Emerging issues in theory and research on electronic human resource management (eHRM)

Dianna L. Stone [a,*], James H. Dulebohn [b,1]

University of Texas at San Antonio, Department of Management, San Antonio, TX 78249, USA
School of Human Resources and Labor Relations, Michigan State University, 402. S. Kedzie, East Lansing, MI 48824, USA

A B S T R A C T

In the past several decades, technology has had a dramatic impact on human resource management (HR) processes and practices. For example, technology, especially the World Wide Web, has helped modify many HR processes including human resource planning, recruitment, selection, performance management, work flow, and compensation. These new systems have enabled HR professionals to provide better service to all of their stakeholders (e.g., applicants, employees, managers), and reduced the administrative burden in the field. Despite the widespread use of these systems, there has been a surprising dearth of theory and research on the topic. As a result, the purpose of this special issue is to (a) advance theory and research on human resource management systems (HRMS) and electronic human resource management (eHRM), (b) offer new directions for research on the topic, and (c) enhance the effectiveness of these systems in organizations. As a result, this article reviews the evolution of HRMS and eHRM, provides a brief overview of the existing literature, and introduces the articles in the special issue.

© 2012 Elsevier Inc. All rights reserved.

1. Introduction

Technology is having a profound effect on human resource management (HR) processes, and is propelling them in some entirely new directions. For example, technology, especially the World Wide Web, has helped modify a number of HR processes including human resource planning, recruitment, selection, performance management, work flow, training, and compensation. In particular, most of the large organizations now use Web-based recruiting systems, and have implemented Web-based training programs. These new systems have enabled HR professionals to provide better service to all of their stakeholders (e.g., applicants, employees, managers), and reduced the administrative burden in the field. These changes also made it possible for them to focus on HR strategy, and become true business partners in organizations (Gueutal & Stone, 2005). The systems are typically referred to as human resource management systems (HRMS), and give HR professionals the ability to manage HR information and processes. As part of an HRMS, electronic human resource information systems (eHRM) provide organizational stakeholders with access to HR information and specific HR functions via the Internet or intranets.

In spite of the widespread use of HRMS and eHRM in organizations, there has been a surprising dearth of theory and research on the topics. We feel this may be due to several reasons. First, HR scholars may perceive that HRMS and eHRM represent technical areas, and are the domains of information technology experts rather than HR professionals. Second, some may view HRMS and eHRM as transaction oriented, and therefore, prefer to focus on more critical processes such as talent acquisition, retention, training, and strategic HR. Finally, HR scholars may not believe that they are able to control or change eHRM systems because they are rigid and inflexible.

---

* Corresponding author. Tel.: +1 210 497 4965.
  E-mail addresses: Diannastone@satx.rr.com, dianna.stone@utsa.edu (D.L. Stone), dulebohn@msu.edu (J.H. Dulebohn).
[1] Tel.: +1 517 432 3984.

Given the ubiquity of eHRM systems in organizations and their impact on HR processes, we believe that additional theory and research is needed on the topic. One reason for this is that these systems are being implemented without the benefit of empirical research that can be used to enhance adoption, implementation, and system effectiveness. Thus the primary purpose of this special issue is to foster theory and research on the topic. Specifically, the goals of the special issue are to (a) encourage theory and research on eHRM, (b) offer new directions for research on the topic, and (c) enhance the effectiveness of eHRM in organizations. In the sections that follow we consider the evolution of HRMS and eHRM, briefly review the existing literature on the topic, and summarize the articles in the special issue.

2. Evolution of HRMS and eHRM

Prior to the implementation of automated systems, the human resource function used manual paper record keeping and reporting systems that were typically cumbersome and very time consuming. These manual systems were a major part of the role of human resource management through most of the 20th century. In the 1960s and 1970s, mainframe computer systems were used to automate HR record keeping and payroll, and they began to reduce the administrative burden in the field. In the 1980s standalone software packages were developed to provide management system functionality that facilitated HR functions such as applicant tracking, performance appraisal, and training and development. These new systems were called human resource information systems (HRIS), and were defined as information systems used to acquire, store, manipulate, analyze, retrieve and distribute pertinent information regarding an organization's human resources (Kavanagh, Gueutal, & Tannenbaum, 1990).

