
Does social media use at work lower productivity?

Joseph Vithayathil

Computer Management and Information Systems,
School of Business,
Southern Illinois University Edwardsville,
Campus Box 1106, Edwardsville, IL 62026, USA
Email: jvithay@siue.edu

Majid Dadgar*

Department of Business Analytics and Information Systems,
Malloy Hall 205 School of Management,
University of San Francisco,
2130 Fulton Street, San Francisco, CA 94117, USA
Email: mdadgar@usfca.edu
*Corresponding author

J. Kalu Osiri

Department of Management,
College of Business,
University of Nebraska-Lincoln,
730 N. 14th Street, Lincoln, NE 68588, USA
Email: jkosiri@unl.edu

Abstract: We conducted an empirical study that analysed the relationship between the use of social media at work and project success at work. This study adds to the emerging literature on the impact of social media use on organisational outcomes. We found that only one of the four popular social media platforms studied adds value to the workplace. Specifically, we found the use of Facebook at work, whether controlling for age, gender and education or not, to be negatively associated with project success. The use of LinkedIn (with the controls) and the use of other social media (without the controls) were both found to be positively associated with work project success. Other social media was used to capture all other social media platforms, including firm-specific or work-specific social media platforms. We explained our results using social network analysis (SNA), the strength of weak ties and information diffusion theories. Our findings have implications for practice, policy and future research.

Keywords: social media usage; project success; social network analysis; SNA; strength of weak ties.

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Biographical notes: Joseph Vithayathil is an Assistant Professor of Computer Management and Information Systems at the Southern Illinois University Edwardsville. He has extensive experience in global IT and executive management. His research includes IT governance, corporate governance, cloud computing and social media and corporate social responsibility. He teaches courses on e-commerce, IT infrastructure, analytics, security and cloud computing. He has published in *Journal of Management Information Systems*, *Information Systems Journal* and has a forthcoming article in *MIS Quarterly*. He earned his BTech in EE from the Indian Institute of Technology, Madras, MS in Systems Science and Mathematics from Washington University, MBA from the Harvard University and PhD in Management from University of California, Irvine,

Majid Dadgar is an Assistant Professor of Information Systems and Business Analytics at University of San Francisco. Emerging with a deep understanding of industrial design, he received his MA from The Ohio State University with focus on Applied Software Engineering and received his Doctor of Philosophy in Business Administration (Information Systems) from the Washington State University. His research interests focus on ICT-enabled self-management, value sensitive design, design science research, health IT, social media and text analytics. His research has been published in journals such as *Journal of Business Ethics (JBE)*, *Journal of the Association for Information Systems (JAIS)*, *Int. J. Electronic Healthcare* and presented at conferences such as ICIS, HICSS, DSI, DESRIST and AMCIS.

J. Kalu Osiri is an Associate Professor of Practice in Management and the Director of International Business at the University of Nebraska-Lincoln (UNL), where he teaches leadership in a global context and international business at the undergraduate and graduate levels. His research interests are concerned with the chemistry of leadership, personal sustainability and the interplay between culture and innovation. He is the author of *Unleashing Your Idea: Steps to a Successful Start and Entrepreneurial Marketing: Creating a Customer Base*. He is a graduate of Grambling State University (BS), Louisiana State University (PhD), The University of Florida (Post-Doctorate) and the Harvard Management Development Program (MDP).

1 Introduction

Mashable¹ reports that about one third of all Americans are on Facebook while at work. They also note that other social media and related applications, such as Gmail, Yahoo and YouTube, are actively used during working hours. Some firms address this behaviour by banning the use of social media at work. CNBC² reports that 28% of employers have fired people for using the internet for non-work-related activity (e.g., shopping online or using Facebook) during the workday and 18% have dismissed employees because of something they posted on social media. While some firms ban the use of social media at the workplace, there is research that shows social media can be useful in the workplace (Bizzi, 2017; Lam et al., 2016; Rahmati et al., 2017). It is reported that 78% of millennials say that access to the technology they like makes them more effective at work².

The use of social media by professionals continues unabated (Agnihotri et al., 2016) even as firms continue to grapple with the effect of the use of social media on

work-related productivity. A recent investigation on workplace social media use reveals a complex pattern. The pattern includes the revelation that professionals extensively use social networking sites for work-related purposes, as well as for personal use. The intensity of usage varies depending upon the site and age of the user (Skeels and Grudin, 2009).

