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Enterprise Social Media Use and Impact on Performance: The Role of Workplace Integration and Positive Emotions

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Abstract:

Organizations struggle to find ways to improve employees' performance. To date, little research has empirically examined the relationship between enterprise social media use and knowledge workers' performance. Using social capital theory and the broaden-and-build theory of positive emotions as our theoretical framework, we investigate the relationship between enterprise social media use and knowledge workers' performance. We tested our research model by collecting data from employees working for a large information technology firm in the Midwestern United States and analyzing the data using a structural equation modeling approach. The results suggest that enterprise social media use can increase workplace integration, which further enhances performance directly and indirectly through positive emotions. Enterprise social media use also has a direct relationship with performance. The paper concludes with practical and theoretical implications.

Keywords: Social Media, Enterprise Social Media, Knowledge Sharing, Job Performance, Workplace Isolation, Workplace Integration, Positive Emotions, Innovative Performance, Social Capital Theory.

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1 Introduction

While most practitioners recognize that knowledge workers' job performance is critical to an organization's success and competitive advantage, many organizations still struggle to get the most out of their employees: for example, a Gallup study (Crabtree, 2013) reports that only 30 percent of employees in the US are reaching their full potential at the workplace. Searching for additional means to improve performance, some managers have turned to enterprise social media (ESM) for knowledge management (Kane, Majchrzak, Ives, & Brown, 2010; Leonardi, 2014; Majchrzak, Faraj, Kane, & Azad, 2013), which refers to:

Web-based platforms that allow workers to (1) communicate messages with specific coworkers or broadcast messages to everyone in the organization; (2) explicitly indicate or implicitly reveal particular coworkers as communication partners; (3) post, edit, and sort text and files linked to themselves or others; and (4) view the messages, connections, text, and files communicated, posted, edited and sorted by anyone else in the organization at any time of their choosing. (Leonardi, Huysman, & Steinfield, 2013, p. 2).

Leonardi et al. (2013) clearly differentiate ESM from public social media: the latter supports organizational communication with *external* parties, such as vendors, customers, and the public at large. In this paper, we focus on ESM, which refers to social media used in an enterprise to support *internal* communication and social interaction. Unlike public social media that crosses various platforms (e.g., Facebook and Twitter), ESM uses an integrated platform to support a variety of functions, such as posting updates on work projects; sharing information with colleagues about organizational objectives, policies, and procedures; sharing expertise with others; and gaining access to others' expertise (Gonzalez, Leidner, Riemenschneider, & Koch, 2013).

McKinsey and Company (Chui et al., 2012) has hyped the use of social media in general as a key mechanism to improve productivity among knowledge workers by facilitating collaboration and efficient communication internally and externally. Nevertheless, skepticism remains strong in other venues (Turel & Serenko, 2012). Critics suggest that, while social media might make knowledge workers highly engaged, such usage might also lead to negative outcomes such as addiction (Turel & Serenko, 2012), a waste of valuable paid-work time (Accountemps, 2010; Shepherd, 2011), and tensions that might lead to closedness (Gibbs, Rozaidi, & Eisenberg, 2013). Hence, we clearly need more research to assess whether knowledge workers' ESM use can lead to better job performance.

Disagreements over the relationship between social media use and knowledge worker job-related outcomes persist in part because the literature lacks an integrated model that examines reactions to social media in light of the social capital and positive emotions context. In this paper, we propose such a model, one that recognizes that workers' usage of ESM can be a source of workplace integration and positive emotions that can broaden their personal resources (Fredrickson, 1998) to perform their jobs well.

We argue that ESM is an information system platform that supports human resources through facilitating integration and positive emotions in the workplace, which further enhances worker performance. Social networks can extend human resource capabilities by: 1) facilitating cross-functional collaboration and access to in-house knowledge and expertise (Chow & Chan, 2008; Cross, Nohria, & Parker, 2002), 2) offering a medium for informal social interaction and communication unrestricted by organizational hierarchy (Chui et al., 2012; Karoui, Duzdert, & Leidner, 2014), 3) improving socialization among new hires (Gonzalez et al., 2013), and 4) onboarding (Eschenbrenner & Nah, 2013; Eschenbrenner, Nah, & Telaprolu, 2015; Holtzblatt, Drury, Weiss, Damianos, & Cuomo, 2013). For example, knowledge workers may gain positive emotions such as pride when they use the ESM platform to offer their expertise in solving a problem posted by their coworkers.

Past research in this area has mostly focused on external social media use (e.g., Facebook and Twitter) by businesses for knowledge sharing, socializing, marketing and branding, and onboarding (Chua & Banerjee, 2013; Eschenbrenner et al., 2015; Hackworth & Kunz, 2011; Michaelidou, Siamagka, & Christodoulides, 2011) and for improving work-related outcomes such as performance (Ali-Hassan, Nevo, & Wade, 2015; Kock, Moqbel, Barton, & Bartelt, 2016; Moqbel & Iftab, 2015; Moqbel, Nevo, & Kock, 2013). Other research has used qualitative methods to examine the benefits of social media in general (Majchrzak et al., 2013) and enterprise social media (Karoui et al., 2014; Koch et al., 2012) to organizations such as improved social capital, better knowledge management, and enhanced employee

retention. Although Kuegler, Smolnik, and Kane (2015) have empirically studied the direct link between ESM use by teams and performance at a media company, we expand on their research by studying ESM as an antecedent of workplace integration and performance among individual knowledge workers at a major information technology corporation based on an integrated theoretical model in light of the social capital and positive emotions context.

