new ways of doing things.

Acceptance and Commitment Therapy (ACT) addresses rule-driven approaches to acceptable patterns of behavior (Hayes, Strosahl, & Wilson, 1999). ACT gives behavioral descriptions for internal states of causality that are traditionally used to explain behavior. All such work provides concepts and tools for behavior analysts to share with clients. The work also reduces the control for the performer that trait labels have on limiting employees’ perceived workplace potential.

Researchers such as Holland (1958) on signal detection and Hursh (2011) on fatigue also expanded the landscape of operating contingencies. They increased the
understanding of the conditions that affect front-line performance and performer vigilance which is particularly important in OBM’s work in behavior-based safety. The airline, mining, nuclear power, and oil and gas industries all have stories of catastrophes related to fatigue. In their “blame-the-workers” approach, management often interprets the failure of vigilance as related to faulty or bad character, internal to the person, and not fixable through behavioral interventions. The findings of Holland and Hursh give specialists in safety fixable behavioral explanations for these failures.

OBM has added clarity to understanding safety in the workplace. Cultural and business practices often establish unintended consequences to behaving safely. OBM practitioners have built a reputation for identifying and addressing factors that lead to safe practice.

It is difficult to pinpoint precisely the beginning of the field of behavior-based safety. The work appears to have started in the early 1970s. Fox, Hopkins, and Anger (1987) used a token economy to improve safety in open-pit mining in Utah, starting in 1972. The good results were maintained for more than 12 years. Komaki, Barwick, and Scott (1978) showed positive effects of feedback and reinforcement on the safety of bakery workers. Sulzer-Azaroff published her first behavior-based safety article in *JOBM* in 1978. Her chapter in the *Handbook of organizational behavior management* remains one of the best explanations of behavioral safety (Sulzer-Azaroff, 1982). Many others have contributed to the evolution of the practice. McSween (1995), and Geller (2001), Agnew and Snyder (2008), and Agnew and Daniels (2010) all had a significant impact on the field. Petersen, a safety professional, wrote 17 safety books and introduced the term behavior-based safety. This socially significant issue of safety at work is an area in need of future OBM practitioners (Johnson, Dakens, Edwards, & Morse, 2008).

OBM practitioners are asked about promoting self-control, defined as choosing larger, later, rewards over smaller, immediate, rewards (Eisenberger, 1989). The ability to delay rewards is often regarded as part of the definition of a mature person. When OBM coaches help to arrange conditions that promote behavior patterns that are indicative of self-control, persistence, judgment, and wise decision-making, they are addressing maturity. The more we are seen as promoting qualities equated with wisdom, the more our work takes on larger social and cultural relevance. We do not advertise our effectiveness with such socially-relevant concepts as self-control as much as we could. However, Hyten suggested to Lattal (Hyten, personal communication, 2012) that OBM strategies seem to focus not on the long term, but on finding different immediate reinforcers to steer behavior away from problematic immediate reinforcers. He suggested that is it hard to imagine a design where practitioners promote control by a series of delayed reinforcers themselves. “So I don’t think we actually promote self-control; we just switch impulsive reinforcers.” This is a worthy topic for OBM to explore.

**OBM and Human Resources Management**

OBM practitioners address how work is designed, a topic which is currently in the domain of human resource offices. Human resource professionals supply the processes to select, retain, promote, recognize, and fire employees. Abernathy (2012b)
and Austin and Carr (2000) have described relationships between human resources and OBM. Although there are many areas that could be the focus of OBM applications, nothing is more important than the motivational structures and processes that surround employees at work, typically termed Human Resource (HR) Management. OBM brings significant clarity to those practices.

Traditional HR management involves assumptions about how human behavior works. These assumptions, while well-meaning, are based more on anecdotal rather than scientifically-determined principles of human behavior. Daniels (2009) describes many traditional HR systems that are based on a flawed understanding of motivation. In many ways, HR practices are extremely rule-governed. Its rules are often externally mandated to ensure equity and equality of practices. One advantage of adopting the full array of behavior-analytic techniques is that those techniques create HR functions that support performance excellence (Snyder, 1995).

Organizational human resource management functions typically include: job analysis, selection, training, performance appraisal, compensation, reducing unintended consequences, and reducing constraints on performance. Each is described below.