Given that research on the use of social media is a fairly new topic, prior research on the value of social media usage at work is scant and inconclusive. Indeed, studies show mixed results with regard to the impact of social media usage on work projects. Some studies report a positive impact (Nduhura and Prieler, 2017) while other studies report a negative impact (Schlagwein and Hu, 2017). In this study, we investigate the impact of using popular social media at work on organisational productivity. This relationship has not been studied in prior research. Therefore, this empirical study is an attempt to answer the question on the value of the use of social media to the success of work-related projects.

The following questions guided our study:

- 1 Is the use of social media at work beneficial to work-related outcomes?
- 2 Are there specific social media platforms that are more useful than others?
- 3 Are some social media platforms harmful to the firm?

These questions were addressed in this paper for a number of reasons. First, there is a pervasive and growing use of social media in professional and personal settings. Second, social media usage affects various aspects of society such as leisure activities, social relationships and work-related outcomes. Third, the emerging literature on the value of social media is ambivalent regarding its effect on work-related productivity. Consequently, such questions are important to scholars and practitioners.

Some organisations ban the use of popular social media platforms such as Facebook and Twitter at work because of the belief that social media usage at work will negatively affect firm performance (O'Connor et al., 2016). Our findings inform practice in the areas of policy and strategy regarding the use of social media use by employees. This study contributes to the literature on social media and social networks because it investigates the impact of social media usage within firms on work-related project success.

We specifically studied the impact of the use of Facebook, Twitter, LinkedIn Skype and 'other social media' platforms on project success at work. The findings from our empirical study suggest that the impact of social media usage on project success at work depends on the platform. We found no association between using Twitter and Skype at work and project success at work. However, we did find the use of Facebook at work to be negatively associated with work-related project success with and without controls. The use of LinkedIn (with the controls) was found to be positively associated with work project success. The category we denoted as other social media was found to be positively associated with work-related project success only when controlling for age, gender and education. In our survey-based dataset, 'other social media' was a catch-all category that covered unspecified publicly available social media (e.g., Yammer) as well as firm-specific or enterprise-specific social media platforms.

In the next section, we discuss the theoretical background, provide a literature review and propose a set of hypotheses. This is followed with the description of our study, the research design and method. We report our results and provide an analysis of these

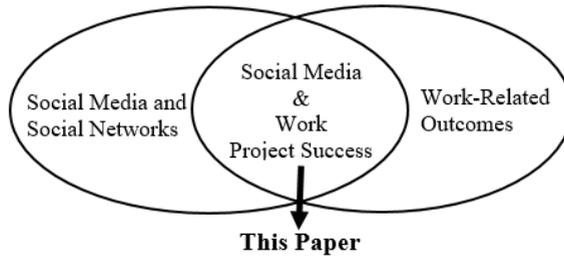
results. Finally, we offer a discussion of our results and its implications to research and practice, followed by a conclusion.

2 Theoretical background, literature review and hypotheses

Our theoretical background provides a framework for interpreting our results and supports the arguments employed in developing our hypotheses. While one theory does not explain all phenomena, we acknowledge that theories, such as social network analysis (SNA), knowledge management and information diffusion, can be used as lenses to understand social media usage and its impact on project success (Chen et al., 2017). Our primary theoretical foundation is SNA. While we did not analyse social networks in this study, SNA provides an effective explanatory perspective to understand the relationships between employees in organisations and the manner in which social media usage at work might affect work-related outcomes.

Our study is conducted at the intersection of social media and social networks and work-related outcomes, as shown in Figure 1.

Figure 1 Research boundaries



Social media platforms are broadly defined as internet-based applications, sometimes referred to as Web 2.0, which allow for the creation and exchange of the content that is generated, controlled and disseminated by the users (Kaplan and Haenlein, 2010). Technology-driven social media platforms are changing traditional and customary practices in communication, collaboration, consumption and creation of value within work environments (Chen et al., 2014; Phang et al., 2014). This transformative role of social media influences business functions in organisations, such as marketing (Tewari and Misra, 2015), operations and human resource management (Aral et al., 2013; Kaplan and Haenlein, 2010). The disruptive role of social media technologies can be used as a platform to generate value and facilitate innovation. Figure 1 illustrates the research gap in the areas of social media and work-related outcomes. We specifically investigate the association between social media usage and work project success and we explain our results using the strength of ties theory from SNA.