These new HRIS also facilitated human resource planning, and enabled organizations to better utilize the talents and skills in their workforces. In addition, they helped the HR function produce government reports required for EEO, affirmative action, and OSHA, etc. However, the original HRIS used mainframe and mini-computers, and required extensive support from information technology (IT) professionals. As a result, HR professionals were very dependent on IT experts to manage the system, run queries, and develop needed reports.

In the late 1980s client architecture and microcomputers emerged as the dominant forms of technology. HR databases were stored on central servers connected to local area networks (LAN) or wide area networks (WAN). This change meant that HR professionals and others in the organization could access these systems from their worksites, and databases dedicated to HR were developed for both mainframe and client server platforms. PeopleSoft version 1 was released in the late 1980s, and represented the first fully integrated suite of HR applications that ran on client–server architecture.

The 1990s witnessed a growth in integrated HRIS that managed multiple HR functions, and provided more sophisticated management and reporting features. These systems were either standalone or part of enterprise resource planning (ERP) software suites (developed for various managerial functions such as finance and operations) that integrated HR and broader organizational data within one, large-scale organization-wide system.

The next development in the evolution of HRIS was that organizations began to use intranets to gather, store, and disseminate information. These new intranets were secured so that only authorized users could access the system using a code or password. The use of intranet systems enabled organizations to provide internal stakeholders (e.g., employees and managers) access to information. As a result, self-service systems gave stakeholders the ability to manage HR processes. For instance, employees could access the system to update their records, enroll in benefits, or apply for job openings, and managers could use the systems to generate reports or develop HR plans (Marler & Dulebohn, 2005).

In the mid 1990s the World Wide Web (Web) emerged as a means of facilitating two-way communication and instant worldwide information over the Internet. Toward the end of the 1990s, the migration to Web-enabled systems began, and companies started developing HR software that would be compatible with Internet architecture. In the early 2000s, this new software enabled the centralization of all HR and organizational data so that users could access it through Web browsers at any time or place. Organizations then began using Web-based technology to interact with both internal and external stakeholders (e.g., job applicants, employees, managers, benefit and payroll providers, etc.). For instance, these systems enabled organizations to develop Web-based recruiting systems that could be used to attract applicants anywhere in the world, and allow them to apply for jobs online. It was at this time that these systems became known as electronic human resource information systems (eHRM) because they enabled HR transactions through the Internet (Lengnick-Hall & Mortiz, 2003). Not surprisingly, the new eHRM systems facilitated and modified a number of HR processes including job analysis, recruitment, selection, training, compensation, performance management and HR planning. Even though HRIS and HRMS systems provided internal support for HR professionals, eHRM applications provided access to all internal and external stakeholders (e.g., job applicants, employees, managers, HR professionals, business partners).

3. Benefits of eHRM systems

As might be expected, eHRM systems are thought to provide a number of key benefits to organizations. For instance, researchers and practitioners have argued that these new systems (a) enhance HR efficiency, (b) reduce costs, (c) decrease administrative burdens, (d) facilitate HR planning, and (e) allow HR professionals to become a strategic or business partner in organizations (e.g., Bartram, 2006; Gueutal & Stone, 2005; Kavanagh, Thite, & Johnson, 2011). In spite of these many benefits, researchers maintained that there may be a number of unintended consequences from using them (e.g., Harris, Van Hoye, & Lievens, 2003; Kehoe, Dickter, Russell, & Sacco, 2005; Stone, Stone-Romero, & Lukaszewski, 2003). For instance, there are

concerns that these new systems focus primarily on efficiency and cost containment, and do not enhance the effectiveness of HR processes (e.g., selection systems). There are also concerns that eHRM systems may (a) have an adverse impact on members of some protected groups (e.g., older job applicants) (e.g., McManus & Ferguson, 2003), and (b) have the potential to invade personal privacy (e.g., Eddy, Stone, & Stone-Romero, 1999; Harris et al., 2003; Stone & Stone, 1990). Given these potential benefits and unintended consequences, research is needed to examine their effectiveness, and to enable HR professionals to design systems that meet the goals of organizations and all stakeholders.

