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# Autonomous Learning in the Workplace



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# AUTONOMOUS LEARNING IN THE WORKPLACE

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# 1

## AUTONOMOUS LEARNING IN THE WORKPLACE

### An Introduction

*Raymond A. Noe and Jill E. Ellingson*

Traditionally, organizations have invested in formal training and development programs to insure employees have the knowledge, skills, and experiences necessary to perform their current job as well as to prepare them for future positions and career opportunities. In fact, one estimate is that US organizations have spent over \$160 billion on formal training and development (*training*, 2014). Formal training and development activities refer to training and development courses and events, including classroom instruction, on-line courses, college degree programs, and mentorship programs which are systematically designed and organized by a company. Formal training and development programs have specific goals, learning objectives, assessment instruments, and expectations (Chen & Klimoski, 2007). Further, these programs are not voluntary in the sense that employees are required to attend and complete them. Formal training and development programs give organizations the opportunity to provide consistent and programmatic ways for employees to enhance their knowledge and develop their skill sets. They can also be “strategic” in the sense that they contribute to and align with business goals by directly developing human capital and enhancing the firm’s ability to attract, motivate, and retain talented employees. Further, formal training and development programs have been shown to benefit individual and firm-performance as well as society as a whole (Aguinis & Kraiger, 2009).

For these reasons, organizations will continue to use formal training and development programs to enhance employees’ knowledge and develop their skills. But, as reflected by the title of this book, “Autonomous Learning in the Workplace” attention is shifting to how employees are developing their skills and acquiring knowledge outside of formal training and development programs. One estimate is that informal rather than formal learning accounts for up to 75 percent of learning within organizations (Bear *et al.*, 2008). Also, although

instructor-led training continues to be the most frequently used training method, the use of technology-based methods including e-learning, online learning, and mobile learning is growing (Association for Talent Development, 2015). These methods give employees a great deal of control over what and when they learn and are often used to encourage continuous learning which is not required or organizationally-mandated.

Our interest in autonomous learning and editing this book came from two insights. First, we recognized that how people learn in the workplace is changing (see Noe, Clarke, & Klein, 2014). There is greater awareness that learning in the workplace involves more than just attending formal training and development events, courses, and programs. Employees learn informally, through talking with colleagues, searching the internet, watching videos, and even taking free on-line courses offered by educational providers that are not affiliated with or sanctioned by their employer. There are a variety of autonomous learning “methods” discussed in the popular press and practitioner journals, such as *TD*, that individuals are using to acquire knowledge and skills, including Massive Open Online Courses (MOOCs), informal learning, communities of practice, social media, and even YouTube videos.

Our second insight was that we know surprisingly little about the individual differences and contextual factors that influence the use of autonomous learning and how to evaluate its effectiveness. We believe that autonomous learning in the workplace is an important and emerging area where practice is evolving and innovating, yet research lags behind. For example, research shows that self-regulation is important in learning in formal training programs, but we suspect it may be even more important when learners take complete responsibility for how and what they learn. Further, there are many studies showing that manager support is a key influence on employees’ motivation to learn and participation in development activities, but we know little about how work characteristics can facilitate (or inhibit) autonomous learning which occurs outside of the safe, dedicated learning space of a training room or classroom.

As a result, we asked scholars from a variety of disciplines including management, education, and industrial/organizational psychology to provide their perspectives and insights on autonomous learning. Our hope is that this volume will provide a useful starting point for readers to understand autonomous learning as well as to stimulate research that can inform practice about how to best design and create conditions for effective autonomous learning.

## **What is Autonomous Learning?**

In the most basic sense, autonomous learning has been defined as the ability of the learner to take charge of their own learning (Holec, 1981). However, we believe that to differentiate autonomous learning from formal training and development in which learners can and should take charge of their learning, we need

to consider a more complex conceptualization. First, autonomous learning is *voluntary*, meaning it is not required or imposed by an organization's formal human resource development policies and practices. Rather, the individual chooses to actively participate and put forth effort toward learning (Garaus, Furtmuller, & Guttell, 2016). Second, autonomous learning involves *unstructured* experiences. This means that employees are not learning in order to meet predetermined or planned learning objectives. Also, there are no prescribed specifications for learning content or process. Autonomous learning is similar to the idea of continuous learning in the sense that it occurs due to individuals' ongoing awareness of the need and value of learning (London & Mone, 1999). Third, autonomous learning generates *human capital*. Although employees have the freedom to choose their learning behavior, those behaviors must result in employees gaining information that builds knowledge or skills relevant to their job or career. Finally, autonomous learning behavior is *not administratively or operationally supported by the organization*. However, an organization's culture or values can emphasize a continuous learning philosophy which facilitates autonomous learning.