In this research, we address the question of whether and how ESM use is related to knowledge workers' job performance through the lenses of social capital and positive emotions theories. Note that, although researchers have previously studied some of the links in our research model in different contexts, such as the relationships between ESM and performance (Kuegler et al., 2015), positive emotions and performance (where there are inconclusive and mixed findings) (Rowold & Rohmann, 2009; Staw, Sutton, & Pelled, 1994), and workplace integration and performance (Orhan, Rijsman, & van Dikj, 2016), we are the first to study ESM as an antecedent of workplace integration and performance based on an integrated theoretical model of social capital theory and positive emotions theory.

This paper proceeds as follows: in Section 2, we provide the background, theories, and hypotheses for the research. In Section 3, we present the research method. In Section 4, report the results and, in Section 5, discuss them. Finally, in Section 6, we conclude the papery discussing our findings, their implications, and our study's limitations.

2 Background, Theories and Hypotheses

In this paper, we examine the use and impact of ESM through the perspective of knowledge sharing and positive emotions. Although researchers have examined knowledge sharing in organizations and its impact on individual and organizational performance (Alavi & Leidner, 2001; Fugate, Stank, & Mentzer, 2009; Kankanhalli, Tan, & Wei, 2005; Liao, Fei, & Chen, 2007; Widén-Wulff & Ginman, 2004), few have studied it in the context of ESM. Several researchers have also studied knowledge sharing with customers in an online environment such as e-commerce (Nah, Siau, Tian, & Ling, 2002; Nah, Siau, & Tian, 2005). Drawing on the earlier literature along with social capital theory and positive emotions theory, we examine the relationship between ESM use and individual performance in organizations.

An important role for human resources is to leverage the know-how and expertise of the human capital in organizations to improve individual and overall performance in organizations (Chen & Huang, 2009). However, since knowledge lies in the human capital and may not transfer easily, the use of ESM has the potential to overcome such obstacles by facilitating knowledge sharing among individuals in an enterprise. For example, individuals can internalize information and knowledge provided in an electronic system such as ESM, transfer it to the semantic memory of one or more groups, and use it for problem solving and decision making in an enterprise (Alavi & Leidner, 2001). Hence, ESM can help to facilitate a shared interpretation of knowledge that can lead to improved performance (Fugate et al., 2009). Next, to understand the impact of ESM use, we adopt a knowledge-sharing perspective through the lens of social capital theory (Widén-Wulff & Ginman, 2004).

2.1 Social Capital and Knowledge Sharing

Social capital refers to “the sum of the actual and potential resources embedded within, available through, and derived from the network of relationships possessed by an individual or social unit” (Nahapiet & Ghoshal, 1998, p. 243). One can use social capital theory to explain knowledge sharing in organizations (Widén-Wulff & Ginman, 2004). Social capital refers to “networks, norms, trust, and mutual understanding that bind together the members of human networks and communities, and enable participants to act together more effectively to pursue shared objectives” (Widén-Wulff & Ginman, 2004, p. 449). Nahapiet and Ghoshal (1998) propose three dimensions of social capital: structural, relational, and cognitive. The structural dimension refers mainly to network ties and configuration that give rise to access to knowledge or human capital. The relational dimension relates to social relationships created through a history of interactions and it encompasses trust, norms (consensus in the social system), obligations (commitments/duties), and identification (one's perceived identity relative to others). The cognitive dimension refers to shared language and interpretations that are necessary for social exchange and combination processes. In addition, Hazleton and Kennan (2000) propose another dimension: the content dimension. The content dimension refers to communication that individuals create in knowledge sharing. All four dimensions contribute to various aspects of knowledge sharing in organizations.

Social capital theory posits that network ties provide access to resources (Nahapiet & Ghoshal, 1998) that are available through the connections that networks such as ESM afford. Researchers have demonstrated ESM to constitute an important channel of social capital (Ali-Hassan et al., 2015). Social capital has played a key role in the development of human resource capital (Coleman, 1988; Loury, 1987), and, in this research, we argue that the social capital gained via ESM improves human capital's performance through organizational workers' sharing knowledge among themselves. Knowledge sharing through exchanging and integrating knowledge is an important pillar in creating knowledge resources (Moran & Ghoshal, 1996; Schumpeter, 1934), and knowledge systems can facilitate such a process (Nahapiet & Ghoshal 1998; Nah & Benbasat, 2004). Undoubtedly, recent developments in knowledge systems, such as ESM, have substantially increased opportunities for knowledge workers to combine, integrate, and exchange knowledge with their colleagues.

Given the emerging trends of social media, many organizations are interested in understanding the benefits and potential drawbacks of social media use (Holtzblatt et al., 2013). Much research has recently examined organizations' use of social media. Organizations have used external social media for knowledge sharing, socializing, marketing and branding, and onboarding (Chua & Banerjee, 2013; Eschenbrenner et al., 2015; Hackworth & Kunz, 2011; Michaelidou et al., 2011) and for improving work-related outcomes (Ali-Hassan et al. 2015; Kock et al., 2016; Moqbel & Iftab, 2015; Moqbel et al., 2013). In addition, organizations have used internal social media for facilitating communication and collaboration and for sharing resources and knowledge in organizations (Ali-Hassan et al., 2015; Karoui et al., 2014; Koch, Gonzalez, & Leidner, 2012; Kuegler et al., 2015; Majchrzak, Cherbakov, & Ives, 2009; Michaelidou et al., 2011).

ESM use, which we focus on here, can improve job performance through the social capital in organizations (Ali-Hassan et al., 2015; Karoui et al., 2014; Majchrzak et al., 2013; Sun & Shang, 2014). For example, IBM has been using an ESM called SmallBlue as a knowledge management system to connect its employees and to facilitate innovation through knowledge networks and collaboration (Majchrzak et al., 2009). Further, in their study, Koch et al. (2012) found that ESM facilitated employee acclimation by blurring the boundary between work roles and social roles, which increased positive emotions and improved employee morale, engagement, and retention. ESM can help knowledge workers use informal networks and personal relationships to find information and share knowledge that contributes to performance improvement (Chow & Chan, 2008; Cross et al., 2002). Using the perspective of human resource management, we extend earlier research and examine ESM use for knowledge sharing and its impact on knowledge workers' performance. From here, we use ESM use to refer to ESM use for knowledge sharing.