4. Existing theory and research on eHRM

Although theory and research on eHRM is in its infancy, there has been one review of the literature on the topic by Strohmeier (2007). This review is important because it critiqued the existing research, and argued that it is multi-disciplinary, atheoretical, and somewhat disjointed. Despite this review, most of the research on the topic has focused on examining the effectiveness of various applications in HR. For example, there has been considerable research in industrial and organizational psychology, management, and education on e-learning or distance learning (e.g., Brown, 2001; Salas, DeRouin, & Littrell, 2005; Sitzmann, Kraiger, & Stewart, 2006). E-learning is defined as "education or training courses delivered to remote locations via synchronous or asynchronous means of instruction, including written correspondence, text, graphics, audio or videotape, CD-ROM, online learning, videoconferencing interactive TV, facsimile, and the World Wide Web [added]" (Kaplan-Leiserson, 2002, para.77 cited in Salas et al., 2005). The use of these various forms of technology allows organizations to provide training for employees around the world, and greatly decreases the costs associated with face-to-face training programs (Salas et al., 2005). Thus, research has been aimed at assessing the effectiveness of e-learning, especially Web-based instruction (e.g., Sitzmann et al., 2006), and developing research-based guidelines for designing these training systems (Salas et al., 2005).

Second, much of the research on eHRM has focused on e-recruiting (e.g., E-recruiting can be defined as "the use of Web-sites, Web-portals, or kiosks to attract applicants to the organization, and enable Braddy, Meade, & Kroustalis, 2009; Dineen & Noe, 2009) them apply for jobs online" (Stone, Lukaszewski, & Isenhour, 2005, p. 22). Research on e-recruiting has examined the effects of a number of factors thought to affect applicants' attraction to organizations and application intentions. For example, some of the research has examined the effects of website characteristics (Braddy et al., 2009; Dineen & Noe, 2009) on organizational attraction. However, other research focused on organizational and individual factors that influence applicants' intentions to apply for jobs (e.g., McManus & Ferguson, 2003; Stone et al., 2005).

Third, much less research has examined the effectiveness of Web-based selection systems. One notable exception is the article by Kehoe et al. (2005). It outlined some of the key parameters associated with using Web-based systems in the selection process. However, most of the research on these systems has focused on the equivalence of computerized and paper employment tests and personality inventories (e.g., Ployhart, Weekley, Holtz, & Kemp, 2003; Potosky & Bobko, 2004). A few other studies have assessed applicants' reactions to the use of technology in the interview process (e.g., Bauer, Truxillo, Paronto, Weekley, & Campion, 2004; Chapman & Rowe, 2002; Silvester, Anderson, Haddleton, Cunningham-Snell, & Gibb, 2000).

Fourth, some studies have examined the use of Web-based systems to enhance the effectiveness of other HR processes. For instance, we know of one study on the effectiveness of electronic job analysis (Reiter-Palmon, Brown, Sandall, Buboltz, & Nimps, 2006). Also, there have been several articles on electronic compensation and benefit systems (e.g., Dulebohn & Marler, 2005; Sturman & Milkovich, 1995). Dulebohn and Marler (2005) argued that e-compensation involves the use of Web-based software tools that enable managers to effectively design, administer, and communicate compensation and benefits information. These authors maintained that the use of e-compensation tools can provide HR professionals and managers with greater access to information that can be used to increase the effectiveness of compensation programs. Some research has also assessed the use of expert or decision-support systems to increase employees' satisfaction with benefits (e.g., Sturman, Hannon, & Milkovich, 1996; Sturman & Milkovich, 1995).

