Human Resources Management: Self-Efficacy as a Determinant of Information Technology Effectiveness

Robert Grant and Emily M. Vogt

_____

Author(s) Biography

Robert Grant is a doctoral student at Florida Institute of Technology, 150 West University Boulevard Melbourne, FL 32901 USA

Emily M. Vogt is a Professor at Florida Institute of Technology, 150 West University Boulevard Melbourne, FL 32901 USA

ABSTRACT: *Information systems are comprised of people, processes, and information technology (IT), while IT is comprised of hardware, software, and data. This paper only considered IT (hardware, software, and data) and how it is used to perform specific processes and functions within the realm of human resources management (HRM), and if such applications are considered effective. The concept of effectiveness was determined by assessing the level of influence which IT has upon employee self-efficacy relevant to completing specific HRM processes. Ultimately, a compilation of the literature revealed the potential for information systems to negatively affect an employee's self-efficacy. However, no conceptual evidence was found in the literature to indicate IT negatively impacted an employee's self-efficacy suggesting information system ineffectiveness may result from automating ineffective processes.*

Keywords: Self-efficacy, human resources management, information technology.

_____

IT has changed the way businesses perform human resource management (HRM) processes. The IT structure is comprised of hardware, software, and data in comparison to information systems, which are comprised of people, processes, and IT (Kroenke, 2014). The purpose of this conceptual paper is to evaluate the effectiveness of using IT within the employee recruitment, training and development, and performance management and appraisal processes typically found within HRM. Three processes relevant to the scope of this paper include: (1) Recruitment, (2) Training and Development, and (3) Performance Management and Appraisals. Within each of these processes the effectiveness of IT is evaluated based on the potential for an employee's self-efficacy to be negatively influenced solely by the use of IT. In order to remain focused on the human, who is affected by the introduction of IT within HRM, the primary determinant of effectiveness should relate to employee behavior. Therefore, the effectiveness of using IT to support employee recruitment, training and development, and performance management will be gauged on the potential for influencing employee self-efficacy.

Literature Review

Self-Efficacy

Social cognitive theory adheres to an understanding of three determinants: (1) Personal, (2) Environmental, and (3) Behavioral, which contribute to the concept of the "triadic reciprocal causation" whereas "human functioning is a product of the interplay of intrapersonal influences, the behavior individuals engage in and the environmental forces that impinge upon them" (Bandura, 1986; Bandura, 2012). Stemming from social cognitive theory, self-efficacy refers to the perception an individual maintains about his/her ability to cope with a given activity (Bandura, 2006, 2008). More specifically, an individual's level of self-efficacy can also influence their choice of location (Bandura, 1977). Self-efficacy does not imply actually having the capability necessary to successfully cope with a given activity or location, but rather one's own perception of being able to cope. Bandura (1977) suggested a person's level of self-efficacy can be influenced by physiological states, vicarious experiences, performance accomplishments, and verbal persuasions.

Physiological states refer to the emotional arousal within an individual when attempting to cope with a situation which has been perceived as threatening (Bandura, 1977). According to Bandura (1977), high arousal as a result of agitation typically degrades an individual's performance. An organization's recruitment process has the potential to arouse emotions within both the recruiter and the job candidate, altering their physiological state and influencing their level of self-efficacy.

Individuals who increase their competency by observing others performing similar tasks are doing so through vicarious experiences. Increased competence within a domain can lead to increased levels of self-efficacy (Blanton, Schambach, & Trimmer, 1998). Training and development courses often share information through activities which involve watching others perform similar tasks, creating a vicarious experience and potentially influencing an employee's level of self-efficacy.

Performance accomplishments refer to achievements which an individual has experienced in their past. Individuals who have had positive experiences may have higher levels of self-efficacy than individuals lacking positive experiences. A study conducted by Achterkamp, Hermens, and Vollenbroek-Hutten (2015) showed subjects experienced an increase in self-efficacy when they received feedback which suggested their assigned tasks were completed within established parameters. Lim (2001) indicated people who are presumed to have specific skills within a domain (e.g., computer skills) but lacked the experiences necessary to acquire those skills may have lower levels of self-efficacy within those specific domains. Performance management programs within an organization monitor employee performance and are capable of discovering performance achievements, trends, and shortfalls. An employee's perception of their past experiences can influence their self-efficacy (Bandura, 1977).