2.1 Theoretical background

Granovetter (1973) explored social networks as a means to understand the relationships between individuals and groups. He notes that SNA based on interpersonal ties between individuals can explain social connections. The strength of an interpersonal tie between

two individuals is defined by the amount of time, emotional intensity, the mutual confiding and reciprocal services involved in the relationship (Granovetter, 1983). SNA posits that there are two kinds of network ties, weak ties and strong ties. Weak ties are present when the connections between individuals are peripheral and their contact with each other is infrequent. In the case of strong ties, connections are deep and communication is frequent (Crowell, 2004). Granovetter (1983, 1973) argues that stronger ties between individuals will increase the chances to connect with more individuals who are like them. Strong ties seek congruent feelings whereas weak ties are less concerned with similar feelings.

Individuals having only few weak ties will miss the opportunity to know about the peripheral parts of their social systems and will isolate themselves and focus their connections to their close, strong ties (Granovetter, 1983). Social systems characterised by weak ties will be defragmented into distinctly disconnected groups within which novel ideas are either conceived or developed (Granovetter, 1983, 1973). Therefore, social media users characterised by having many weak ties are more likely to be engaged and active in communicating between these groups tightly connected with strong ties (Kavanaugh et al., 2005). Similarly, in the work environment people having many weak ties create connections which can be a source of information and expertise that may positively affect the efficiency and productivity of what they do in their organisations (Granovetter, 1973; Clampitt and Downs, 1993) through exposure to new and novel ideas to tightly knit groups.

Organisations are social systems consisting of different subunits in which employees define and sustain their relationships with other employees over time (Nahapiet and Ghoshal, 1998). Weak ties are adaptive and autonomous and are not constrained by organisational formalities (Nahapiet and Ghoshal, 1998). The social capital theory (Chen et al., 2017) proposes that a network of relationships creates a credentialed resource that can be used by the members of the network to access opportunities and achieve a collective goal (Nahapiet and Ghoshal, 1998). Employees with weak ties can transfer novel knowledge about projects that is not available to employees with strong ties (Hansen, 1999). Hence, access to new, novel and non-redundant information through weak ties is important to generate new information that can enable organisational project success (Granovetter, 1983; Hansen, 1999). The reduction of redundancy through weak ties increases the effectiveness of information diffusion (Nahapiet and Ghoshal, 1998). Employees having weak ties are able to search their network to obtain new knowledge about the projects with lower effort or cost (Hansen, 1999). Subunits with weak ties in an organisation can transfer useful information about projects which can result in success (Hansen, 1999).

The theory of strength of weak ties can help us better understand social media and design work environments around various elements of social media such as message routing and information prioritisation (Gilbert and Karahalios, 2009). There is a duality of work-related outcomes as a consequence of the positive and negative attributes of the application of social media in organisations. The strength of weak ties arises when organisations use social media toward a positive outcome by facilitating diffusion of novel and useful information. However, the strength of weak ties can create a negative outcome by derailing normative organisational work environments. Proactive organisational priorities and policies regarding social media can mitigate negative outcomes and reinforce positive outcomes.

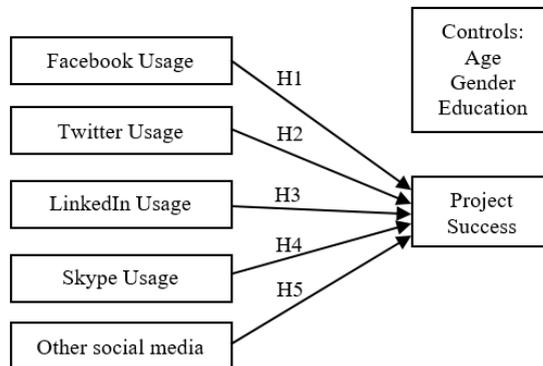
The effect of using internet-based communications on social relationships depends on the manner in which individuals sustain the balance between weak and strong ties (Nahapiet and Ghoshal, 1998). Online weak ties, supported by the use of popular social media such as Twitter, Facebook, LinkedIn and Skype, provide an opportunity for the individuals in organisations to access useful information and novel ideas that are not available within strong ties bound by organisational social structures and regulations (Kraut et al., 1998). Moreover, some social media platforms can enable stronger ties while others support weaker ties. For example, Facebook readily lends itself as a place for friends and family members to connect (strong ties), whereas LinkedIn is more for professionals to find each other and connect (weak ties).