Human resources are key assets of organizations (Kavanagh & Johnson, 2015). In order to maximize human resources in organizations, employees can use ESM to leverage human resources to build capabilities and knowledge in organizations. Hence, ESM plays a critical role in organizations by providing an additional means for employees to connect, communicate, and collaborate, which further enhances knowledge workers' performance. For example, Kuegler et al. (2015) found intra-team and inter-team social media use to improve employee performance.

Social capital theory posits that social capital such as that created by ESM can positively impact knowledge sharing in organizations (Nahapiet & Ghoshal, 1998). Such sharing of knowledge creates a common understanding and shared interpretation of knowledge and additional capabilities that lead to improved performance (Fugate et al., 2009; Trainor, 2012). ESM as a knowledge management system can contribute to improving human workforce performance by providing shared access to knowledge in an organization. The knowledge management literature identifies several affordances of ESM to a firm's workforce including abundant access to expertise and extensive heterogeneous contacts (Farzan, DiMicco, & Brownholtz, 2009; Steinfield, DiMicco, Ellison, & Lampe, 2009), enhanced information sharing and coordination (Da Cunha & Orlikowski, 2008), visibility and opportunity to exchange feedback (Jackson, Yates, & Orlikowski, 2007), and improved access to knowledge and resources vetted by experts (Huh et al., 2007), which are key to improving knowledge workers' performance (Ali-Hassan et al., 2015). Based on these positive affordances of ESM to knowledge workers and the perspective offered by social capital theory and the knowledge sharing literature that a shared understanding of knowledge has positive effects on performance, we argue that greater use of ESM will result in enhanced employee performance. Hence, we hypothesize that:

H1: ESM use is positively associated with knowledge workers' performance.

Koch et al. (2012) observed in their case study that ESM use helped to bring more social life and activities into the work environment. Through the use of ESM, employees can build and extend their social relationships with colleagues, which creates a sense of community (Gonzalez et al., 2013). The blurring of boundaries between social life and work life shifts the work environment from one possibly defined by workplace isolation to one characterized by workplace integration or connectedness. Workplace isolation refers to “a psychological construct that describes employees’ perceptions of isolation from the organization and their coworkers” (Mulki, Locander, Marshall, Harris, & Hensel, 2008, p. 68), whereas workplace integration refers to employees’ perceptions of connectedness with the organization and their coworkers. As Marshall, Michaels, and Mulki (2007) and Mulki et al. (2008) note, workplace isolation has two dimensions—company and colleagues—and these two dimensions also apply to workplace integration. The former dimension relates to work-based support from both supervisors and the organization in general, and the latter dimension refers to interactions and networking among colleagues. Perceived isolation can arise from the lack of social and emotional support and interaction at the workplace. In contrast, workplace integration or connectedness is characterized by a work environment that features an employee-perceived sense of belonging and community, support from management and coworkers, and social and emotional interactions frequently occur. From the human resource management perspective, organizations have used ESM to create workplace integration through facilitating socialization, management support, and a sense of belonging to the organization (Koch et al., 2012; Majchrzak et al., 2009).

Drawing on organizational learning theory (Argyris, 1992), we argue that there is a relationship between knowledge sharing via ESM and workplace integration. Organizational learning refers to the entrenched intra-organizational culture toward learning demonstrated via commitment to learning and intra-organizational knowledge sharing (Panayides, 2007). The propensity to learn and share knowledge about work that arises from the intra-organizational learning-oriented culture facilitated by ESM would lead to the development of workplace integration manifested via a sense of belonging to the company and coworker social support. In addition, the interaction among organizational workers shifts from the transaction phase (sharing work knowledge) to a relationship phase (workplace integration). Since ESM use enhances the learning and sharing of knowledge in an enterprise, the bonding and connections in the enterprise increase and, hence, workplace integration increases.

From the social capital theory perspective, the structural, relational, and cognitive dimensions of social capital contribute positively to the creation of intellectual capital in organizations (Nahapiet & Ghoshal, 1998). Research has shown ESM use to enhance the structural, relational, and cognitive dimensions of social capital through information and knowledge sharing in organizations (Ali-Hassan et al., 2015). The structural dimension not only extends reach and access to others in an organization but also opens up opportunities to create additional network ties (Widén-Wulff & Ginman, 2004). Such an extension of one’s network in an organization can enhance workplace integration with colleagues and the organization in general. The relational dimension taps on social relationships created through a history of interactions and encompasses trust, norms, obligations/commitments, and perceived connectedness with others. Given that ESM use can enhance the relational dimension of social capital (Ali-Hassan et al., 2015), which is related to connectedness with the organization and colleagues, ESM use can increase workplace integration. The cognitive dimension reflects a shared context and common understanding among the parties involved (Ali-Hassan et al., 2015). It also refers to resources that provide shared representations, interpretations, and meanings (Nahapiet & Ghoshal, 1998). ESM use can strengthen the cognitive dimension of social capacity by providing a common medium in an enterprise to foster a shared context and common understanding and, thus, enhance workplace integration in the enterprise. The content or communication dimension of social capital that Hazleton and Kennan (2000) proposed refers to information exchange, problem identification, behavioral regulation, and conflict management (Widén-Wulff & Ginman, 2004), which can be communicated via and influenced by ESM. Information exchange refers to gathering, interpreting, and sharing information. Problem identification emphasizes information exchange to identify problems and find solutions. Behavioral regulation refers to the process through which organizational goals and objectives shape behavior. Conflict management is the process through which conflicts are managed as a regular and ongoing process. These four communication functions can take place through ESM to further increase workplace integration among colleagues and in an organization. Because ESM use can facilitate internal knowledge sharing through the structural, relational, cognitive, and content dimensions of social capacity (Ali-Hassan et al., 2015), workplace integration increases with ESM use. Hence, we hypothesize that:

H2: ESM use is positively associated with workplace integration.