Verbal persuasions such as words of encouragement given to employees attempting to accomplish new tasks can increase levels of self-efficacy. Lamarche, Gionfriddo, Cline, Gammage, and Adkin (2014) conducted a study to determine the effect of verbal persuasion on task choice, and concluded that subjects who received positive feedback chose the most challenging tasks whereas subjects who received poor feedback chose the least difficult tasks. Verbal persuasions may also be used to influence an individual's behavior especially if the behavior is prompted by expected outcomes. According to Locke, Frederick, Lee, and Bobko (1984), "self-efficacy has the only direct effect on goal choice" (p. 248). The potential for appraisal programs within an organization to influence self-efficacy levels of the employees seems possible.

Human Resource Management

HRM encompasses the policies, procedures, and processes implemented across all levels of an organization for recruiting, selecting, training, promoting, compensating, motivating, inspiring, developing, disciplining, retaining, and releasing individuals in order to meet the strategic objectives of the organization (Broderick & Boudreau, 1992; Ulrich & Dulebohn, 2015). Recruiting, selecting, retaining, and motivating employees have been identified by line managers as critical processes determining the success of an organization (Sikora & Ferris, 2014; Wright, McMahan, Snell, & Gerhart, 2001). Managers charged with making decisions pertaining to human capital must do so using the same rigor used in making strategic business decisions (Boudreau & Lawler, 2014). Human resource managers who act as change agents actively advise managers throughout their organization on the best practices available for managing employees (Alfes, Truss, & Gill, 2010). Chapman and Webster (2003) indicated organizations focused on growth which have embraced a dynamic culture are more likely to implement emerging IT within their HRM department than organizations which exhibit cautious behavior and place a high value on personal relationships. Asadullah, Peretti, Ali, and Bourgain (2015) recognized that often HRM practices become more complex as the organization increases in size. Sikora and Ferris (2014) stated organizations which implement effective human resource processes can significantly improve their operational performance.

Human Resource Information Systems

Human resource information systems enable the organization "to gather, store and analyze workforce data and to increase the availability and flow of this information" (Grant & Newell, 2013, p. 187). According to Broderick and Boudreau (1992), managers often request human resource information in order to determine factors which could impact organizational objectives. However, the benefits of using human resource information systems were contained within the human resource department (Heikkilä, 2013). Moore (2013) suggested organizations which are considering human resource information systems should consider integrating the system with information systems used across the organization such as time and expense systems.

Electronic HRM

Systems integration and availability of information to all internal and external stakeholders has made electronic HRM systems very appealing to organizations (Stone & Dulebohn, 2013). According to Marler and Fisher (2013), the goals for adopting electronic HRM systems were to reduce costs by streamlining HRM processes and deliver improved services to stakeholders. Ruël, Bondarouk, and Van der Velde (2007) indicated the perceived quality of an electronic HRM system within an organization is influenced by its effectiveness to support technical and strategic HRM functions. Skeptics of electronic HRM systems have shown discontent with, and resistance toward, the transforming of business processes from face-to-face transactions to technology-based self-service catalogs (Burbach & Royle, 2014; Heikkilä, 2013). Proponents of electronic HRM systems have suggested the efficiencies gained through process automation may shift HRM toward a strategic role within an organization (Parry & Tyson, 2011). Boudreau and Lawler (2014) noted an increase in the use of technology within the HRM profession but found very little had changed in the way organizations utilized HRM functions.

Conceptual Development and Assessment Method

Employee self-efficacy is examined in an attempt to determine IT effectiveness in supporting HRM functions. IT includes the hardware, software, and data elements of an information system (Kroenke, 2014). However, in order to evaluate the effectiveness of IT as a whole, all variations between possible alternatives such as manufacturer, implementation, and quality of service must be excluded. The focus of the assessment is on the effectiveness of IT in supporting a HRM function and not on the effectiveness of any one solution.

There is a significant amount of literature (e.g., Ruël et al., 2007; Stone et al., 2015; Ulrich & Dulebohn, 2015) which addresses the efficiencies gained through automation of HRM functions, although as mentioned by Stone et al. (2015) little has been done to measure effectiveness. The concept of using employee self-efficacy as a means to evaluate the effectiveness of IT within HRM has been introduced as a first step to address the lack of literature on the topic, and prompt conversation pertaining to alternative methods for determining IT effectiveness within HRM. While other equally important stakeholders exist—such as customers, investors, community, and line managers—only an employee's self-efficacy will be considered (Ulrich & Dulebohn, 2015). The discussion has been constrained to the potential effects on an employee's self-efficacy because organizations typically adopt IT to improve performance and IT which negatively affects employee self-efficacy would be contrary to improving performance. *Effectiveness* can be defined as having a beneficial effect toward accomplishing a process within an organization without imposing negative consequences upon the organization or its workforce (Ruël et al., 2007). Applying the definition of

effectiveness within the context of HRM produced the following criteria for using self-efficacy as a determinant of IT effectiveness; if IT negatively influences an employee's self-efficacy toward accomplishing a specific task then IT will be considered ineffective otherwise IT will be considered effective.