From our perspective, autonomous learning encompasses several other learning concepts that have been studied in the training and development and education domain including employee development, self-development, self-directed learning, voluntary employee development, workplace learning, and informal learning. Employee development refers to "the expansion of an individual's capacity to function effectively in his or her present or future job and work organization" (McCauley & Hezlett, 2001: 314). Self-development encompasses all deliberate activities not formally required by the organization that an employee engages in to acquire and enhance job knowledge and skills (Orvis & Leffler, 2011). Self-directed learning is a process in which learners take the initiative in identifying their learning needs and goals, choose learning resources and strategies, and assess learning outcomes (Knowles, 1975). Voluntary employee development refers to employee participation in non-mandatory, discretionary learning activities related to the current job or to long-term effectiveness and career development (Hurtz & Williams, 2009). Workplace learning refers to the processes by which employees acquire new or develop further their existing knowledge, skills, and abilities through engaging in the kinds of interactions and activities provided by opportunities that naturally occur in the workplace (Nikolova, Van Ruysseveldt, De Witte, & Syroit, 2014). Finally, informal learning includes a wide range of behaviors and activities such as knowledge exchange, feedback-seeking, experimentation, reflection, innovative behavior, learning from non-interpersonal sources, and learning from mentors and supervisors (for example, see Bednall, Sanders, & Runhaar, 2014; Noe, Tews, & Marand, 2013). Clearly, research is needed to understand how these constructs fit together and whether the definition for autonomous learning outlined above serves as the underlying construct for these other self-directed learning concepts.

## Why is Autonomous Learning Increasing in Importance?

It is important to note that autonomous learning is not “new.” Over 20 years ago, numerous scholars in the education field studied various aspects of autonomous learning (e.g., how to facilitate autonomous learning, identifying the characteristics of autonomous learners) in school and university settings (e.g., Clifford, 1999; McCombs & Whisler, 1989). What is “new” is the increased importance and recognition on the role of autonomous learning as a substitute for or extension of formal training and development in the workplace. There are a number of forces responsible for the increased importance of autonomous learning. These forces include workplace and workforce characteristics, greater awareness of the value of human capital for competitive advantage, advances in technology, and increased emphasis on learner- rather than instructor-driven instruction.

**Workplace and workforce characteristics.** Time and workload demands, budget constraints, and a geographically dispersed workforce impede organizations from offering and employees from attending and participating in formal training and development programs (Society for Human Resource Management (SHRM), 2012). Even when employees do attend formal programs, it is difficult for them to bring the level of energy and attention needed to learn due to work role demands. Formal training and development programs are often unable to anticipate, and as a result deliver, the skills and knowledge that employees need to deal with nonroutine, unpredictable, and quickly changing task demands and requirements. Consider the skills gap that many companies face, especially those in the manufacturing industry or research sectors. Companies have invested in advanced machinery, and tools and equipment to improve the productivity and quality of goods and services. But current employees lack the technical skills needed for these changed jobs ([www.themanufacturinginstitute.org](http://www.themanufacturinginstitute.org), 2014).<sup>1</sup> Further, such skills are not readily available in the labor market meaning that companies cannot use recruitment and selection to resolve their demand. Many CEOs of U.S. businesses believe that the skills gap will result in loss of business, revenue, dissatisfied customers, and delays in bringing new products or services to the marketplace (Gaul, 2014). Skill deficits are not just an issue for the U.S. India, Russia, Japan, Italy, Spain, and countries in Western Europe are also having difficulty finding employees with the skills needed for jobs in skilled trades, engineering, and sales (Organization for Economic Cooperation and Development, 2013). One autonomous learning solution that companies are relying on to enhance the skills of individuals in the labor market is to work with MOOC developers such as edX and Udacity to develop courses which can deliver needed skills (e.g., Meister, 2013). Current and future employees can choose to take these courses and complete an assessment, earning a certificate to show they have mastered the course content.