**Job Analysis.** A job analysis describes the oversight, functions and tasks of a job. Crowell, Hantula, and McArthur (2011) and Langeland, Johnson, and Mawhinney (1997) synthesized OBM performance measurement techniques with industrial/organizational job analysis methods. Daniels and Daniels (2004) distinguished between behaviors and results in detail. They argued that, when possible, tasks or activities should be defined by their outcomes. Describing activities in terms of results provides the employee flexibility in choosing the specific response that will achieve needed outcomes. Instead, traditional managers might prescribe a specific sequence of behaviors in which the employee hands a customer a brochure first before addressing the customer’s questions. In contrast, in a results-driven version, the employee is asked to produce customer satisfaction through the quality of the interactions while ensuring that needed materials are delivered. The employee can then respond based on what a customer says and does. He or she still delivers needed materials but in a way that allows a choice of effective methods of interacting with a specific customer. Measuring the number of accounts each customer opens provides a higher-level business result which gives the employee greater flexibility than a task-level result.

A second purpose of describing outcomes, rather than tasks or behaviors, is to express the task in a manner that is measurable. Observing and counting behaviors is a difficult and time-consuming process. In contrast, measuring results is usually less subject to observer error or bias.

Abernathy (2011) described five characteristics of effective performance measures:

1. **Objective (numeric data)—**measuring results should ensure objectivity and ease in counting the task measure.
2. **Actionable (influenced by the employee)—**the results defined in the behavioral job description should be under the control of the employee.
3. **Focused (individual or small team)—**the results should be measured for an individual or, in some cases, a small team.
4. **Aligned—**each measure should promote organizational objectives.
5. Balanced—success on one measure should not lead to poor outcomes in other job dimensions. That is, the result should be balanced against other objectives.

Individual behaviors should be plotted along a continuum of change. This will help the performer to document progress. While measuring results is important, reinforcing successive approximations to the goal requires that the performance be aligned with the contingent reinforcement. The manager as mentor can help to ensure accuracy and ease of responding, celebrate steps along the way, provide positive reinforcement as steps are mastered, and help the performer to achieve high and steady rates of behavior (fluency).

**Performance Matrix.** Unfortunately, a simple list of the tasks associated with a job does not ensure balanced performance, nor does it prioritize those tasks. The Performance Matrix, first proposed by Felix and Riggs (1986, see Figure 26.1), is a proven solution for these issues. Their Performance Matrix converts different measures’ raw scores to a common scale. Each measure is weighted by priority. The converted score is multiplied by the weight to compute a weighted converted score. These weighted scores are then summed to compute a “performance index,” which represents the employee’s overall performance. The construction of performance matrices has been described by Abernathy (2011).

For example, in the above performance matrix the gross revenue for the month was $10,000. This converts to a performance scale score of −20. The measure’s priority weight is 20%. The scale score times the priority weight (−20 × 20% = −4%) equals the measure’s weighted score. Each of the four measure’s weighted scores are computed and the summed to produce the “Performance Index” of 36% on a scale that ranges from −20% to 100%.

**Points Method.** Another method for weighting results and aggregating them to compute an employee’s overall performance is the assignment of a point value to each result. This approach was described by Skinner (1948) in *Walden Two*. Points can be determined by a committee that is familiar with the job (subject matter experts or SMEs). The assignment of points can take into account time, priority, skill level, and task desirability. This method does not ensure balance as the matrix does,
however. The performer can increase production by ignoring other performance dimensions such as accuracy or timeliness.

Converting traditional job descriptions to behavioral results improves the validity of the description. It also provides employees more flexibility in how they achieve the results, enables objective and frequent feedback, and can ensure prioritized and balanced performances (e.g. efficiency vs. quality).

**Employee Selection.** The quality and commitment of new employees is critical to an organization’s success. As a result, the recruitment and selection of new employees is a key HR function. Jones and Azrin (1973) analyzed job-finding behaviors and implemented a program that rewarded local residents for reporting available jobs to an organization’s human resources department. They reported that ten times as many job leads, and eight times as many placements, occurred as occurred in this situation under traditional employee recruiting procedures.

The job interview is the most common tool for selecting new employees. Job interviews may be unstructured or structured. Unstructured interviews leave the order and content of the questions up to the interviewer. Structured interviews involve a predetermined set of interview questions. The predictive validity of a selection tool is determined by correlating interview scores with job performance scores. Traditional, unstructured interviews yield a correlation of around 0.20 while structured behavioral interviews yield an average 0.53 predictive correlation across all published studies (Janz, 1982).