Discussion

Employee self-efficacy will be assessed as it pertains to the performance of a particular task within a functional area of HRM. Three processes relevant to the scope of this paper include recruitment, training and development, and performance management and appraisals. Within each of these processes, the effectiveness of IT will be evaluated based on the potential for an employee's self-efficacy to be negatively influenced solely by the use of IT.

The functions assessed are relevant because many organizations have delegated them to the line manager (Farndale & Kelliher, 2013; Sikora & Ferris, 2014). Just as Heraty and Morley (1998) postulated, line managers have assumed responsibilities once reserved for human resource specialists. This section of the paper introduces processes impacting HRM. The first process discussed focuses on an employee's ability to determine a job candidate's potential to fit within the organization's workforce. The second process discussed pertains to an employee's ability to gain competence through a training and development program provided by the organization. The third and final process discussed includes an employee's ability to attain success within an organization by participating within a performance management and appraisal process.

Recruitment Process

The recruitment process involves identifying and selecting the human resources necessary to sustain an organization's competitive advantage (Heraty & Morley, 1998). According to Judge and Ferris (1994), traditional recruitment and selection practices focused on aligning the qualifications of a candidate with the requirements of available positions within the organization. The suitability of an employee candidate was determined by the alignment of goals between the organization and the candidate (Heraty & Morley, 1998). Suitable employees possessed the necessary qualification and maintained values which "fit" within the organization (Chatman, 1989). Employees who fit within an organization were less likely to leave the organization.

The recruitment process has changed considerably over the last two decades. Simply aligning

the qualifications of an employee to the requirements of an available job are no longer sufficient in determining "employee fit" within an organization. An individual's employability is influenced by factors which extend beyond the simple alignment between qualifications and available positions within the organization, and includes personality traits such as professional expertise, optimism, flexibility, and corporate awareness (Van Der Heijde & Van Der Heijde, 2006). Organizational recruiters tasked with discovering employee candidates and determining whether or not the candidates will fit within the organization using the traditional approach, are less likely to determine organizational fit than employee who use IT to assess employee candidates across multiple dimensions.

Figure 1. The influence of IT within the recruitment process

Information Technology
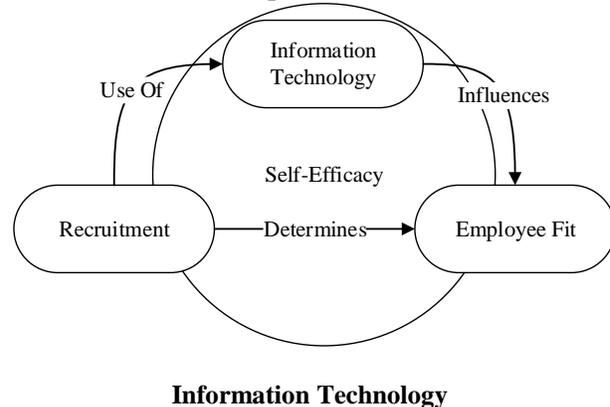
Recruiters have embraced the use of social media to facilitate recruitment and selection activities. According to Doherty (2010), the amount of personal information available to recruiters on social media sites exceeds that which is typically contained within a traditional resume and is more likely to be current. Organizations using social media have the ability to discover and contact passive individuals who are highly desirable but may otherwise be inaccessible because they are not actively pursuing employment opportunities. Organizations attempting to contact passive candidates rely heavily on social media technology (Doherty, 2010). According to Madia (2011), social media offers organizations an efficient method for recruiting employees and provides recruiters with more control over the process of posting a job.

Electronic selection systems facilitate the management of employee candidate pools, streamline selection processes, and integrate with downstream applications improving the over-all efficiency of the selection process (Stone, Lukaszewski, Stone-Romero, & Johnson, 2013). According to Stone et al. (2013),

interactive voice response systems are also being used by organizations to collect applicant information and to facilitate the candidate selection process. Asadullah et al. (2015) discovered larger organizations expend more resources on pre-employment screening and expend only minimal resources on employee monitoring activities. Larger organizations appear to be seeking self-monitoring and self-correcting individuals. Organizations which are determining an individual's employability by considering factors which go beyond the alignment between the qualifications of a candidate and the requirements of an available job have evolved their recruiting process beyond traditional recruiting practices.