Employees' expectations about what they desire from work and their careers are also increasing the importance of autonomous learning. Many employees view their careers as boundaryless and self-directed. This means that many employees expect to frequently change jobs and employers. Studies have shown that 25 percent of employees have held five jobs or more by age 35, and 20 percent of employees 55 and older have held ten jobs or more (Wolf, 2014; [www.careerbuilder.com](http://www.careerbuilder.com), 2015<sup>2</sup>). For companies, remaining competitive in a quickly changing marketplace requires downsizing, merging, entering new businesses, and exiting declining markets. As a result, they cannot insure employees have job security. This means employees need to refine and add to their skill set throughout their careers, by "learning for a living," which includes enhancing current skills and adding new ones to meet current job demands, preparing for leadership opportunities, and ensuring employability should they lose their jobs or seek new opportunities (Molloy & Noe, 2010). "Learning for a living" requires learning that is self-motivated and proactive, i.e., autonomous learning. Employees' expectations about work are also changing. These expectations may be higher for millennials in the workforce, but regardless of their generation most of today's employees value opportunities to develop their skills. However, they also want flexibility to decide when and where to work (and to learn) to effectively balance work and life demands (Butts, Casper, & Yang, 2013). The desire for skill development coupled with the need for flexibility suggests that employees will increasingly seek autonomous learning opportunities that best fit their needs and schedules both on and off the job.

**Increased awareness of the value of human capital resources for competitive advantage.** According to resource-based theory, a resource is anything that can potentially provide an organization with a competitive advantage (Barney, 1991). Resources include financial capital (e.g., monetary assets and cash), physical capital (equipment, technology, delivery systems), and human capital (e.g., knowledge, skills, abilities). Research shows that human capital resources are significantly related to company performance (Crook, Todd, Combs, Woehr, & Ketchen, 2011). Human capital resources that influence a firm's strategic goals are unique in the sense that they are not commonly held by competitors, are difficult to imitate, and nonsubstitutable. These resources have the greatest potential to contribute to a company's competitive advantage (Acedo, Barroso, & Galan, 2006; Barney & Wright, 1998).

Employees' explicit and implicit knowledge may be one of the most important ways through which human capital contributes to competitive advantage (Kogut & Zander, 1992). Explicit knowledge is well-documented and easily articulated. It includes processes, flowcharts, formulas, checklists, and definitions. Explicit knowledge is often obtained by employees through participating in formal training programs. Tacit knowledge, which is arguably more important, refers to knowledge that is subconsciously understood based on experience (Nonaka & Takeuchi, 1995). For example, policies and procedures can be taught,

but learning through experience plays a critical role in determining when and how to apply, adopt, or abandon those practices. The short duration of many formal training and development programs, limited opportunities for practice, and lack of interaction with peer learners limits the extent to which tacit knowledge can be acquired. However, autonomous learning may be especially valuable for the development of tacit knowledge. For example, informal learning which occurs face-to-face or through social media provides opportunities for employees to build interpersonal networks and social relationships which are essential for acquiring tacit knowledge.

**Access to technology.** Autonomous learning is facilitated by technology that makes real-time or asynchronous employee interactions easier. Today, employees can interact, and knowledge and skills can be acquired using social media, search engines, blogs, wikis, and webinars (Bear *et al.*, 2008). Advances in technology enable employees to engage in self-reflection, experimentation, and the exchange of knowledge between managers and peers. Increased access and availability of mobile devices such as smartphones and notebook computers and nearly universal internet access gives employees the freedom to utilize many different learning sources including YouTube, blogs, wikis, webinars, social media, and MOOCs taught by experts in their field of study.

**Increased emphasis on learner-centered learning.** There has been increasing emphasis on learner-centered rather than instructor-centered learning. For example, the active learning model emphasizes that the greatest benefits can be gained from learning when the learner engages in exploratory learning, error-encouragement framing, and has emotional control (Bell & Kozlowski, 2008). Also, the third-generation learning model focuses on social interaction, particularly as it occurs in an on-line learning environment (Kraiger, 2008). The third-generation learning model emphasizes that knowledge is socially constructed with shared meaning based on instructor-learner interactions and learner-learner interactions. Both the active learning and third-generation models support autonomous learning. That is, both models emphasize that learning design needs to focus on creating conditions where the learner is actively participating, socially embedded, and has a choice about what to learn.