OBM can assist in improving and validating behavioral interviewing by moving from traits to behavioral interviewing. OBM also provides a wealth of information about how to objectively define situations, goals, behaviors, and results. Two critical research questions regarding behavioral interviewing are first, how reliably does past behavior predict future behavior? Second, how valid are interviewee’s recollections of past situations and behaviors?

The operant concepts of response hierarchies and motivating operations can also be used to conceptualize, analyze, and improve the behavioral interviewing process. Response hierarchies are unique to each individual and they may change in different situations. The interview environment (location, interviewer, light, temperature, etc.), the situation and task described in the questions, and establishing operations can alter the applicant’s verbal response hierarchy. Finally, certain words or phrases, or the manner in which they are presented, may evoke specific tact and intraverbals (Skinner, 1991).

Other behavioral approaches to employee selection include work simulations, work samples, and assessment centers. In contrast to behavioral interviews, the applicant engages in actual or simulated tasks related to the job. The effects of prompts, feedback, and consequences during the simulations impact the applicant’s performance on these tasks.

**Employee Training.** Improving employees’ mastery of skills and fluency is a much needed area of growth for OBM in the 21st century. The application of behavior analysis to teaching can be traced back to Skinner’s (1954) and (1958) articles. He summarized his techniques for improving teaching in *The Technology of Teaching* (1968). Today, instructional designers, working side-by-side with their web-based colleagues, use programmed instruction, computer assisted instruction (CAI), computer-based instruction, and direct instruction to train employees.
Mager (1997) applied behavioral principles specifically to employee training throughout a long career. He described useful instructional objectives as having three characteristics:

- **Performance.** What a learner is expected to be able to do or the result of the doing.
- **Conditions.** The important conditions (if any) under which the performance is to occur.
- **Criterion.** How well the learner must perform for performance to be considered acceptable.

Mager named his instructional design Criterion Referenced Instruction (CRI). Some of the critical aspects include goal/task analysis, performance objectives, criterion referenced testing, and development of learning modules tied to specific objectives.

**Performance Appraisal.** Performance appraisal is used both administratively and developmentally. Administrative uses include awarding annual pay increases and promotions, and placing people on probation. Developmental uses include performance feedback, improvement, and coaching. Infrequent and inconsistent applications of these activities reduce their effectiveness through the loss of feedback and reinforcement. Waiting until the quarter end, or worse, until year end, removes the opportunity to improve. Waiting reduces performance appraisal mainly to catching people doing things wrong and fails to help people achieve the excellence that they can achieve. Traditionally designed performance appraisals that neglect shaping and reinforcement remain one of the largest problems in motivating employees’ best efforts.

**Developmental Appraisals.** OBM has been primarily concerned with developmental appraisals. DeNisi (2011) and Gravina and Siers (2011) argue that improved performance results from viewing performance appraisals in the context of a larger performance management system. Pinpointing potentials, analyzing constraints, and designing and implementing improvement plans can all be used to improve performance. David Uhl described how these behavior-based performance targets, when compared in six-month follow-ups, often correlate highly with business success and with cultural measures of employee satisfaction such as the Gallup Q12 (Uhl, personal communication to author, August 2008).

**Pinpointing Improvement Potentials.** A typical method for identifying employee opportunity for improvement involves the manager selecting an improvement target or targets for each subordinate. Measures are designed and data are collected for each pinpoint. Targets that display negative trends, high variability, or performance below goal are selected for improvement projects.

A second strategy for improvement pinpointing was proposed by Tom Gilbert (1978). Gilbert computed key job measures’ performance-improvement potentials (PIPs) by dividing the exemplar’s (best performance) by the average performance. The highest ratios were considered for improvement projects.

A third method is to administer a management practices survey across the organization (Abernathy, 2010). Performances affected by deficient management practices
are then measured. The assumption is that deficient management practices often lead to poor performances. The improvement opportunity lies with managers learning to manage behavior more effectively.

Implementing an organization-wide performance scorecard system provides a fourth method (Abernathy, 2011; Daniels & Daniels, 2004). Potential for improvement is pinpointed based on monthly measurement of levels, trends, and variability in performance. Although this method is the most difficult to design and maintain, it provides a basis for an ongoing performance-improvement program because data are collected and analyzed every month.