Employee Self-Efficacy

The use of IT to facilitate the recruitment and selection processes within an organization can lead to process efficiencies which create larger candidate pools and improve the likelihood of selecting a candidate who fits within the organization (Chapman &Webster, 2003). IT seems to positively influence an employee's ability to determine the likelihood that an employee candidate will fit within the organization during the recruitment process. Recruitment activities seem to have a higher potential for success when the recruitment process includes the use of IT (Stone et al., 2015). A higher potential for success indicates a higher likelihood of meeting performance goals which can have a positive influence on employee self-efficacy.

Organizational recruiters will likely possess varying aptitudes in using IT to support the recruitment process. However, the ubiquity of social media and pervasiveness of global labor markets necessitate the use of IT in order to attract a workforce which is valuable and hard to imitate (Barney, 1991). There is no indication that the physiological state of an employee will be positively or negatively impacted simply by using IT to facilitate recruitment activities and determine whether an employee candidate will fit within the organization.

Vicarious experiences made possible through the use of IT may provide insight into the recruitment activities of rival organizations. Organizational recruiters who access social media services and identify open positions within their rival organizations can extrapolate the type of workforce being sought by their competition. In addition, broadcasts within social media sites can also provide insight into recruitment opportunities which may have otherwise gone unnoticed. The insight into rival activities gained through the use of IT may positively impact employee self-efficacy.

There is no indication that the use of IT within the recruitment process will by itself prompt verbal persuasions. Given the situations discussed, no conceptual evidence has been produced to support a positive or negative influence to self-efficacy through verbal persuasions. The use of IT does not appear to negatively impact employee self-efficacy within the recruitment process and is therefore considered effective.

Training and Development Process

Training and development programs are typically designed to enhance the capabilities within an existing workforce and improve the output quality of goods and services produced by the workforce. According to Asadullah et al. (2015), organizations invest in employee training and development programs to improve the productivity of their employees. Training and development programs account for a considerable amount of an organization's investments in human capital (Hansson, 2007). Organizations must invest in capabilities which facilitate learning and continuous improvement efforts within the workplace if they wish to remain competitive within their industry (Ubeda-Garcia, Marco-Lajara, Sabater-Sempere, & Garcia-Lillo, 2013). Organizations use training and development programs as one method for improving the effectiveness of their employees (Rama Devi & Phanindra, 2014). Larger organizations seem to know this best because according to Asadullah et al. (2015), large organizations invest in training and development programs more heavily than smaller organizations.

Employee competence has been identified as an employability factor which organizations are beginning to recognize as favorable because of its link to talent (Nilsson & Ellstrom, 2011). Knowledge intensive organizations have realized that the future success of an organization depends upon its employees, making people the most important resource within an organization (Nilsson & Ellstrom, 2011). Organizations favor retraining initiatives which focus on retaining talented employees and reducing recruitment costs (Heraty & Morely, 1998). Talented employees are no longer focused on job security within an organization, but rather they are focused on employability and lifelong learning (Nilsson & Ellstrom, 2011). Training development programs within an organization can improve employee competence and some organizations have adopted IT as a means to increase the effectiveness of the training.

Figure 2. The influence of IT within the training and development process

Information Technology
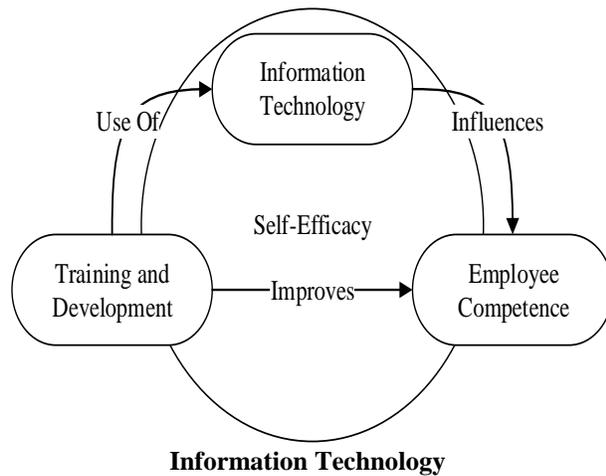
Training and development is one mechanism through which employees improve their knowledge, skills, and abilities which are relevant to job competence and performance (Stone et al., 2015). Training can be received through use of a traditional classroom setting, through a variety of electronic learning options, or a combination of both approaches. Computer-based training systems are ideal when an organization must disseminate standardized training or information across a large number of employees. A study conducted by Malmskold, Ortengren, and Svensson (2015) to gauge the effectiveness of using computer-based training to improve automobile production quality clearly indicated improvements in quality for the group which receive the computer-based training as opposed to the group which received regular training.