## Enhancing Our Understanding of Autonomous Learning: An Overview of this Book

In addition to this chapter which provides a broad perspective on autonomous learning, the book includes four additional parts, each of which provides a unique perspective on autonomous learning. *Part I: Autonomous Learning: An Evolution toward Technology-Enabled, Learner-Driven, Social, and Experiential Learning* addresses the question: What constitutes a contemporary, autonomous learning method, and what are the various forms that it assumes? In “Agency in Vicarious Learning at Work,” Myers and DeRue investigate how individuals

engage in vicarious learning from others' experiences at work. They present a social learning theory-based framework of the conditions that enable an agentic vicarious learning process. "Developing Cultural Intelligence through Autonomous Learning from Cultural Exposure" by Li emphasizes that cultural exposure is a form of autonomous learning that facilitates the development of one's ability to work effectively with people from other cultures. Based on experiential learning theory, this chapter emphasizes that the breadth and depth of cultural experience is key for developing cultural intelligence. Learning from failure is another possible way autonomous learning occurs. Seckler, Funken, and Gielnik focus specifically on how entrepreneurs learn from failure. In "Learning from Entrepreneurial Failure: Integrating Emotional, Motivational, and Cognitive Factors," they outline how the experience of failure produces short- and long-term emotional reactions which in turn influence entrepreneurs' motivation to learn from the experience. They point out that error management mindset is a critical factor in determining whether failure will lead to growth, assessment, and development on the one hand or frustration, helplessness, and stagnancy, on the other. Cordery and Wenzel in "Organizational Communities of Practice and Autonomous Learning" describe organizational communities of practice as vehicles for employee autonomous learning. They explain how learning takes place within these unstructured groups, and what organizations should do to facilitate the development and maintenance of these communities as central means to exchange and grow knowledge. The last two chapters in this part highlight the critical role of self-regulation in autonomous learning. In "Regulating Our Own Learning: Stuff You Did Not Realize You Needed to Know", Vancouver, Halper, and Bayes elaborate on the roles that self-assessment of needs, deciding how to allocate cognitive resources, choice of a learning method, and progress assessment play in autonomous learning. "Strategies for Supporting Self-Regulation during Self-Directed Learning in the Workplace" by Bell critically examines the features, boundary conditions, and effectiveness of self-regulation strategies, including prompting, cultivating, and guiding strategies, that individuals can use to regulate autonomous learning.

*Part II: Organizational and Societal Influences Shaping Autonomous Learning* addresses the question: How are autonomous learning activities facilitated? The chapters in this part address individual, job/firm, and broader environmental factors that facilitate or inhibit individuals' decisions to engage in different types of autonomous learning. The self-directed, voluntary nature of these activities suggests that any number of forces may operate to make it more or less likely that employees will engage in autonomous learning. Parker argues for the importance of job design as a way to induce autonomous learning by proposing the Work Growth Design Model in "Work Design Growth Model: How Work Characteristics Promote Learning and Development.." This conceptual model provides a systematic framework for understanding how job and task features combine to change the learning aspects of work and thus promote cognitive,

self, and moral development. Human resource management practices have an important influence on individual's behavior in organizations, too. In "Effects of Human Resource Management on Informal Learning," Sanders, Yang, Shipton, and Bednall discuss the role of bundles of HR practices, HR strength, and high performance work practices in facilitating individual and collaborative informal learning and innovative behavior. Research on careers suggests that individuals learn in different ways throughout their working life. Beier, Torres, and Gilberto outline key stages in a career and how autonomous learning and its determinants change across these stages in "Continuous Development throughout a Career: A Lifespan Perspective on Autonomous Learning." In "How Do Conditions Known to Foster Learning in the Workplace Differ across Occupations?" Kyndt and Beusaert discuss the work context and learning conditions that influence informal learning. They present results from a study investigating work context and learning conditions between two occupations—military and nurses. Telford, Fletcher, and Bedwell shift the conversation to the potentially negative effects of autonomous learning in "Informal Learning and the Healthcare Industry: The Detrimental Effects of a Hidden Curriculum." They emphasize that healthcare workers must rely on autonomous learning to acquire the values, attitudes, beliefs, and behaviors deemed acceptable and implicitly endorsed within the culture of the medical profession. This "hidden curriculum" is a powerful force which can have negative or unintended effects on employees' choices and development over time. The last chapter in this part, "The Medium is the Message: On the Emergence of Autonomous Learning, MOOCs, and Technology- Enabled Active Learning" by Billsberry and Brown, also offers a critical assessment. They argue that the rise in technology-enhanced learning has a dark underbelly, namely it is one of many factors shifting the responsibility of teaching and training to individuals and away from nation states, universities, and organizations. This societal, even global, trend implies that autonomous learning has a number of costs to stakeholders that must be recognized.