Analyzing Performance Constraints. The performance constraint analysis methodologies of the Behavior Engineering Model (Gilbert, 1978), the Performance Analysis Flowchart (Mager & Pipe, 1997), the Vantage Analysis Chart (Smith & Chase, 1990), the PIC/NIC Analysis® (Daniels & Daniels, 2004), and the OCC Analysis (Abernathy, 2012b) are described below.

Behavioral Engineering Model. Tom Gilbert (1978) proposed two sources of performance constraints: environmental and individual. Environmental constraints included stimuli (e.g., job descriptions, guides, feedback), responses (e.g., tools, time, materials, processes), and consequences (e.g., incentives, career development, aversive consequences for poor performance). Individual constraints include stimuli (e.g., knowledge, training), responses (e.g., capacity, selection, scheduling, job aids), and consequences (e.g., motives in the form of reinforcement history, the recruitment process).

Performance Analysis Flowchart. Mager and Pipe (1997) presented a performance analysis decision tree. The components of the tree are: Expectations clear? (Yes/No). If no, clarify expectations. Resources sufficient? (Yes/No). If no, provide more resources. Feedback present? (Yes/No). If no, provide feedback. Desired performance punished? (Yes/No). If yes, remove punishers. Poor performance rewarded? (Yes/No). If yes, remove rewards. Effective consequences? (Yes/No). If no, implement positive reinforcement. Skill deficiency? (Yes/No). If yes, improve skills. Task simplification? (Yes/No). If no, simplify task. Person’s potential? (Yes/No). If no, improve procedures for employee selection.

Vantage Analysis Chart (VAC). The VAC (Smith & Chase, 1990) provides six vantage points from which to analyze an organization: philosophical, social, organizational, departmental, individual outcomes, and individual activities. The VAC is used by performance engineers to: (1) gather information at all vantage levels, (2) use that information to analyze problems, and (3) develop interventions consistent with the values at all vantage levels.

PIC/NIC Analysis®. This analysis, described by Daniels and Daniels (2004), is concerned with the consequences (reinforcement) of performance. Highly effective consequences are positive, immediate, and certain (PIC). They promote behavior that is likely to reoccur. Less effective consequences are negative, future, and uncertain (NFU). Consequences that punish behavior are negative, immediate, and certain (NIC).

The approach also presents the A-B-C model of behavior analysis. Behavior (B) is a function of its antecedents (A) and its consequences (C). Behaviors with many or clear antecedents are more likely to occur than behaviors with few antecedents. Examples of antecedents include cues or prompts (e.g., training), communication,
knowledge, direction, and, more broadly, the setting events of how work is done. These factors have been put into the PIC/NIC Analysis®, a popular tool for analyzing why behaviors occur. PIC/NIC Analysis is used in making decisions about structures, management processes and systems, that impede or enhance behaviors that contribute to desired business outcomes.

**OCC Analysis™.** This model, (Abernathy, 2012b), analyzes performance “constraints.” The constraints are categorized as Opportunity, Capability, and Context. The analysis proceeds from left to right. That is it asks: Does the employee have a consistent opportunity to perform (i.e. time, input)? Does the employee have the capability to perform (i.e., competence, resources, processes)? And, finally, does the employee perform in a supportive context (i.e., prompts, feedback, consequences)? Each category and subcategory directs the analyst to several improvement strategies.

**Designing and Implementing Performance Improvement Plans.** Most OBM performance-improvement projects involve restructuring antecedents, feedback, and/or consequences. Alvero et al. (2001) reviewed the literature and found that 29.7% of OBM projects focused exclusively on improving feedback to employees. 18.8% of the projects improved feedback and consequences. Twenty-three-point-four percent of the projects improved feedback, goal setting, and consequences. Improving feedback alone produced consistent improvements in 47% of the projects. Projects involving feedback and consequences yielded consistent improvements 58% of the time. Feedback, goal setting, and consequences produced consistent improvements in 67% of the projects. However, projects involving the restructuring of antecedents, goal setting, feedback and consequences produced consistent positive results in 100% of the cases.

Abernathy (2012a) reviewed the literature published in *JOBM* and computed improvement percentages for OBM projects. The 68 projects that reported data on improvement yielded an average 90.4% improvement. The 16 projects that addressed antecedents yielded a 78.1% improvement. The 28 projects that addressed feedback yielded a 120% improvement. The 23 studies that employed monetary consequences yielded a 63.3% average improvement.