Learning management systems are generally used when learning requires some level of instructor interaction or monitoring to maximize the learning experience. Academic institutions typically invest in learning management systems to deliver an electronic learning experience to their students. Alavi, Marakas, and Yoo (2002) suggested that the incidental learning which must take place in order to navigate through a learning management system can sometimes overshadow the essential learning which must take place in order for students to successfully pass a course. Conversely, Johnson, Gueutal, and Falbe (2009) found electronic learning systems favorable because physical constraints can be removed, allowing students to control their learning environment.

Employee Self-Efficacy

An employee's self-efficacy can be positively influenced through performance accomplishments (Bandura, 1977) and IT can help some employees achieve training and development goals by giving them control over their learning experience (Johnson et al., 2009). However, not all trainees are capable of maximizing control over their learning experience which may force them to alter their training habits (Johnson et al., 2009). Some employees may dislike using IT when attempting to accomplish organizational training and development courses, but this is likely due to already having low general computer self-efficacy (Johnson et al., 2009).

Some apprehension is to be expected when an employee is faced with a new learning environment. However, additional research is required in order to determine if the apprehension is a result of attending training, fear of failing, or produced solely because IT was used to deliver the training. Discarding arguments pertaining to the quality of training which are outside the scope of this paper, no evidence was discovered within academic literature to suggest the use of IT within a training and development program designed to improve an employee's level of competence negatively affects an employee's physiological state. According to Bandura (1977), "the strength of people's convictions in their own effectiveness is likely to affect whether they will even try to cope with given situations" (p. 193).

Richardson and Swan (2003) acknowledged the use of IT to deliver training can lack the social contact necessary to maximize learning through vicarious experiences. Learning management systems, which support collaboration and facilitate communication between trainees, have been shown to lessen the feeling of isolation commonly associated with computer-based training (Johnson et al., 2009; Moore, 1989). In addition, training delivered via electronic learning systems can lessen the chance for verbal persuasions to positively impact an employee's self-efficacy. While feelings of isolation may exist due to the manner in which training is conducted, there is no indication that lack of vicarious experiences or verbal persuasions during the training session is a direct result of the use of IT. The use of IT does not appear to negatively impact employee self-efficacy within the training and development process and is therefore considered effective.

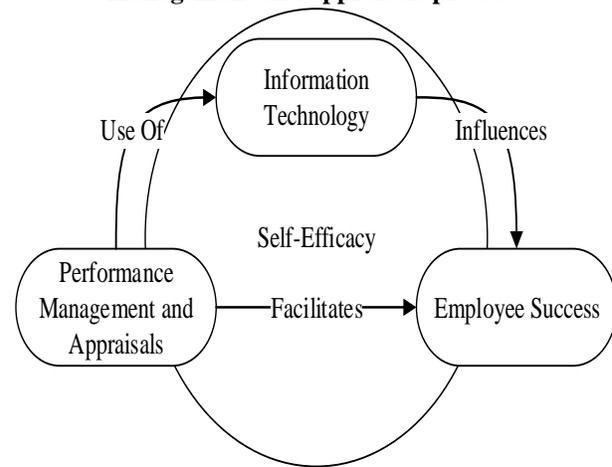**Performance Management and Appraisals Process**

The performance management and appraisal process provides organizations with a method to monitor and maintain the alignment between an organization's business strategy and their workforce, and provide a method for evaluating and correcting an employee's

performance. The main purpose for adopting a performance management and appraisal process is to "increase organizational effectiveness and productivity" (Spinks, Wells, & Meche, 1999, p. 94). Performance management is primarily concerned with the performance of the organization's workforce, whereas performance appraisals are primarily concerned with evaluating the performance of individuals within the organization's workforce.

Performance appraisals provide an opportunity for employees to receive feedback pertaining to performance as interpreted by management (Spinks et al., 1999). According to Spinks et al. (1999), many employees develop a dislike for performance appraisal processes because of the uncertainty involved and the potential for a subjective appraisal rating to affect their income. Organizations have started to break away from the traditional approach of linking rewards to subjective performance appraisals (Rowland & Hall, 2012). Instead, organizations are using appraisals to identify areas where additional training may be required (Rowland & Hall, 2012). A study conducted by Farndale and Kelliher (2013) demonstrated that line managers who use performance appraisals could positively influence employee commitment within the organization. However, some managers refuse to provide positive feedback to their employees because they fear it will lead to complacency and negatively affect job performance (Spinks et al., 1999).

The effectiveness of an employee appraisal session is determined by the employee's perception of fairness (Farndale & Kelliher, 2013). The manner in which an employee appraisal is conducted, and the communication established between employee and manager, influences the employee's perception of fairness (Farndale & Kelliher, 2013). Organizations which engage in a performance management and appraisal process share job performance information with employees. Spinks et al. (1999) stated "employees need to know where they stand concerning their job performances in an organization" (p. 94). Performance management and appraisal processes within an organization can facilitate employee success and the use of IT can influence that success by providing performance data to employees.