Apart from studies on e-compensation, a few articles have focused on electronic performance management (e.g., Cardy & Miller, 2005). For instance, we know of at least one study that has compared the effectiveness of online and traditional performance appraisal systems (e.g., Payne, Horner, Boswell, Schroeder, & Stine-Cheyne, 2009), and a number of articles have focused on performance monitoring (e.g., Aiello, 1995). Some other research has considered the methods used to deliver online HR services (e.g., Gueutal & Falbe, 2005). Still other articles have presented theoretical models that can be used to guide the cited in Salas et al. (2005) implementation of eHRM systems (e.g., Lukaszewski, Stone, & Stone-Romero, 2008; Stone & Lukaszewski, 2009; Stone, Stone-Romero, & Lukaszewski, 2006).

In view of the relatively small amount of theory and research on eHRM, we believe that HR scholars should focus much more attention on the topic. Therefore, this special issue includes a number of very intriguing articles that can be used to guide future theory and research on eHRM. It merits noting that many of these articles include implications for HR practice and society as a whole. In the next section we provide an overview of the articles included in this special issue.

5. Overview of articles in special issue

There are a total of nine articles on eHRM in this special issue. The first article by Herman Aguinis and Sola Lawal (Aguinis & Lawal, 2012) is titled "e-Lancing: A Review and Research Agenda for Bridging the Science-Practice Gap". It focuses on a new application of eHRM, e-Lancing. e-Lancing or Internet freelancing enables employers to post jobs or projects on the Internet, and hire employees or contractors from anywhere in the world. Individuals interested in being hired for the job apply for them, and complete

the work online. Not surprisingly, e-Lancing creates some very fundamental changes in the nature of work, and alters the employer–employee relationship. The authors discuss these new relationships, and offer an agenda to guide research on the issue. The second paper titled "An Evidence Based Review of eHRM and Strategic HRM" is by Janet Marler and Sandra Fisher (Marler & Fisher, 2012). This is a very important article because it examines research on eHRM and provides evidence-based guidelines for research and practice on the relation between eHRM and strategic HR. The authors provide a very thorough review of 40 published studies on the topic, and note that there is no empirical evidence on eHRM predicting strategic outcomes. Their review highlights the need for more research on the relation between eHRM and strategic HRM at the macro-level.

The third article by Kenneth Brown and Steven Charlier provides "An Integrative Model of e-Learning Use: Leveraging Theory to Understand and Increase Usage" (Brown & Charlier, 2012). These authors integrate the theory of transtheoretical change, technology acceptance, and employee development to understand the factors that influence the use of e-learning in organizations. They also provide directions for research on e-learning and recommendations for practice. Given the widespread use of e-learning and the fact that much of the research on the topic is atheoretical, we are confident that this article will advance existing theory and research on the issue. The fourth article is titled "Factors Affecting the Effectiveness and Acceptance of Electronic Selection Systems", and is by Dianna Stone, Kimberly Lukaszewski, Eugene Stone-Romero and Teresa Johnson (Stone, Lukaszewski, Stone-Romero, & Johnson, 2012). These authors review the existing literature on e-selection systems at each stage of the selection process including job analysis, job application, employment testing, interviewing, decision-making, and validation. They also consider the potential for these new systems to have an adverse impact on protected group members and invade applicants' privacy. They offer a model and hypotheses to foster future research on the topic, and include implications for HR practice and society as a whole.

Apart from the articles described above, the subsequent article is by James Dulebohn and Richard Johnson (Dulebohn & Johnson, 2012), and is titled "Human Resource Metrics and Decision Support: A Classification Framework". In recent years organizations have begun to use HR metrics and analytics to assess the effectiveness of HR practices. Examples of metrics include percentage improvements in workforce productivity, dollars spent on HR costs, number of days key positions are vacant, and the turnover rate of newly hired employees. The authors argue that HRIS facilitates the use of HR metrics in organizations, and helps organizations make informed decisions about the selection, application, and use of HR metrics and analytics. However, there has been very limited research to guide the selection of metrics and decision support systems for different levels of HR operations and activities. In order to address this, they present a framework that informs HR decisions with respect to what metrics to use and where. They also offer propositions to promote additional research on the topic.