2.2 Literature review and hypotheses

Business executives and managers are interested in finding avenues by which their firms can secure a competitive advantage and improve performance (Idemudia, 2016). One avenue to explore would be to understand whether the use of popular social media platforms such as Facebook, Twitter, LinkedIn, Skype and others (Kaplan and Haenlein, 2010) create an opportunity to generate benefits for the firm. Hence, the use of social media by employees to generate benefits for the firm is of interest to executives and to users themselves due to the potential for increased productivity and organisational benefits.

Two broad streams of research investigate social media usage within organisations. The first area is SNA to understand organisational knowledge sharing through information diffusion (Garg et al., 2011; Stieglitz and Dang-Xuan, 2013) and knowledge management (Alipour et al., 2011; Ellison et al., 2015; Hu and Schlagwein, 2013). The second area investigates the link between social media usage and work-related outcomes such as marketing (Schniederjans et al., 2013; Sotiriadis and Zyl, 2013; Thurston, 2011; Ulbrich et al., 2011; Xia, 2013; Luo et al., 2013) and productivity at work (Aguenza and Som, 2012; Dewan and Ramaprasad, 2012, 2014). We add to this emerging literature by analysing the impact of social media usage specifically on work-related project success.

Figure 2 Research model



We developed a set of hypotheses and a research model for social media usage at work and its impact on project success as illustrated in Figure 2. We captured the various

dimensions and measures by which an organisation may evaluate project success by allowing the respondent to make the decision on whether the project was successful or not, which also allows the respondent to report the degree of success. Therefore, to accommodate such heterogeneity we do not offer a specific measure of project success.

Facebook has started a new service called Marketplace for buying and selling where product offerings are presented to the users.³ Facebook integrates Marketplace with the search patterns of the users and it is the most frequently used platform for social media in the retail industry (Gu and Kim, 2016). Facebook continues to be an interesting social medium for scholarly research because the platform enables users to bring their offline and online connections closer (Kalelioğlu, 2017). However, there are emerging reports that highlight the negative effects of Facebook usage on organisational performance. As of March 2017, an average of 1.28 billion active users visit Facebook each day and the average time spent by Facebook users has increased from 40 min in 2014 to 50 min in 2016 (Moqbel and Kock, 2017). Facebook is the most visited social media platform. 62% of employees accessed social media during working hours and nearly 83% of those employees were found to have spent a significant amount of time browsing Facebook.⁴ Considering that Facebook is a platform where friends and family members connect with each other and the foregoing arguments, we hypothesise H1:

H1 Using Facebook at work is negatively associated with project success at work.

As of 2016, there are 310 million monthly active users and 1.3 billion Twitter accounts have been created.⁵ Meanwhile, about 65.8% of US companies with 100 or more employees use Twitter for marketing, 92% of companies Tweet more than once a day and 80% of Twitter users have mentioned a brand in a Tweet⁵. Firms use Twitter as a communication channel to promote their products and to generate business value (Culnan et al., 2010). Firms can leverage their operations and communicate with their customers and suppliers in new ways by using Web 2.0 technologies such as Twitter. The Twitter social media platform can be a good communication channel for those firms that have the ability to respond to customer questions and concerns quickly. Twitter as a microblogging platform can increase the interaction between companies and their customers and Twitter-based interaction can produce effective results (Fischer and Reuber, 2011). Twitter as a broadcasting medium is a good and effective platform for customer and public relationships. However, Twitter has limited character range and does not facilitate one-to-one communication to delve into deeper analysis of organisational projects. Hence, we argue that the use of Twitter at work will not contribute to project success. Twitter functions as an intermediary link between groups of people, such as a celebrity and their followers, or a chief executive officer (CEO) and stakeholders. It allows users to broadcast personal or strategic communications and enable information sharing. However, given the nature of Twitter we argue that such communications and diffusion are unrelated to organisational projects and are not specific to organisational projects (Grabowicz et al., 2012). Therefore, we offer hypothesis H2:

H2 Using Twitter at work is negatively associated with project success at work.