Figure 3. The influence of IT within the performance management and appraisals process

Information Technology

Performance management and appraisal processes can utilize IT to facilitate performance measurement and performance feedback activities within an organization (Stone et al., 2015). Less advanced options may only facilitate the writing of performance appraisals (Spinks et al., 1999), whereas more sophisticated options my support tracking an employee's performance throughout an evaluation period (Stone et al., 2015). IT which supports enterprise class processes can perform workforce modeling, data aggregation and trending, performance reporting, and continuous monitoring of performance throughout the entire organization (Kapoor & Sherif, 2012).

Employee Self-Efficacy

Employees who lack access to performance feedback data will likely continue performing at their current rate. When employees have access to performance data, they are better equipped to implement actions which can help ensure their success within an organization. Without access to performance feedback, employees may develop low morale and lack a sense of accomplishment. When employees lack a sense of accomplishment, their self-efficacy can be negatively impacted. The use of IT to facilitate collection and dissemination of performance information may positively influence an employee's chance for success within the organization.

An organization's approach to the performance appraisal process seems more likely to impact the physiological state of an employee than the adoption of IT to support the process. Kanij, Grundy, and Merkel (2014) discovered some organizations used the same appraisal criteria for all employees and others tailored appraisal criteria for each of their individual career disciplines. Appraisal theory suggests that an employee's emotions are triggered through their

interpretations of an event and not necessarily the event (Fisher, Minbashian, Beckmann, & Wood, 2013). If an employee interpreted the criteria used in the rating process as unfair, then there may be a change in their physiological state. However, there is no indication that the use of IT within the performance appraisal process negatively affects an employee's physiological state.

There is no indication that vicarious experiences will be encountered by employees participating in a performance management and appraisal process. However, employees are likely to experience verbal persuasions while participating in a performance management and appraisal process which may affect their level of self-efficacy toward achieving success within the organization. If automated performance appraisals and results are distributed to employees without manager involvement there is potential for employees to misinterpret performance feedback. Smither, London, Reilly, Flautt, Vargas, and Kucine (2004) found that performance feedback and suggestions for improvement were not enough to guarantee an improvement in employee performance which suggested additional actions must be taken by the employee in order to attain success. The introduction of IT to support an organization's performance management and appraisal process does not seem to influence an employee's chance for vicarious experiences or directly impact the potential for verbal persuasions. The use of IT does not appear to negatively impact employee self-efficacy within the performance management and appraisal process and is therefore considered effective.

Limitations and Guidelines for Future Research

IT was assessed to determine the potential for negatively affecting an employee's self-efficacy toward accomplishing a HRM process as a means to determine the effectiveness of the IT influencing the process. The assessment was purely conceptual and excluded all variations normally found between competing IT options capable of supporting the HRM processes discussed. Specific IT options were not compared against each other to determine the most effective product for each process introduced.

Additional research focused on evaluating the effectiveness of using IT within HRM is needed to add to the body of literature (Stone, Deadreick, Lukaszewski & Johnson, 2015). The contribution and value of this paper is taking the first step toward determining IT effectiveness within HRM. The literature suggests real issues exist pertaining to the use of IT within HRM. These issues are not specific to IT, but rather specific

applications which have been implemented to automate processes within the organization. Future research could involve evaluating specific HRM functions and determining the ideal processes for accomplishing each of those functions.

Additional studies might consider the degree of accuracy which has been achieved in automating the ideal processes for a given function within HRM. Future researchers should consider performing workplace observations or questionnaires designed to collect qualitative and quantitative data pertaining to the effects of IT solutions on employee self-efficacy. The data could be used to develop scoring models capable of comparing process effectiveness across various solutions and assist information system designers in creating solutions which positively influence employee self-efficacy. In particular the measurement of self-efficacy could be explored and better understood through qualitative methods such as interviews and focus groups.

Conclusion and Recommendations

The purpose of this paper was to determine if the use of IT to support the automation of specific HRM processes could be considered effective. The results seem to indicate that IT by itself does not negatively impact an employee's self-efficacy toward accomplishing a task and can therefore be considered effective. IT was defined as the hardware, software, and data within an information system, and was considered void of differentiating attributes which could have affected the perception of effectiveness.

IT was evaluated using four factors known to affect self-efficacy. Three specific processes were considered where IT is being used to automate activities within HRM. IT was determined to be effective in supporting the three processes discussed. The findings do not suggest all types of IT are effective within all HRM processes. The implementation of a particular IT or the quality of service provided by the technology may cause it to be ineffective for the process it is attempting to support. IT solutions which may be considered very effective within one organization may be considered completely worthless within another organization. Therefore the results of this assessment seem to indicate that it is not the IT which negatively affects employee self-efficacy but could potentially be the processes which have been automated using IT.