*Part III: Effectiveness and Value of Autonomous Learning* addresses the question: Is autonomous learning effective and does it benefit the learner and the organization? In "Failing to Learn from Feedback: Inter- and Intrapersonal Roadblocks to Autonomous Learning," Williams and Ehrlinger discuss the critical role that high-quality feedback plays in effective autonomous learning. Taking a counterpoint perspective, they outline the numerous ways in which feedback rendered during autonomous learning may be deficient to this task. Their discussion raises important questions about how effective autonomous learning really is at producing skill development. Ployhart, Call, and McFarland propose that effective autonomous learning contributes to the development of a company's human capital resources. In "Autonomous Learning, Human Capital Resources, and Value Capture," they argue that autonomous learning can and should lead to individual performance improvement. However, from

the organization's perspective, autonomous learning needs to create value, and the organization needs to take action to capture that value.

Finally, in *Part VI: Closing Comment*, Kurt Kraiger provides his perspective on the different chapters, autonomous learning in general, and offers directions for future research. He touches on the many different terms and definitions related to autonomous learning to highlight key elements. He reflects on a variety of individual and organizational factors that influence autonomous learning. And, he astutely points out the need for more research on the effects and outcomes of autonomous learning for both individuals and organizations. To conclude, we are excited by the contributions brought together in this volume. The chapters make clear that autonomous learning is a pervasive phenomenon, one that leads to ability and skill development as a function of a variety of factors. Clearly, we still have much to learn, but the landscape for future research on autonomous learning is rich and dynamic. We look forward to seeing how future research evolves and hope the ideas discussed in this volume excite and engage scholars toward their own autonomous learning about autonomous learning.

## Notes

- 1 2014 Accenture Manufacturing Skills & Training Study, from [www.themanufacturinginstitute.org](http://www.themanufacturinginstitute.org), (accessed March 2, 2015).
- 2 Nearly one-third of employers expect workers to job-hop, May 15, 2014, from [www.careerbuilder.com](http://www.careerbuilder.com), (accessed April 2, 2015).

## References

- Acedo, F. J., Barroso, C. J., & Galan, J. L. (2006). The resource based theory: dissemination and main trends. *Strategic Management Journal*, 27(7), 621–636.
- Aguinis, H., & Kraiger, K. (2009). Benefits of training and development for individuals, teams, organizations, and society. *Annual Review of Psychology*, 60, 451–474.
- Association for Talent Development (2015). *State of the industry report*. Alexandria, VA: American Society for Talent Development.
- Barney, J. B. (1991). Firm resources and sustained competitive advantage. *Journal of Management*, 17(1), 99–120.
- Barney, J. B. & Wright, P. M. (1998). On becoming a strategic partner: The role of human resources in gaining competitive advantage. *Human Resource Management*, 37(1), 31–46.
- Bear, D. J., Tompson, H. B., Morrison, C. L., Vickers, M., Paradise, A., Czarnowsky, M., Soyars, M., & King, K. (2008). *Tapping the potential of informal learning: An ASTD research study*. Alexandria, VA: American Society for Training and Development.
- Bednall, T. C., Sanders, K., & Runhaar: (2014). Stimulating informal learning activities through perceptions of performance appraisal quality and human resource management system strength. *Academy of Management Learning & Education*, 13(1), 45–61.
- Bell, B., & Kozlowski, S. W. J. (2008). Active learning: Effects of core training design elements on self-regulatory processes, learning, and adaptability. *Journal of Applied Psychology*, 93(2), 296–316.