LinkedIn is a popular social media platform that was designed for and focused on use as a professional networking platform. LinkedIn connects its members based on the nature of their work, professional interests and type of professional contacts. LinkedIn helps members search for other individuals and organisations that may be in similar fields,

related fields, or in fields that may have the potential to address professional or career issues. Such issues could be related to work projects. For example, LinkedIn users send messages to companies and professionals for help or post questions on its discussion boards. Hence, LinkedIn members can affect the performance of their organisational projects and activities based on various social and professional attributes offered within LinkedIn such as groups, events, company profiles and posted jobs.⁶ Therefore, based on the potential for LinkedIn to provide professional and work-related help, we offer hypothesis H3:

H3 Using LinkedIn at work is positively associated with project success at work.

Skype, recently acquired by Microsoft, is the popular online audio and video calling service with more than 300 million active users, 2 trillion minutes of free Skype video calls over the last decade and with over 750 million downloads on Windows Phone android devices, iPhone and iPad⁷. Skype is used to transfer knowledge within the organisation (Alipour et al., 2011) for collaborative projects and for sharing information in real-time (Kolberg et al., 2013). Employees find Skype to be an effective communicative tool for problem solving (Petiz et al., 2015). The basic capabilities of Skype, such as instant messaging and other tools, such as file sharing utilities and distributed computing, facilitate computer-mediated collaborative works in dispersed teams (Joisten and Gross, 2007). Prior literature and supporting arguments lead us to hypothesis H4:

H4 Using Skype at work is positively associated with project success at work.

Employee social media usage in organisations is not limited to the publicly available and popular social media platforms such as Facebook, Twitter, LinkedIn and Skype. Some organisations use other social media platforms, which are not well known, or are specifically designed for their enterprise and therefore not available publicly. For example, Yammer⁸ is an enterprise social media platform that is used for private communications within organisations. Therefore, we posit that such social media that we denote as other social media in our survey, will have a positive effect on project success at work because of enterprise-specific attributes that are likely to be present on the platform. This argument leads us to hypothesis H5:

H5 Using other social media at work is positively associated with project success at work.

3 Data and model

Our empirical data was collected primarily from professionals enrolled as students at a major public university in the state of Washington. The subjects were recruited from online business classes and most of the respondents were employed and were working adults. The data was filtered to only include respondents who were working adults. A total of 296 subjects (N = 296) participated in this study. The summary demographics of the subjects are provided in Table 1.

Table 1 Demographics of the projects

<i>Variable</i>		<i>Percentage</i>
Age	20-35 years old	72
	35-50	23
	50-65	5
Gender	Female	58
	Male	42
Education	High school	8
	Community college	41
	Four year college	45
	Graduate degree	6

We employ a linear regression model to estimate the magnitude and direction of the relationship between the use of a specific social media platform at work and project success at work. To accommodate heterogeneity in the manner in which project success may be evaluated, we do not provide a specific metric of success. Project success at work was measured using self-reported responses on a Likert scale. We accounted for biases based on individual or organisational differences in reporting project success using controls such as age, gender and education. The model specification is as follows:

$$\begin{aligned}
 \text{ProjectSuccess} = & \beta_0 + \beta_{1i} \cdot \text{FB_}W_i + \beta_{2i} \cdot \text{Twitter_}W_i \\
 & + \beta_{3i} \cdot \text{LinkedIn_}W_i + \beta_{4i} \cdot \text{Skype_}W_i \\
 & + \beta_{5i} \cdot \text{OtherSM_}W_i
 \end{aligned}$$

4 Results

We applied the linear regression specification to our survey dataset to understand the relationship between social media usage at work and project success described in our hypotheses. In the following sections, we report the results from the regression analysis and describe each of the relationships presented in the research model illustrated in Figure 2. Table 2 provides a summary of the results. Project success was the dependent variable (DV) and use of social media was the independent variable in the analysis. FB stands for Facebook and Other SM stands for other social media platform.