According to social capital theory, workplace integration that the structural, relational, cognitive, and content dimensions of social capital enhances facilitates knowledge sharing and builds up intellectual capital in organizations (Nahapiet & Ghoshal, 1998; Widén-Wulff & Ginman, 2004), which, in turn, improves knowledge workers' performance (Fugate et al., 2009). In contrast to workplace isolation (Mulki et al., 2008), which lacks communication and support, workplace integration facilitates relational development and socialization processes that are key to managing human resources. Such processes facilitate communication and collaboration among knowledge workers and improve their performance in organizations (Fugate et al., 2009; Leonardi, 2014). Hence, we hypothesize that:

H3: Workplace integration is positively associated with knowledge workers' performance.

2.2 Positive Emotions

The broaden-and-build theory of positive emotions (Fredrickson, 1998, 2000, 2001, 2004) highlights the consequences and antecedents of positive emotions. The theory suggests that positive emotions such as joy, interest, contentment, and love can broaden one's scope of attention, cognition, and momentary thought-action repertoire that increases one's wellbeing and personal resources. Positive emotions can arise from interpersonal relatedness, which increases individuals' subjective wellbeing (Reis, Sheldon, Gable, Roscoe, & Ryan, 2000). In line with Maslow's (1968) hierarchy of needs and Bowlby's (1969) attachment theory, the need to belong or the desire for interpersonal attachments and relationships is a basic psychological need of humans that the literature has acknowledged (Baumeister & Leary, 1995). Hence, workplace integration, which provides a feeling of interpersonal connection or relatedness, can enhance subjective wellbeing and positive emotions (Reis et al., 2000). In other words, interpersonal connectedness or relatedness, which involves feeling understood and appreciated and talking about meaningful matters, contributes to positive emotions (Reis et al., 2000). Research has also found the practice of loving-kindness meditation, another way of increasing connectedness with others, to generate positive emotions (Fredrickson, Cohn, Coffey, Pek, & Finkel, 2008). In addition, social connectedness and support is positively related to happiness (Mogilner, 2010; Satici, Uysal, & Deniz, 2016). Therefore, we expect workplace integration, which manifests from connectedness with one's colleagues and organization, to increase positive emotions and one's wellbeing (Baumeister & Leary, 1995; Reis et al., 2000). Hence, we hypothesize that:

H4: Workplace integration is positively associated with positive emotions.

The broaden-and-build theory of positive emotions (Fredrickson, 1998, 2000, 2001, 2004) suggests that positive emotions not only broaden one's scope of attention, cognition, and thought-action repertoire but also increase one's enduring personal resources, which includes their physical, intellectual, psychological, and social resources. Hence, based on the theory of positive emotions, positive emotions increase or expand one's physical, cognitive, and social capacities. To effectively manage and optimize human resources in organizations, positive emotions should be fostered. When one experience positive emotions, one's performance improves due to increases in one's attentional focus, capacity for cognition, and scope of action. In addition, positive emotions increase or expand one's personal resources in a variety of forms (e.g., intellectual, psychological, or social), which further enhance performance. Hence, based on the broaden-and-build theory of positive emotions, positive emotions increase one's personal resources and scope of attention, cognition, and action, which leads to increased performance. Hence, we hypothesize that:

H5: Positive emotions are positively associated with knowledge workers' performance.

3 Research Model

To test the research model and hypotheses (see Figure 1), we collected data by administering an online survey at a large information technology firm headquartered in the Midwestern United States. The company had more than 22,000 employees and provided services to more than 18,000 facilities around the world. The managers in charge of the enterprise social software agreed to allow us to survey their employees in return for sharing findings with them.

The ESM software had been in place for more than six years at the time we began collecting data for this research (April and May, 2015), which ruled out any possible early-stage adoption issues. The ESM software platform is comprised of a suite of applications including social networking software, wikis, blogs, document management software, discussion forums, and search capabilities to identify experts. For

example, the system allowed groups to collaborate on certain projects by showing information such as pictures, contact information, and experts' competences. Therefore, the ESM software platform helped employees collaborate, communicate, innovate, and learn from one another.