- Butts, M. M., Casper, W. J., Yang, T. S. (2013). How important are work–family support policies? A meta-analytic investigation of their effects on employee outcomes. *Journal of Applied Psychology, 98*(1), 1–25.
- Chen, G., & Klimoski, R. J. (2007). Training and development of human resources at work: Is the state of our science strong? *Human Resource Management Review, 17*(2), 180–190.
- Clifford, V. A. (1999). The development of autonomous learners in a university setting. *Higher Education Research & Development, 18*(1), 115–128.
- Crook, T. R., Todd, S. Y., Combs, J. G., Woehr, D. J., & Ketchen, D. J., Jr. (2011). Does human capital matter? A meta-analysis of the relationship between human capital and firm performance. *Journal of Applied Psychology, 96*(3), 443–456.
- Garaus, C., Furtmuller, G., & Guttell, W. H. (2016). The hidden power of small rewards: The effects of insufficient external rewards on autonomous motivation to learn. *Academy of Management Learning & Education, 15*(1), 45–59.
- Gaul, P. (2014). Nearly half of U.S. executives are concerned about skills gap. February, *TD, 68*(2), 18.
- Holec, H. (1981). *Autonomy and foreign language learning*. Oxford, UK: Pergamon.
- Hurtz, G., & Williams, K. (2009). Attitudinal and motivational antecedents of participation in voluntary employee development activities. *Journal of Applied Psychology, 94*(3), 635–653.
- Knowles, M. (1975). *Self-directed learning*. New York: Association Press.
- Kogut, B., & Zander, U. (1992). Knowledge of the firm, combinative capabilities, and the replication of technology. *Organization Science, 3*(3), 383–397.
- Kraiger, K. (2008). Third-generation instructional models: More about guiding development and design than selecting training methods. *Industrial and Organizational Psychology: Perspectives on Science and Practice, 1*(4), 501–507.
- London, M., & Mone, E. M. (1999). Continuous learning. In Pulakos, E. D. (ed.), *The changing nature of performance: Implications for staffing, motivation, and development*. San Francisco, CA: Jossey-Bass, pp. 119–153.
- McCaughey, C. D., & Hezlett, S. A. (2001). Individual development in the workplace. In N. Anderson, D. S. Ones, H. K. Sinangil, & C. Viswesvaran (eds.), *Handbook of industrial, work & organizational psychology*. London: Sage Publications, pp. 313–335.
- McCombs, B. L. & Whisler, J. S. (1989). The role of affective variables in autonomous learning. *Educational Psychologist, 24*(3), 277–306.
- Meister, J. (2013). How MOOCs will revolutionize corporate learning and development. Retrieved from [www.forbes.com](http://www.forbes.com) (August 13).
- Molloy, J. C. & Noe, R. A. (2010). “Learning” a living: Continuous learning for survival in today’s talent market. In S.W.J. Kozlowski & E. Salas (eds.), *Learning, training, and development in organizations*. New York: Routledge, pp. 333–361.
- Nikolova, I., Van Ruysseveldt, J., De Witte, H., & Syroit, J. (2014). Work-based learning: Development and validation of a scale measuring the learning potential of the workplace (LPW). *Journal of Vocational Behavior, 84*(1), 1–10.
- Noe, R. A., Clarke, A. D. M., & Klein, H. J. (2014). Learning in the twenty-first-century workplace. *Annual Review of Organizational Psychology and Organizational Behavior, 1*, 245–275.
- Noe, R. A., Tews, M. J., & Marand, A. (2013). Individual differences and informal learning in the workplace. *Journal of Vocational Behavior, 83*(3), 327–335.

- Nonaka, I., & Takeuchi, H. (1995). *The knowledge creating company*. New York: Oxford University Press.
- Orvis, K. A., & Leffler, G. P. (2011). Individual and contextual factors: An interactionist approach to understanding employee self-development. *Personality and Individual Differences*, 51(2), 172–177.
- Organization for Economic Cooperation and Development (2013). Survey of Adult Skills 2013. Retrieved from <http://skills.oecd.org>.
- Society for Human Resource Management (2012). *Future insights: The top trends according to SHRM's HR subject matter expert panels*. Alexandria, VA: Society for Human Resource Management.
- 2014 industry report. (2014). *Training*. November/December, 51(6), 16–29.
- Wolf, B. (2014). Is job hopping the new normal? (*TD* August), 68(8), 20.