**Compensation.** Wages and salaries make up the conventional compensation system. An organization first conducts a job analysis as described previously. This is followed by a job evaluation to determine the appropriate levels of compensation. Job evaluation methods include ranking, classification, factor comparison, and the point method. A market survey in which wages and salaries are adjusted to regional or national averages is typically also conducted. Wages and salaries are reviewed annually and adjusted for the employee’s performance (merit pay) and inflation (cost of living adjustment or COLA). Dickinson and Gillette (1993), Smoot and Duncan (1997), Thurkow, Bailey, and Stamper (2000), and Bucklin and Dickinson (2001), among others, have investigated the effects of monetary incentives on employee performance.

The conventional wage and salary system views employees as commodities with a market determined value. From a *metasystem* view, wages and salaries are antecedents for recruiting and retaining employees in the society at large. However, within the organization, wages and salaries often function as negative reinforcers. Murray Sidman (2001) devoted his book, *Coercion and its fallout*, to the issues associated with the
widespread application of negative reinforcement. Traditional HR structures, the often overbearing or neglectful management oversight, and the application of the wage system, create a demotivating workplace. Abernathy (1996) argues that the wage and salary system must be replaced or significantly augmented before a culture based on positive reinforcement and on Skinner’s science of behavior can be fully established.

**Reducing Unintended Consequences.** Negative reinforcers are operationally defined as any events, which increases the probability of behaviors that remove or prevent those events. When an employee works to avoid losing a wage or salary, rather than to earn it, the employee is operating under negative reinforcement, a type of aversive control. The potential or actual application of aversive control creates fear. This emotional state consists of rapid breathing, increased heart rate, pupil dilation, and other biological responses. Fear makes it difficult to perform complex or precise behaviors. Aversive control also prompts escape and avoidance (tardiness, long breaks, leaving early, and absenteeism). Aversive control constricts an employee’s range of behaviors (innovation and creativity), particularly if the behaviors that produce the aversive event are not clearly specified. Finally, aversive control can reduce the employee’s discretionary effort (likelihood of exceeding minimum requirements).

Extinction occurs when a reinforcer that supported a behavior is removed and the behavior no longer occurs. Introducing extinction (e.g., the removal of attention or other events that were once reinforcing) may not be neutral to the performer. Inadvertently placing a behavior on extinction (e.g., a busy manager fails to ask an employee to chat) can have a negative effect on behavior. It may “feel” like punishment (rejection to use the vernacular). Such inadvertent use of extinction at work can lead to “shame, guilt, and anger” as described by workers. Postal workers who “go postal” have reported being “ignored” and passed over when once they were valued. Extinction, when applied to adult behaviors, is often unnecessary and may have side effects because of the ways in which the performer attaches meaning to “being ignored.”

Given these problems, why do many managers and supervisors resort to aversive control (threats, intimidation, embarrassment, poor reviews)? To positively reinforce improved or exceptional performances, beyond simple _atta boy_ statements, the manager must have timely, objective performance data for each subordinate. They rarely gather such data from frequent visits to observe behavior in action or through discussions with the performer. Few organizations provide these data, opting for subjective annual performance reviews because they are easy to design and administer. Managers are often forced to evaluate their subordinates subjectively because they lack objective results (Abernathy, 1996).

Managers, and their leaders, often lack knowledge about the potential of their workers. They fail to understand discretionary effort, defined as conditions in which the employee _wants_ to (because the behavior is reinforced positively) work as opposed to condition in which the employees _have_ to work (because of threat or fear). Discretionary effort is often seen as unique to a particular person, not as promoted by the work environment. This is partly because “motivation” is seen as private and beyond the reach of the manager. However, managers can embed motivational factors in the conditions and consequences of employee behavior. If they do not do this, exceptions to expected patterns of behavior (mistakes), are usually addressed by
negative reinforcement (e.g., “Do it or else”), rather than by reinforcing improvements. To address this problem, OBM needs to define objective measures with clients and help them observe and to track behavior change, capturing such change through data charts and graphs.

Figure 26.2 Performance Constraint Analysis (Abernathy, 2012b).