4.1 H1: Facebook and project success at work

We found the association between the use of Facebook at work and project success to be negative and significant. This result supports hypothesis H1 which posits that the use of Facebook at work is negatively and significantly associated with project success at work. Furthermore, this result confirms the anecdotal narratives about the negative impact of using Facebook at work and finds that Facebook adversely affects work productivity of employees with respect to the success of work-related projects. However, our findings are at odds with prior research that suggests social media can improve productivity at work.

Table 2 Summary of Results for social media usage at work and project success

<i>DV = project success</i>	<i>R square</i>		<i>p-value</i>	
SM at work	.161		.213	
<i>DV = project success</i>	<i>Beta</i>	<i>SE</i>	<i>t</i>	<i>p-value</i>
FB	-.157	.068	-2.142	.033**
Twitter	-.014	.097	-.215	.830
LinkedIn	.094	.076	1.513	.132
Skype	-.026	.086	-4.30	.668
Other SM	.135	.079	1.831	.068*

Notes: * $p < .1$; ** $p < .05$; *** $p < .001$.

We explain our results using SNA and the theory of the strength of weak ties (Granovetter, 1973), which posits that weak ties disseminate useful novel information between departments in an organisation (Granovetter, 1983). Facebook is primarily a personal social media platform and novel information regarding work-related projects may lie outside of the domain of Facebook communications and the exchange, since it is primary for reporting and posting of social activities. Furthermore, the use of Facebook for personal purposes at work is very likely to consume time in non-work related employee activity, which, in turn, can have a negative impact on productivity through adverse effects on work-related outcomes such as project success. The negative effect from personal use of Facebook may be amplified by the fact that the ties on the platforms are strong, not weak ties: People are less likely to bring work-related projects to the platform to seek input, information or novel ideas from their personal network.

4.2 H2: Twitter and project success at work

Our result regarding Twitter was not significant and therefore, does not support the hypothesis that the use of Twitter at work is negatively and significantly associated with project success at work. This finding suggests that Twitter does not hinder nor facilitate project success in organisations. Therefore, promoting or banning Twitter in the workplace will have no effect on project success at work. We have previously noted in the arguments preceding hypothesis H2 that consumer-oriented firms may use Twitter to resolve customer issues and communicate with customers. It is quite possible that consumer-facing firms or organisations may find support for our hypothesis.

The strength of weak ties may help employees within an organisation to facilitate key information diffusion about projects and work initiatives (Gilbert and Karahalios, 2009), which can enable project success. However, the inherent characteristics, features and application of the Twitter platform can generate an opposing effect. This opposing effect arises because the microblogging and broadcasting Twitter platform is not conducive to the exchange of detailed, novel, project related information and Twitter use, as such, is unproductive to solving project related issues. Hence, this opposing effect will lower the probability of project success. Together, the net effect may be a neutral impact on the success of projects at work. Twitter enables quick short information exchange and broadcast but the platform may not always be useful towards project related goals at work.

4.3 H3: LinkedIn and project success at work

We found that the association between the use of LinkedIn at work and project success at work is not significant. Hence, the results indicate that the use of LinkedIn at work is not associated with project success at work. This result does not support our hypothesis H3 that the use of LinkedIn at work is positively and significantly associated with project success at work. Our finding suggests that using LinkedIn, a social media platform that was designed for professional and career use may not be an efficient platform to bring ideas and solutions towards completing projects successfully. LinkedIn has features for career networking and professional growth that may be useful to organisations in other work-related outcomes; however, those features may not necessarily support the implementation of projects at work.

The theory of the strength of weak ties provides an explanation of our results. Unlike Facebook, which may be characterised as a network of strong ties, LinkedIn, on the other hand, may be viewed as a network of weak ties because of its professional and career focus. Thus, LinkedIn can facilitate the access to informational sources, which are useful for implementing organisational projects (Ellison et al., 2015; Granovetter, 1983), increasing their social capital (Crowell, 2004) and sharing knowledge (Hansen, 1999). However, LinkedIn has been designed as a platform for employees who are members of the platform, to seek jobs, positions, potential collaborators and explore and learn about new technologies. For example, LinkedIn users discuss topics in various groups and discussion boards about emerging technologies related to cloud computing. Specific and key knowledge obtained through weak ties from the LinkedIn social network may not critically advance specific work projects, as the information they bring are much broader and not project or task specific, unless such information is also related to professional career advancement. Hence, weak ties within LinkedIn can provide new knowledge regarding emerging technologies and career prospects but may lack the information to help solve problems in specific organisational projects. LinkedIn will connect the employee with peripherally distributed units within the organisation or outside the organisation, who may have expertise and knowledge in the problem area related to projects. Such networks may not help with work projects because LinkedIn is career and professional oriented (Grabowicz et al., 2012).