The sixth article in the special issue titled "How Strategic Considerations Influence Decision-Making on eHRM Applications" is by Rene Schalk, Volken Timmerman, and Sjoerd van den Heuvel (Schalk, Timmerman, & van den Heuvel, 2012). This paper examines how strategic considerations inform decision-making about the introduction of eHRM applications. The authors review three organizational examples, and note that when business drivers were absent from the decision-making process the primary role of eHRM is an infrastructure that prevents dissatisfaction. As a result, they contend that the adoption of eHRM applications needs to include business and HRM needs. They also offer propositions to bolster research on this issue.

Article seven in the special issue is titled "Employee Relationship Management—Realizing Competitive Advantage Through Information Technology", and is by Stefan Strohmeier. This paper (Strohmeier, 2012) focuses on how organizations can facilitate employee–employer relationships by using information technology. Employee relationship management (ERM) can be defined as a "strategic program and technology designed to effectively manage how organizations relate to prospective, current and former employees". For example, organizations can create information systems that increase opportunities for communicating and interacting with applicants and employees via the Internet. They can use the Web to form individualized relationships with job applicants in the recruiting process, and communicate information about career development opportunities to employees. The author offers directions for the future and practice of the issue. The next article is by Humayun Zafar, and is titled "HRIS: Information Security Concerns for Organizations". Given the increased use of eHRM there are growing concerns about the degree to which the data in these systems are secure. Little research in the field of HR has focused on this issue, but it has important implications for managing confidential employee data such as employment records, payroll and benefit data, social security numbers, and test and performance data. Information security can be defined as the protection afforded to an automated system in order to preserve the confidentiality, integrity and availability of information. The author (Zafar, 2012) modifies an existing model for creating security-based HRM systems, and offers propositions to guide research on the issue.

The final article in the special issue is by Julia Hoch and James Dulebohn. It applies principles of shared leadership in teams to enhance the implementation of ERP and HRM systems, which are often one of the ERP modules (Hoch & Dulebohn, 2012). One of the recurring challenges in information system implementation is that they have a very high failure rate, and these authors argue that project team effectiveness affects the implementation of ERPs. In addition, they contend that shared leadership in teams should enhance the implementation of these systems. Shared leadership represents a form of team leadership where the team members, rather than a single team leader, engage in leadership behaviors. They review the existing literature and present an integrative framework to describe the application of shared leadership to ERP and HRMS implementation. They also present specific propositions to encourage research on the issue.

In summary, we believe that we have compiled a very interesting set of articles on eHRM, and know that they will make a unique contribution to the literature. We want to take this opportunity to express our sincere appreciation to Rodger Griffeth, the editor of HRMR, for giving us the opportunity to edit this important issue. Rodger has always been extremely supportive, and has been there to help us at every step of the way. In addition, we want to thank all of the reviewers who spent countless hours evaluating the manuscripts, and the authors who shared such interesting papers with us. Finally, we are very grateful to Kimberly Lukaszewski who helped organize the materials for the special issue.

References

Aguinis, H., & Lawal, S. (2012). eLancing: A review and research agenda for bridging the science-practice gap. *Human Resource Management Review*.

Aiello, J. R. (1995). Electronic performance monitoring and social context: Impact on productivity and stress. *Journal of Applied Psychology*, *80*, 339–353.

Bartram, D. (2006). Testing on the Internet: Issues, challenges, and opportunities in the field of occupational assessment. In D. Bartram, & R. K. Hambleton (Eds.), *Computer-based testing and the Internet: Issues and advances* (pp. 13–37). Chichester, UK: John Wiley & Sons.

Bauer, T. N., Truxillo, D. M., Paronto, M. E., Weekley, J. A., & Campion, M. A. (2004). Applicant reactions to different selection technology: Face-to-face, interactive voice response, and computer-assisted telephone screening interviews. *International Journal of Selection and Assessment*, *12*, 135–148.

Braddy, P. W., Meade, A. W., & Kroustalis, C. M. (2009). Organizational recruitment website effects on viewers' perceptions of organizational culture. *Journal of Business and Psychology*, *20*, 525–543.