Reducing Constraints on Performance. OBM should aim at reducing constraints and at increasing opportunities for reinforcement in the workplace. By expanding their tool box to include concepts and techniques from other applied sciences, including industrial/organizational psychology, industrial and systems engineering, and managerial accounting, OBM can provide a full, functionally-analytic, approach to change, involving the individual, the unit, the levels of management, the customer the supplier, the community and beyond (Crowell et al., 2011; DeNisi, 2011; Gravina & Siers, 2011).

As described above (Figure 26.2), Abernathy (2012b) categorized performance constraints (opportunity, capability, and context constraints) in his multidisciplinary approach to performance improvement. Basically, the analysis asks three questions: Is there an opportunity to perform? Do the employees have the capability to perform? And, if there is opportunity and capability, does the work context guide, promote, and reinforce performance?

Industrial engineering is primarily concerned with the opportunity to perform including work scheduling, worker utilization, work flow, and work distribution. It also focuses on improving job methods. In contrast, Industrial/Organizational Psychology has been more concerned with the capability to perform, including worker selection, worker training, and job design. OBM looks at the context and behavioral contingencies that operate on the performer including antecedent conditions surrounding behavior (e.g., prompts, feedback, and consequences).

It makes little sense to analyze employee capability or context if there is no opportunity to perform. The tunnel vision that operates on these disciplines must be overcome to optimize performance. The analyst, regardless of background, must be familiar with techniques in all three disciplines and how they can enrich one another’s approach to optimizing human behavior.
Analyzing the context of work has been of increasing importance in sustaining change across complex systems. Redesigning formal structures of work is often left to industrial engineers, organizational psychologists, HR specialists, or business systems analysts. Behavior analysts rarely approach opportunity in the workplace as workplace architects. In the past five years, interest in the behavior systems perspective has increased dramatically in no small part because of the influential writers and researchers whose behavior systems work was captured in the special issue of *JOBM* in 2009.

**Behavior Systems Management**

OBM has a strong research foundation, solid methods for increasing positive behavior, tools for designing systems that can allow individuals to accomplish worthwhile objectives, and techniques to create fluency across new and required skills. The early management engineers and behavior-analytic designers, created a roadmap to the future as they began to address workplace performance.

OBM is gaining traction in implementing its technology across wider spans of organizational management. The field has developed systems approaches that remove the restrictive rules that put the control of employee behavior in the hands of others. We are much more equipped to change behavior for the better, arranging the broad context of work so that it reinforces excellent behavior. Skinner (1948) suggested that to design systems that support behavior without unnecessary control is to “free up” the worker to achieve astonishing outcomes.

Abernathy (1996) argued that we can make the workplace more productive and reduce strife if we change the compensation system to use positive strategies of management. As OBM practitioners extend their reach to larger and larger organizational units, it is more evident that we need carefully crafted, systemic, designs to influence behavior. OBM is often asked to examine whole systems of a corporation in preparing for large-scale change. Glenn (2003) has broadened the scope of the analysis through her work with the larger cultural landscape, identifying meta- and mega-contingencies and interlocking organizational and societal systems.

OBM should strive to create such contingency-shaped workplaces for the future. To the authors’ knowledge, only one company in the United States with more than 1,000 employees has approximated Skinner’s vision. Lincoln Electric is a Fortune 500 company in Cleveland, Ohio. It manufactures arc welders. In 1895, James Lincoln started the company with piece-rate and profit-sharing, rather than wages, for his factory workers. The results then, and still reported at least through the 1990s, were life-time employment, 0.5% turnover after the first 90 days on the job, the highest paid factory workers in the world, and 100 employees per manager (Lincoln, 1951).

In our vision, OBM should fulfill Skinner’s *Walden Two* vision and the visions of those who have come after him. We should move from coercive management practices to positive reinforcement through pay for performance, through developing performance measures that allow the individual to gauge and refine his or her own behaviors, and through removing constraints by artificial rules that impede actions in how the work is done. Applying science to advance the skills and wisdom of
workers across our society would be an accomplishment that would establish new definitions for both freedom and dignity, returning control for such advances to the natural conditions of the environment.

Imagine an input-throughput-output model that is embedded in a complex architecture that rises above and below the flow—architecture that structures and shapes flow, creates and limits possibilities and outcomes. And all of this travelling forward in time. Or, as historians, we can look back and retrospectively examine the three dimensional architecture, structure and flow of an organization’s life. (Harshbarger, personal communication, July 2012)

Such a vision is exciting and possible.

Note

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