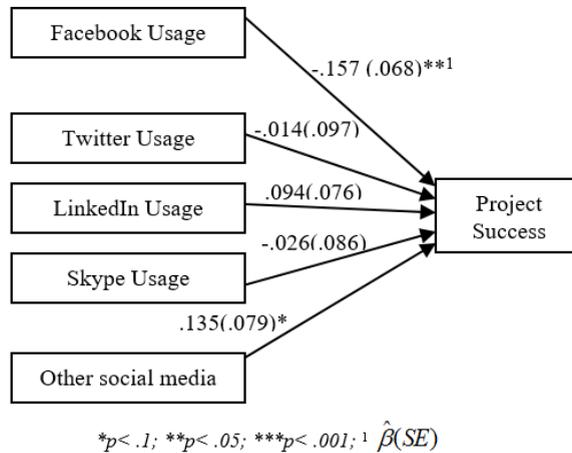
4.4 H4: Skype and project success at work

Hypothesis H4, which posits that the use of Skype at work is positively and significantly associated with project success at work, was not supported as well. We found the association between the use of Skype at work and project success not to be significant. This result suggests that Skype does not create a significant positive impact on the success of work projects despite anecdotal narratives that consider Skype as a potentially powerful tool for use within the organisation and for work projects. This result is surprising, particularly given the widespread use of Skype (Varotto et al., 2016).

We believe the explanation for this lack of significant positive association arises from two opposing effects such that the net effect of using Skype at work on project success is effectively neutral or insignificant. We explain this by viewing Skype in terms of a duality of effects with opposing effects regarding project success. Skype is a free video-calling, file sharing, instant messaging platform that can be easily used for project-related communication at work (Joisten and Gross, 2007). The theory of the

strength of weak ties (Granovetter, 1983, 1973) suggests positive effects from Skype to diffuse useful information and to create collaborative groups at lower costs (Hansell, 1984). These positive effects can help employees with the success of projects at work. However, simultaneously, Skype can be a convenient, multimedia communication method for personal and non-work related purposes. Intuition suggests that such personal use will reduce employee productivity. Non-productive activities from the use of Skype will offset any positive effects through the strength of weak ties on project success. Hence, we suggest that such non-productive use of Skype at work cancels any positive effect on project success and results in a net neutral effect that that our analysis find as insignificant.

Figure 3 Research model with results



4.5 H5: other social media and project success at work

Hypothesis H5 posits that the use of other social media at work is significantly and positively associated with project success at work was supported. In our study, other social media is employed as a catchall option in the survey to capture all other social media other than popular social media such as Facebook, Twitter, LinkedIn and Skype. Therefore, this category also includes enterprise-specific or firm-specific social media for collaboration and communication at work as well as other emerging public social media platforms.

Prior literature has noted that enterprise-specific social media can create positive effects on work project success (Go and You, 2016) and can facilitate knowledge sharing (Ellison et al., 2015) and cross boundary communication (Gibbs et al., 2015). However, other factors such as the limitations of such social media, which may preclude connections outside the organisation, may prevent the platforms from benefitting from the strength of weak ties outside the organisation. Enterprise social media in multinational organisations can improve knowledge sharing, but smaller, private organisations may not have the resources or the ability to develop or deploy enterprise-specific social media and the use of social media may shift towards personal use (Heyman et al., 2014) that may adversely affect project success (Ellison et al., 2015).

The results of the analysis from the regression model are provided in Figure 3.

5 Robustness checks

We performed robustness checks on our regression model in three areas:

- 1 we applied controls to the models and evaluate the results with control variables included in the regression specification
- 2 we modified the regression specification to control for heteroscedasticity
- 3 we checked for multicollinearity.

Table 3 reports the regression results where age, gender and education are employed as controls in the regression specification. The estimated coefficients and p-values change slightly from the earlier results without controls in the regression specification. With the controls included in the model, respondents with community college education became significantly associated with project success (p-value = 0.012; Beta = 0.165); other social media became non-significant and LinkedIn usage at work became positive and significant (p-value = 0.073; Beta = 0.114).