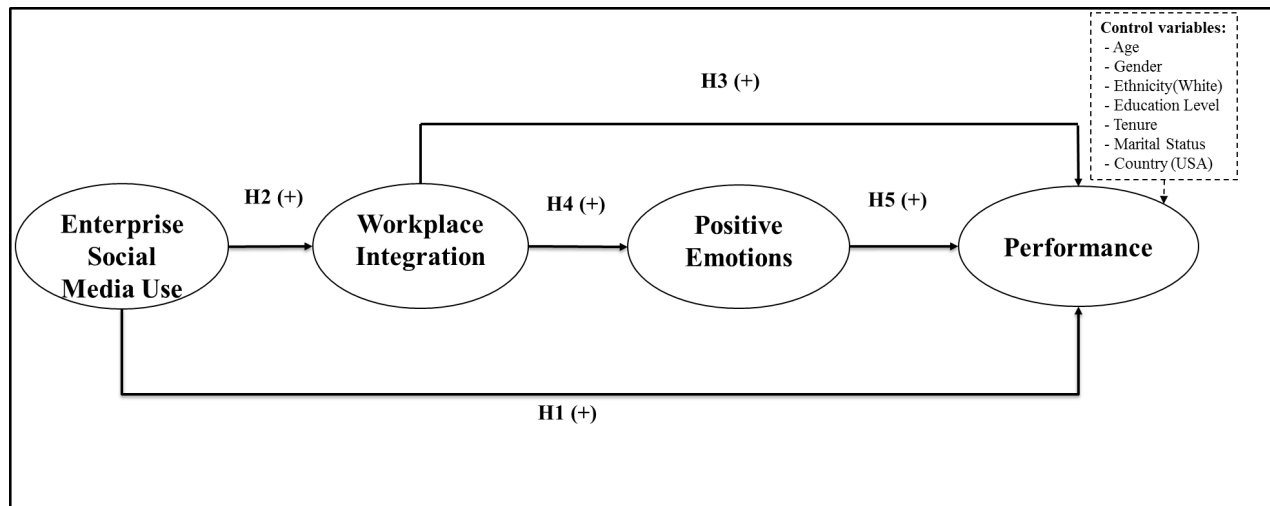


Figure 1. Research Model with Hypotheses

3.1 Data Collection

We collected data by administering a Web-based survey questionnaire that we sent to a randomly selected list of 10,000 employees. We deemed the Web-based survey to be suitable because we targeted employees who used the ESM in the organization we studied. The email explained the study's importance, assured anonymity and confidentiality, and offered a draw for a VISA gift card as an incentive to complete the survey. After four weeks, we closed the online survey.

3.2 Participants

In total, we received 320 surveys, of which 276 were fully completed, which resulted in a response rate of 3.2 percent. This response rate is comparable to studies published in premier information systems journals (Sivo, Saunders, Chang, & Jiang, 2006). Nevertheless, a low response rate may pose a non-response bias, which threatens a study's external validity (Shadish, Cook, & Campbell, 2002). Non-response bias can also introduce noise or non-systematic variance into the findings, which can introduce errors into them (i.e., inferences drawn from the sample that responded might not hold true if a sample of non-respondents participated in this study). The lower the response rate, the greater the potential for errors. To mitigate the non-response issue, we took a priori steps to minimize non-responses including offering monetary incentives to participants through a draw for a VISA gift card, emphasizing anonymity, and highlighting university sponsorship as studies in the literature suggest (Sivo et al., 2006). We also employed a post hoc strategy that Armstrong and Overton (1977) propose to examine the non-response error by comparing early (first-wave responses) and late (third-wave responses) respondents' data (i.e., by comparing the means of the constructs) and found no significant differences between the two groups. Hence, we infer that nonresponse bias was not an issue in this study.

The age of the 276 respondents ranged from 19 to 67 years ($M = 35.6$, $SD = 11.5$). Females and males were almost equally represented: 49 percent ($n = 133$) were males. Participants had worked in this corporation for an average of 5.9 years. About 47 percent of the respondents were married. Also, 87 percent worked in the US, 10 percent worked in India, and three percent worked in other countries. Among the respondents, 75 percent were white and 15 percent were Asian. In terms of education, four percent had high school diplomas, seven percent had associate degrees, 62 percent had bachelor degrees, 26 percent had master's degrees, and 1.5 percent had doctoral degrees. The average participant used the ESM platform while at work for approximately one hour and 43 minutes per day.

Since we collected the data through a single method—a survey questionnaire—we tested for common method bias using Lindell and Whitney's (2001) approach by adding a marker variable of marital status.

The correlations between the marker variable and the rest of the variables were all low, which suggests that common method bias did not likely occur.

3.3 Measurement Instrument

We adapted all measures from well-established instruments that have validated psychometric properties; we present them in Appendix A. We adapted the scale for ESM use from Gonzalez et al. (2013), which research has shown to have high reliability and validity. We assessed workplace integration/isolation, which refers to an employee's perceived connectedness with / isolation from the company and colleagues and is shaped by support from colleagues and the opportunities to socialize and interact with others, using the scales by Marshall et al. (2007) and Mulki and Jaramillo (2011). We measured positive emotions, which refer to emotions such as joy, happiness, interest, pride, affection, caring, contentment, and love, using the scales by Diener, Smith, and Fujita (1995) and Lucas, Diener, and Larsen (2003). Performance comprised two subscales—in-role job performance and innovative performance—which we adapted from Janssen and Van Yperen (2004) and operationalized as a second-order construct.

We used five-point Likert-type scales (1 = strongly disagree; 5 = strongly agree) for the measurement items for ESM use, workplace integration, and in-role performance to capture agreement with a given statement. Given that the *positive emotions* items captured frequencies with which respondents experienced feelings during the past week, we used a seven-point Likert-type scale (1 = never; 7 = always). Similarly, given that the innovative performance items captured frequencies with which participants performed certain activities, we used a six-point Likert-type scale (1 = never; 6 = always).

We included the respondent's age, gender, ethnicity, education level, marital status, country of residence, and organizational tenure as control variables.

4 Validation of the Measurement Instrument

We employed a partial least squares structural equation modeling (PLS-SEM) data analysis approach (Chin, 1998; Haenlein & Kaplan, 2004) to evaluate the psychometric properties of the measurement instrument and to test the proposed hypotheses in this study. A PLS-SEM approach suited our study because it is particularly useful for modeling second-order constructs and because it has fewer restrictions on normal distribution. We operationalized the second-order latent construct using the repeated-items approach (i.e., the hierarchical component model) (Lohmoller, 1989). We used WarpPLS 5.0 to generate estimates for validation of the measurement instrument and the structural equation modeling analysis (Kock, 2015). When reporting the results, we followed the guidelines that Chin (1998), Hair, Black, Babin, and Anderson (2010), and Hair, Ringle, and Sarstedt (2011) provide.

4.1 Measurement Model

We conducted a confirmatory factor analysis (CFA) to test the reliability and validity of the constructs. As Table 1 shows, all measures had good reliability and validity. All measurement items loaded highly on their respective constructs, and all item loadings exceeded the recommended threshold of 0.6 (Gefen & Straub, 2005), which indicates that we achieved acceptable convergent validity. Cronbach's alpha (Cronbach, 1951) and composite reliability (Chin, 1998) values also exceeded the recommended threshold of 0.7 (Nunnally & Bernstein, 1994), which suggests that all of our constructs had acceptable internal consistency.