References

1. Achterkamp, R., Hermens, H. J., & Vollenbroek-Hutten, M. M. R. (2015). *Computers in Human Behavior, 52*, 419-423.

2. Alavi, M., Marakas, G. M., & Yoo, Y. (2002). A comparative study of distributed learning environments on learning outcomes. *Information Systems Research, 13*, 404-415.

3. Alfes, K., Truss, C., & Gill, J. (2010). The HR manager as change agent: Evidence from the public sector. *Journal of Change Management, 10*(1), 109-127.

4. Asadullah, M. A., Peretti, J. M., Ali, A. G., & Bourgain, M. (2015). Firm size, ownership, training duration and training evaluation practices. *European Journal of Training and Development, 39*(5), 429-455.

5. Baker, N. (2010). Employee feedback technologies in the human performance system. *Human Resource Development International, 13*(4), 477-485.

6. Bandura, A. (1977). Self-efficacy: Toward a unifying theory of behavioral change. *Psychological Review, 84*(2), 191-215.

7. Bandura, A. (2006). Toward a psychology of human agency. *Perspectives on Psychological Science,* 1: 164-180.

8. Bandura, A. (2008). The reconstrual of "free will" from the agentic perspective of social cognitive theory. In J. Baer, J.C. Kaufman, & R. F. Baumeister (Eds.), *Are we free? Psychology and free will:* 86-127. Oxford, UK: Oxford University Press.

9. Bandura, A. (2012). On the functional properties of perceived self-efficacy revisited. *Journal of Management, 38*(1), 9-44.

10. Barney, J. B. (1991). Firm resources and sustained competitive advantage. Journal of Management, 17(1), 99-120.

11. Blanton, E. J., Schambach, T., & Trimmer, K. J. (1998). Factors affecting professional competence of IT professionals. *ACM SIGCPR Computer Personnel, 19*(3), 4-19.

12. Boudreau, J., & Lawler, E. E. (2014). Stubborn traditionalism in HRM: Causes and consequences. *HRM Review, 24*(3), 232-244.

13. Broderick, R. & Boudreau, J. W. (1992). HRM, IT, and the competitive edge. *HRM, 6*(2), 7-17.

14. Burbach, R., & Royle, T. (2014). Institutional determinants of e-HRM diffusion success. *Employee Relations, 36*(4), 354-375.

15. Chapman, D. S., & Webster J. (2003). The use of technologies in the recruiting, screening, and selection processes for job candidates. *International Journal of Selection and Assessment, 11*(2/3), 113-120.

16. Chatman, J. A. (1989). Improving interactional organizational research: A model of person-organization fit. *The Academy of Management Review, 14*(3), 333-349.

17. Doherty, R. (2010). Getting social with recruitment. *Strategic HR Review, 9*(6), 11-15.

18. Farndale E., & Kelliher, C. (2013). Implementing performance appraisal: Exploring the employee experience. *HRM, 52*(6), 879-897.

19. Fisher, C. D., Minbashian, A., Beckmann, N., & Wood, R. E. (2013). Task appraisals, emotions, and performance goal orientation. *Journal of Applied Psychology, 98*(2), 364-373.

20. Grant, D., & Newell, S. (2013). Realizing the strategic potential of e-HRM. Journal of Strategic Information Systems, 22(3), 187-192.

21. Hansson, B. (2007). Company-based determinants of training and the impact of training on company performance. *Personnel Review, 36*(2), 311-331.

22. Heikkilä, J. P. (2013). An institutional theory perspective on e-HRM's strategic potential in MNC subsidiaries. *Journal of Strategic Information Systems, 22*(3), 238-251.

23. Heraty, N., & Morley, M. (1998). In search of good fit: policy and practice in recruitment and selection in Ireland. *Journal of Management Development, 17*(9), 662-685.

24. Johnson, R. D., Gueutal, H., & Falbe, C. M. (2009). Technology, trainees, metacognitive activity and e-learning effectiveness. Journal of Managerial Psychology, 24(6), 545-566.

25. Judge, T., & Ferris, G. (1994). The elusive criterion of fit in human resources staffing decisions. *Human Resource Planning, 15*(4), 47-66.

26. Kanij, T., Grundy, J., & Merkel, R. (2014). Performance appraisal of software testers. *Information and Software Technology, 56*, 495-505.