Brown, K. G. (2001). Using computers to deliver training: Which employees learn and why? *Personnel Psychology*, *54*, 271–296.

Brown, K., & Charlier, S. (2012). An integrative model of e-Learning use: Leveraging theory to understand increased usage. *Human Resource Management Review*.

Cardy, R. L., & Miller, J. S. (2005). E-HR and performance management: A consideration of the positive potential and dark side. In H. G. Gueutal, & D. L. Stone (Eds.), *The brave new world of e HR: Human Resources Management in the digital age* (pp. 138–165). San Francisco: Jossey Bass.

Chapman, D., & Rowe, P. (2002). The influence of videoconference technology and interview structure on the recruiting function of the employment interview: A field experiment. *International Journal of Selection and Assessment*, *10*, 185–197.

Dineen, B. R., & Noe, R. A. (2009). Effects of customization on application decisions and applicant pool characteristics in a web-based recruitment context. *Journal of Applied Psychology*, *94*, 224–234.

Dulebohn, J. H., & Johnson, R. (2012). Human resource metrics and decision support: A classification framework. *Human Resource Management Review*.

Dulebohn, J. H., & Marler, J. H. (2005). E-Compensation: The potential to transform practice. In H. G. Gueutal, & D. L. Stone (Eds.), *The brave new world of e HR: Human resources management in the digital age* (pp. 166–189). San Francisco: Jossey Bass.

Eddy, E. R., Stone, D. L., & Stone-Romero, E. F. (1999). The effects of information management policies on reactions to human resource information systems: An integration of privacy and procedural justice perspectives. *Personnel Psychology*, *52*, 335–358.

Gueutal, H. G., & Falbe, C. M. (2005). E-HR: Trends in delivery methods. *The brave new world of e HR: Human resources management in the digital age* (pp. 190–225). San Francisco: Jossey Bass.

Gueutal, H. G., & Stone, D. L. (2005). *The brave new world of e HR: Human resources management in the digital age.* San Francisco: Jossey Bass.

Harris, M. M., Van Hoye, G., & Lievens, F. (2003). Privacy and attitudes toward Internet-based selection systems: A cross-cultural comparison. *International Journal of Selection and Assessment*, *11*, 230–236.

Hoch, J. E., & Dulebohn, J. H. (2012). Shared leadership in enterprise resource planning and human resource management systems implementation. *Human Resource Management Review*.

Kavanagh, M., Gueutal, H. G., & Tannenbaum, S. (1990). *Human resource information systems: Development and application.* Boston: Kent Publishing.

Kavanagh, M., Thite, M., & Johnson, R. (2011). *Human resource information systems: Basics, applications, and future directions.* Thousand Oaks, CA: Sage.

Kehoe, J. F., Dickter, D. N., Russell, D. P., & Sacco, J. M. (2005). E-selection. In H. G. Gueutal, & D. L. Stone (Eds.), *The brave new world of e-HR: Human resource management in the digital age* (pp. 54–103). San Francisco: Jossey-Bass.

Lengnick-Hall, M., & Mortiz, S. (2003). The impact of e-HR on the HRM function. *Journal of Labor Research*, *24*(3), 365–379.

Lukaszewski, K. M., Stone, D. L., & Stone-Romero, E. F. (2008). The effects of the ability to choose the type of human resource system on perceptions of invasion of privacy and system satisfaction. *Journal of Business and Psychology*, *23*, 73–86.

Marler, J. H., & Dulebohn, J. H. (2005). A model of employee self-service technology acceptance. In J. Martocchio (Ed.), *Research in Personnel and Human Resource Management* (pp. 137–180). Bingley, UK: Emerald.

Marler, J. H., & Fisher, S. (2012). An evidence-based review of eHRM and strategic human resource management. *Human Resource Management Review*.

McManus, M. A., & Ferguson, M. W. (2003). Biodata, personality, and demographic differences of recruits from threes sources. *International Journal of Selection and Assessment*, *11*, 175–183.

Payne, S. C., Horner, M. T., Boswell, W. R., Schroeder, A. N., & Stine-Cheyne, K. J. (2009). Comparison of online and traditional performance appraisal systems. *Journal of Managerial Psychology*, *24*, 526–544.