As for discriminant validity, Table 2 shows that the square root of the average variance extracted for all constructs exceeded the inter-construct correlations (Fornell & Larcker, 1981), which indicates good discriminant validity.

We tested for multicollinearity by calculating the variance inflation factor (VIF). Table 1 shows that multicollinearity was not a major concern in this study since VIFs were all less than the recommended threshold of 5 (Hair et al., 2010). We also tested for normality as Bera and Jarque (1981) and Gel and Gastwirth (2008) suggest. Table 1 shows that four of the constructs were not normally distributed, and, hence, our using PLS-SEM was appropriate because of its robustness with distributions.

Table 1. Construct Reliability and Validity

Constructs	Indicators	Loadings	CR	CA	FVIF	Normal
ESM use	ESMUse1	0.795	0.885	0.827	1.331	No
	ESMUse2	0.824				
	ESMUse3	0.761				
	ESMUse4	0.862				
Workplace integration: company	WICom1	0.808	0.863	0.767	1.754	No
	WICom2	0.833				
	WICom3	0.827				
Workplace integration: colleagues	WICol1	0.795	0.882	0.822	1.449	No
	WICol2	0.854				
	WICol3	0.848				
	WICol4	0.727				
Positive emotions	PosEmo1	0.821	0.937	0.921	1.325	Yes
	PosEmo2	0.898				
	PosEmo3	0.786				
	PosEmo4	0.733				
	PosEmo5	0.855				
	PosEmo6	0.816				
	PosEmo7	0.851				
In-role performance	IRPerf1	0.862	0.918	0.879	1.187	No
	IRPerf2	0.890				
	IRPerf3	0.915				
	IRPerf4	0.758				
Innovative performance	InnovPerf1	0.866	0.917	0.886	1.369	Yes
	InnovPerf2	0.851				
	InnovPerf3	0.871				
	InnovPerf4	0.755				
	InnovPerf5	0.799				

Note: all loadings were significant at $p < 0.001$.

CR = composite reliability; CA = Cronbach's alpha; FVIF = full collinearity variance information factor; normal = normal (robust Jarque-Bera). ESMUse = ESM use; WICom = workplace integration with company; WICol = workplace integration with colleagues; PosEmo = positive emotions; IRPerf = in-role job performance; InnovPerf = innovative performance.

Table 2. Inter-construct Correlation Matrix

Construct	ESMUse	WICom	WICol	PosEmo	IRPerf	InnovPerf
ESMUse	0.812	0.336	0.030	0.000	0.043	0.287
WICom	0.336	0.823	0.482	0.146	0.186	0.255
WICol	0.030	0.482	0.808	0.261	0.163	0.159
PosEmo	0.000	0.146	0.261	0.824	0.182	0.303
IRPerf	0.043	0.186	0.163	0.182	0.858	0.312
InnovPerf	0.287	0.255	0.159	0.303	0.312	0.830

Note: we show square roots of average variances extracted (AVE) on the diagonal in bold.

ESMUse = ESM use; WICom = workplace integration with company; WICol = workplace integration with colleagues; IRPerf = in-role job performance; PosEmo = positive emotions; InnovPerf = innovative performance.

4.2 Structural Model

Having an acceptable measurement model, we used the bootstrapping resampling method with 276 cases and 900 resamples to estimate the structural model. To validate the structural model's quality, we evaluated the following measures, which we report in Table 3: average path coefficient (APC), average R-squared (ARS), average adjusted R-squared (AARS), average block variance inflation factor (AVIF), average full collinearity VIF (AFVIF), and Tenenhaus goodness of fit (GoF). The values for APC, ARS, and AARS were significant at the 0.05 level (as recommended), while AVIF and AFVIF were also in line with recommendations that they be less than 5 (Hair et al., 2010; Kline, 2005; Kock, 2012). The GoF (Tenenhaus, Vinzi, Chatelin, & Lauro, 2005) index of our structural model was 0.467—larger than the recommended threshold of 0.36 (Wetzels, Odekerken-Schröder, & Van Oppen, 2009), which indicates that the quality of our structural model was adequate.

Table 3. Model Fit Indices

Index	Value	Interpretation
Average path coefficient (APC)	0.191	$p < .001$
Average R^2 (ARS)	0.250	$p < .001$
Average adjusted R^2 (AARS)	0.242	$p < .001$
Average block VIF (AVIF)	1.250	Acceptable if ≤ 5 ; ideally ≤ 3.3
Average full collinearity VIF (AFVIF)	1.452	Acceptable if ≤ 5 ; ideally ≤ 3.3
Tenenhaus GoF (GoF)	0.467	Small $\geq .1$; medium $\geq .25$; large $\geq .36$

5 Results

Based on the path coefficients and their levels of significance (see Figure 2), we found support for all hypotheses. The proposed model explained 54 percent of the variance in performance. While ESM use explained 12 percent of the variance for workplace integration, workplace integration explained nine percent of the variance for positive emotions. Out of all the control variables included in the model, only gender had a significant relationship with performance in that males reported higher levels of performance than females.