27. Kapoor, B., & Sherif, J. (2012). Global human resources (HR) information systems. *Kybernetes, 41*(1/2), 229-238.

28. Kroenke, D. M. (2014). *MIS Essentials* (4th ed.). Upper Saddle River, NJ: Pearson.

29. Lamarche, L. Gionfriddo, A. M., Cline, L. E., Gammage, K. L., & Adkin, A. L. (2014). What would you do? The effect of verbal persuasion on task choice. *Gait & Posture, 39*(1), 583-587.

30. Lim, C. K. (2001). Computer self-efficacy, academic self-concept, and other predictors of satisfaction and future participation of adult distance learners. *American Journal of Distance Education, 15*(2), 41-51.

31. Locke, E. A., Frederick, E., Lee, C., & Bobko, P. (1984). Effect of self-efficacy, goals, and task strategies on task performance. *Journal of Applied Psychology, 69*(2), 241-251.

32. Madia, S. A. (2011). Best practices for using social media as a recruitment strategy. *Strategic HR Review, 10*(6), 19-24.

33. Marler, J. H., & Fisher, S. L. (2013). An evidence-based review of e-HRM and strategic HRM. *HRM Review, 23*(1), 18-36.

34. Malmskold, L., Ortengren, R., & Svensson, L. (2015). Improved quality output through computer-based training: An automotive assembly field study. *Human Factors and Ergonomics in Manufacturing & Service Industries, 25*(3), 304-318.

35. Moore, M. G. (1989). Three types of interaction. *American Journal of Distance Education, 3*(2), 1-6.

36. Moore, R. (2013). Choosing HR software: How technology is changing the way HR works. *Strategic HR Review, 12*(3), 157-158.

37. Nilsson, S., & Ellstrom, P. (2011). Employability and talent management: challenges for HRD practices. *European Journal of Training and Development, 36*(1), 26-45.

38. Parry, E., & Tyson, S. (2011). Desired goals and actual outcomes of e-HRM. *HRM Journal, 21*(3), 335-354.

39. Rama Devi, V., & Phanindra, R. (2014). Employees' perception of effectiveness of training and development in private sector banks. *Advances in Management, 7*(4), 16-20.

40. Richardson, J. C., & Swan, K. (2003). Examining social presence in online courses in relation to students' perceived learning and satisfaction. *Journal of Asynchronous Learning Networks, 7*, 68-88.

41. Rowland, C. A., & Hall, R. D. (2012). Organizational justice and performance: is appraisal fair?. *EuroMed Journal of Business, 7*(3), 280-293.

42. Ruël, H. J., Bondarouk, T. V., & Van der Velde, M. (2007). The contribution of e-HRM to HRM effectiveness: Results from a quantitative study in a Dutch ministry. *Human Relations, 29*(3), 280-291.

43. Sikora, D. M., & Ferris, G. R. (2014). Strategic human resource practice implementation: The critical role of line management. *HRM Review, 24*(3), 271-281.

44. Smither, J. W., London, M., Reilly, R. R., Flautt, R., Vargas, Y., & Kucine, I. (2004). Discussing multisource feedback with raters and performance improvement. *Journal of Management Development, 23*, 456-468.

45. Spinks, N., Well, B., & Meche, M. (1999). Appraising the appraisals: Computerized performance appraisal systems. *Career Development International, 4*(2), 94-100.

46. Stone, D. L., & Dulebohn, J. H. (2013). Emerging issues in theory and research on electronic HRM (eHRM). *HRM Review, 23*(1), 1-5.

47. Stone, D. L., Lukaszewski, K. M., Stone-Romero, E. F., & Johnson, T. L. (2013). Factors affecting the effectiveness and acceptance of electronic selection systems. *HRM Review, 23*(1), 50-70.

48. Stone, D. L., Deadrick, D. L., Lukaszewski, K. M., & Johnson, R. (2015). The influence of technology on the future of HRM. *HRM Review, 25*(2), 216-231.

49. Ubeda-Garcia, M., Marco-Lajara, B., Sabater-Sempere, V., & Garcia-Lillo, F. (2013). Does training influence organisational performance?: Analysis of the Spanish hotel sector. *European Journal of Training and Development, 37*(4), 380-413.

50. Ulrich, D. & Dulebohn, J. H. (2015). Are we there yet? What's next for HR?. *HRM Review, 25*(2), 188-204.

51. Van Der Heijde, C. M., & Van Der Heijde, B. I. (2006). A competence-based and multidimensional operationalization and measurement of employability. *HRM, 45*(3), 449-476.

52. Wright, P. M., McMahan, G. C., Snell, S. A., & Gerhart, G. (2001). Comparing line and HR executives' perceptions of HR effectiveness: Services, roles and contributions. *HRM, 40*(2), 111–123.