Ployhart, R. E., Weekley, J. A., Holtz, B. C., & Kemp, C. (2003). Web-based and paper-and-pencil testing of applicants in a proctored setting: Are personality, biodata, and situational judgment tests comparable? *Personnel Psychology*, *56*, 733–752.

Potosky, D., & Bobko, P. (2004). Selection testing via the internet: Practical considerations and exploratory empirical findings. *Personnel Psychology*, *57*, 1003–1034.

Reiter-Palmon, R., Brown, M., Sandall, D. L., Buboltz, C., & Nimps, T. (2006). Development of an O*NET web-based job analysis and its implementation in the U.S. Navy: Lessons learned. *Human Resource Management Review*, *16*, 294–309.

Salas, E., DeRouin, R. E., & Littrell, L. N. (2005). Research-based guidelines for designing distance learning: What we know so far. In H. G. Gueutal, & D. L. Stone (Eds.), *The brave new world of e HR: Human resources management in the digital age* (pp. 104–137). San Francisco: Jossey-Bass.

Schalk, R., Timmerman, V., & van den Heuvel, S. (2012). How strategic considerations influence decision making on e-HRM applications. *Human Resource Management Review*.

Silvester, J., Anderson, N., Haddleton, E., Cunningham-Snell, N., & Gibb, A. (2000). A cross-modal comparison of telephone and face-to-face selection interviews in graduate recruitment. *International Journal of Selection and Assessment*, *8*, 16–21.

Sitzmann, T., Kraiger, K., & Stewart, D. (2006). The comparative effectiveness of web-based and classroom instruction: A meta-analysis. *Personnel Psychology*, *59*, 623–664.

Stone, D. L., & Lukaszewski, K. M. (2009). An expanded model of the factors affecting the acceptance and effectiveness of electronic human resource management systems. *Human Resource Management Review*, *19*, 134–143.

Stone, D. L., Lukaszewski, K., & Isenhour, L. C. (2005). E-recruiting: Online strategies for attracting talent. In H. G. Gueutal, & D. L. Stone (Eds.), *The brave new world of eHR: Human resources management in the digital age* (pp. 22–53). San Francisco: Jossey Bass.

Stone, D. L., Lukaszewski, K. M., Stone-Romero, E. F., & Johnson, T. (2012). Factors affecting the effectiveness and acceptance of electronic selection systems. *Human Resource Management Review*.

Stone, E. F., & Stone, D. L. (1990). Privacy in organizations: Theoretical issues, research findings, and protection strategies. In K. M. Rowland, & G. R. Ferris (Eds.), *Research in Personnel and Human Resources Management* (pp. 349–411). Greenwich, CT: JAI Press.

Stone, D. L., Stone-Romero, E. F., & Lukaszewski, K. (2003). The functional and dysfunctional consequences of human resource information technology for organizations and their employees. In D. Stone (Ed.), *Advances in human performance and cognitive engineering research* (pp. 37–68). New York: Elsevier.

Stone, D. L., Stone-Romero, E. F., & Lukaszewski, K. M. (2006). Factors affecting the acceptance and effectiveness of electronic human resource systems. *Human Resource Management Review*, *16*, 229–244.

Strohmeier, S. (2007). Research on eHRM: Review and implications. *Human Resource Management Review*, *17*, 19–37.

Strohmeier, S. (2012). Employee relationship management—realizing competitive advantage through information technology? *Human Resource Management Review*.

Sturman, M., Hannon, J. M., & Milkovich, G. T. (1996). Computer decision aids for flexible benefits decisions: The effects of an expert system and decision support system on employee intentions and satisfaction with benefits. *Personnel Psychology*, *49*, 883–908.

Sturman, M., & Milkovich, G. T. (1995). Validating expert systems: A demonstration using personal choice, expert and flexible employee benefit systems. *Decision Sciences*, *26*, 105–118.

Zafar, H. (2012). Human Resource information systems: Information security concerns for organizations. *Human Resource Management Review*.