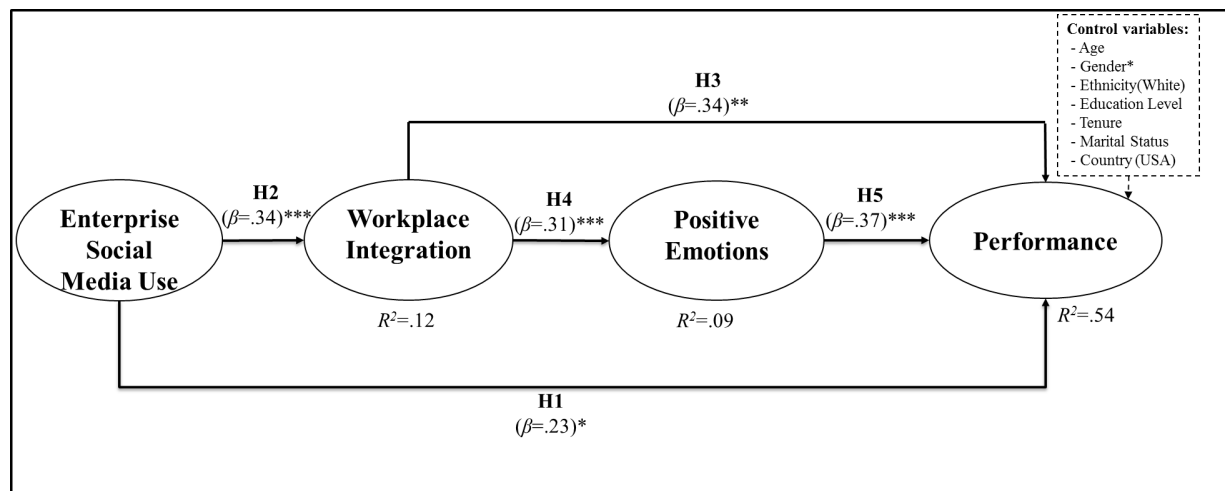


Figure 2. Model with Results for Hypotheses

When we operationalized performance and workplace integration as second-order constructs, the beta coefficients between the first-order and second-order factors were as follows: 1) in-role performance (IRPerf) 0.86 ($p < 0.001$), innovative performance (InnovPerf) 0.88 ($p < 0.001$), 2) workplace integration – company – (WICom) 0.92 ($p < 0.001$), and workplace integration – colleagues – (WICol) 0.90 ($p < 0.001$).

Although we did not formally hypothesize mediating relationships, we conducted mediation tests using the approach that Preacher and Hayes (2004) suggest. The results show that the mediating role of workplace

integration in the relationship between ESM use and performance was statistically significant ($p < 0.05$). In addition, positive emotions mediated the link between workplace integration and performance ($p < 0.01$). As such, while workplace integration played the role of a mediator between ESM use and performance, positive emotions also mediated the relationship between workplace integration and performance, which resulted in a nested mediation. Similarly, workplace integration also mediated the relationship between ESM use and positive emotions ($p < 0.01$).

We also explored the contribution of ESM use on performance by considering the total effect. Such a total effect would include, in addition to the direct effect, indirect effects through other variables such as the effect mediated by workplace integration. The total effect of ESM use on performance was .35, which was statistically significant at $p < .001$. The corresponding effect size of ESM use on performance was .14—above the minimum threshold of .02 (Cohen, 1988; Kock, 2015). Thus, we can say that ESM use contributed 14 percent of the variance in the performance variable.

6 Discussion of Results

We use social capital theory and the broaden-and-build theory of positive emotions to explain the relationship between ESM use and knowledge workers' in-role and innovative performance. We found that ESM use contributes positively to knowledge workers' performance by helping employees to better use the human and social capital in organizations. Based on the social capital theory, ESM use helps to optimize human and social capital resources by creating and combining capabilities and knowledge to enhance knowledge workers' performance (H1). ESM use also facilitates workplace integration (H2) by offering another means of communication, interaction, and collaboration among coworkers and social and emotional support for them. Hence, workplace integration facilitates a communication, collaboration, and socialization process that can further extend the capabilities and knowledge of human capital resources and improve knowledge workers' performance in an organization (H3). To optimize human and social capital resources in an organization, organizations should also consider motivational factors such as relatedness and positive emotions. Based on the broaden-and-build theory of positive emotions, workplace integration that results from ESM use helps to generate positive emotions (H4), which, in turn, broadens the scope of cognitive and social capacities and extends personal resources, which leads to higher performance (H5).

We also found that ESM use has both direct and indirect relationships with knowledge workers' performance. The indirect relationship takes place through workplace integration that ESM use facilitates. Workplace integration also has direct and indirect relationships with performance; the indirect relationship takes place through the affective route that positive emotions mediate. Hence, the relationship between ESM use and performance takes place through employees' better using human and social capital resources in an integrative process to connect and support them and an affective route to extend and expand the resources available in the organization.

6.1 Limitations

Our study has several limitations. First, different levels of employees might have different levels of motivation to take the survey or use ESM. Therefore, one needs to control for the level of the employees. In this study, we collected data about employee tenure, a proxy for the level of the employees in the firm, which turned out to have no significant effect on the main dependent variable (i.e., performance). However, we recommend that future studies collect and study the level of employees in the firm.

Second, our using of a self-reported measure for performance may not be ideal in terms of reliability due to potential social desirability bias. However, we assured the participants that all responses would be anonymous and confidential and that we would aggregate the responses when presenting them in an attempt to reduce the risk of potential biases during data collection (Singleton & Straits, 2005). Future efforts should consider the use of more objective measures for performance such as supervisor ratings.

Third, non-response bias poses a potential risk to our study. However, in comparing post hoc measures of the variables in the model between the first wave and the third wave of the respondents' data, we found no difference between them, which helps to alleviate some of this risk (Sivo et al., 2006).

We collected data from one large organization in the Midwestern United States in order to control for extraneous variables such as different ESM features/implementations in organizations, firm size, firm strategy, and organizational culture. We did so to maximize the internal validity of the study but at the

expense of external validity. Hence, one needs to exercise caution when generalizing our findings to other organizational contexts. Future studies can assess the generalizability of our findings by testing them in other organizational contexts.

7 Conclusion and Implications

In this paper, we examine the relationship between ESM use and knowledge workers' performance. ESM facilitates the integration of human resources in organizations by building a community that offers support and a sense of belonging. ESM also enables individuals a means for sharing information and knowledge with one another and offers a platform for communication and collaboration. Hence, human resources can be better integrated through enterprise social media use. The social capital theory suggests that organizations can use human and social resources (e.g., through connecting coworkers and integrating their knowledge) to generate capabilities that can enhance knowledge workers' performance. The theory of positive emotions also serves an important role in generating such capabilities by creating positive emotions that help expand and extend one's available resources to enhance performance in the workplace.

We examine ESM, workplace integration, positive emotions, and knowledge workers' performance and contribute to a better understanding of enterprise social media use in organizations by explaining the findings through the lenses of social capital and positive emotions theories. Furthermore, our finding that ESM use relates to job performance indicates that one can use ESM as a powerful platform to leverage human capital in organizations by facilitating knowledge sharing among coworkers to improve their performance. From the social capital theoretical perspective, ESM can induce workplace integration among knowledge workers to facilitate social support and resources necessary to perform work-related tasks (i.e., in contrast to workplace isolation that is common among knowledge workers in the traditional workplace). While the social media literature has offered anecdotal suggestions that knowledge workers gain positive emotions from social media use (Koch et al., 2012; Moqbel & Little, 2014; Moqbel et al., 2013), we measured these variables and assessed their relationships. We also used the broaden-and-build theory of positive emotions to explain the relationship between workplace integration and positive emotions and found that social connectedness or relatedness in the workplace fosters positive emotions. To the best of our knowledge, we provide the first empirical evidence that links enterprise social media to knowledge workers' job performance through social capital and positive emotions, which we observed even after controlling for employees' tenure in their organizations, age, gender, education level, and race. Our findings suggest that organizations need to not only increase their employees' awareness of ESM technology but also encourage ESM-based communication among knowledge workers in order to generate greater workplace integration and positive emotions in the workplace. Overall, our research contributes to theory and practice by helping to resolve an open question—whether and how ESM use relates to knowledge worker job performance—that rests at the intersection of the ESM, workplace integration, positive emotions, and knowledge work literatures.

In summary, enterprise social media, if used effectively in organizations, can induce higher levels of collaboration and socialization into work processes to create greater human capital and performance. Organizations can integrate their human resource capital via ESM to enhance knowledge workers' performance and bring greater value to organizations. The human resource department can use enterprise social media to extend and optimize the human capital in organizations and possibly gamify the workplace to make work more fun and intrinsically rewarding (Koch et al., 2012; Nah, Zeng, Telaprolu, Padmanabhuni Ayyappa, & Eschenbrenner, 2014). The positive emotions generated from collaboration, socialization, and gamification of work processes expand the absorptive capacity and available resources of knowledge workers and help them perform better. Hence, future research on social media use and its application in organizations can examine how organizations can better use enterprise social media to optimize their human capital and the value generated from such capital. To achieve the greatest benefits from social media use in organizations, practitioners such as the human resource personnel need to incentivize their employees to use enterprise social media and integrate its usage into the workplace.

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Appendix A: Latent Variables Measurement Instrument

We used the question-statements below to collect data related to the indicators of the latent variables.

Enterprise social media use (ESMUse)

ESMUse1: I use the [organizational social media name] system to post updates on work projects.

ESMUse2: I use [organizational social media name] to share information with colleagues about organizational objectives, policies and procedures.

ESMUse3: I use [organizational social media name] to gain access to others with expertise in a particular area.

ESMUse4: I use [organizational social media name] to share my expertise in a particular area.

Workplace integration

Workplace integration-company (WICom)

WICom1: I am well integrated with the department/company where I work.

WICom2: I am kept in the loop regarding company social events/functions.

WICom3: I am part of the company network.

Workplace integration-colleagues (WICol)

WICol1: I have friends available to me at work.

WICol2: I have one or more coworkers available who I talk to about day-to-day problems at work.

WICol3: I have coworkers available whom I can depend on when I have a problem.

WICol4: I have enough people available at work who I can talk about my job.

Positive emotions (PosEmo)

PosEmo1: Joy

PosEmo2: Happiness

PosEmo3: Contentment

PosEmo4: Pride

PosEmo5: Affection

PosEmo6: Love

PosEmo7: Caring

Performance

In-role performance (IRPerf)

IRPerf1: I always complete the duties specified in my job description.

IRPerf2: I meet all the formal performance requirements of my job.

IRPerf3: I fulfill all responsibilities required by my job.

IRPerf4: I never neglect aspects of the job I am obligated to perform.

Innovative performance (InnovPerf)

InnovPerf1: Create new ideas for improvements.

InnovPerf2: Search out new working methods, techniques, or instruments.

InnovPerf3: Transform innovative ideas into useful applications.

InnovPerf4: Acquire management approval for innovative ideas.

InnovPerf5: Generate original solutions to problems.

About the Authors

Murad Moqbel is an Assistant Professor of Management Information Systems at the University of Oklahoma. He holds a PhD degree in International Business Administration and Management Information Systems from Texas A&M International University. He received both a BS degree with honors in Business Administration and Computer Information Systems and a MBA with Information Systems concentration from Emporia State University. He serves on the editorial boards of the *International Journal of e-Collaboration* and *Information Processing & Management Journal*. He was recognized for best student paper award at Southwest Decision Science Conference 2012. He has authored and co-authored several peer-reviewed papers and his work has appeared in many well-respected journals and conferences such as *Information & Management*, *IEEE Transactions on Professional Communication Journal*, *Journal of Systems and Information Technology*, *Information Technology and People*, *International Journal of Virtual Communities and Social Networking*, *Journal of Information Privacy and Security*, *AIS Transaction on Replication Research*, the proceedings of the *International Conference in Information Systems (ICIS)*, and *Americas Conference on Information Systems (AMCIS)*. His research interests focus on the interaction between human behavior and information technologies including social media, emerging technologies and Health IT, information security and privacy, and international business.

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