Table 3 Summary of results for social media usage at work and project success with controls

<i>DV = project success</i>	<i>R square</i>		<i>p-value</i>	
SM at work	.259		.071*	
<i>DV = project success</i>	<i>Beta</i>	<i>SE</i>	<i>t</i>	<i>p-value</i>
FB	-.174	.068	-2.370	.019**
Twitter	.014	.100	.210	.833
LinkedIn	.114	.078	1.798	.073*
Skype	-.003	.090	-.042	.967
Other SM	.121	.079	1.637	.103
Age_35-50	-.049	.154	-.792	.429
Age_50-65	-.105	.338	-1.475	.141
Gender	-.039	.132	-.622	.534
edu_high_school	-.004	.241	-.056	.955
edu_community_college	.165	.139	2.543	.012**
edu_graduate_degree	-.005	.338	-.064	.949

Notes: *p < .1; **p < .05; ***p < .001.

Note that the respondents are working professionals pursuing an online four-year college degree from a major public university and some of them had previously completed a community college education prior to pursuing their four-year degree. The possible explanation for LinkedIn usage becoming significant could be that the respondents with some education were able to resolve a way to leverage LinkedIn not just for possible career and professional advancement but to benefit their projects at work. These respondents may be more diligent and detailed in project execution by virtue of having gone through the rigor of a college education. They may also be more resourceful in exploiting their professional networks to succeed at their projects at work.

In contrast, other social media becoming non-significant may result from its inability to offer respondents the same options, particularly the combined benefits of advancing

work projects and career prospects as in the case of LinkedIn. Facebook use was negatively associated with project success without controls and this negative association is preserved with controls included in the model.

Using the multicollinearity diagnostics in SPSS, we test for the collinearity between our predictors. The results are provided in Table 4. The test for the multicollinearity shows that the variance inflation factor (VIF) for all the predictors is less than 2.0 and therefore, there is no material collinearity between the independent variables.

Table 4 Summary of results for the multicollinearity

<i>DV = project success</i>	<i>Tolerance</i>	<i>VIF</i>
FB	.681	1.469
Twitter	.886	1.129
LinkedIn	.947	1.056
Skype	.968	1.033
Other SM	.670	1.492

Table 5 Summary of results for the heteroscedasticity-consistent estimation of standard errors

<i>DV = project success</i>	<i>R²</i>		<i>p-value</i>	
SM at work	.026		.171	
<i>DV = project success</i>	<i>Beta</i>	<i>SE</i>	<i>t</i>	<i>p-value</i>
FB	-.145	.070	-2.061	.040**
Twitter	-.020	.099	-.209	.834
LinkedIn	.114	.070	1.632	.103
Skype	-.036	.080	-.456	.648
Other SM	.143	.073	1.946	.052*

Notes: * $p < .1$; ** $p < .05$; *** $p < .001$.

We test for the homoscedasticity assumptions based on the methods suggested by MacKinnon and White (1985) and Long and Ervin (2000). We use the Huber-White heteroscedasticity-consistent estimation of standard errors using the SPSS code provided by Hayes and Cai (2007). The results from our heteroscedasticity-consistent regression specification are reported in Table 5. The results show that the estimated coefficients and p-values for the predictors do not significantly change. Therefore, the regression results for the data are robust. Overall, the regression results are robust with controls, does not suffer from multicollinearity and is robust to heteroscedasticity.

6 Discussions

This study addresses the gap, which resides at the intersection of social media, social networks and work-related outcomes. We analysed a set of survey-based data employing a linear regression model, with and without controls. Age, gender and education were used as controls in the study. We explained the findings from our study using SNA, the related theory of the strength of weak ties (Granovetter, 1983, 1973) and associated

theories such as knowledge sharing (Chen and Kuo, 2017), information diffusion (Acquisti and Gross, 2006) and social capital (Crowell, 2004).

We found that using Facebook at work, with or without controls, is negatively and significantly associated with project success at work, whereas using other social media is positively associated with project success without the controls. The use of LinkedIn at work was positively associated with project success when the controls were included. These results have potential value-enhancing implications for practice and policy. Using popular social media platforms, such as Twitter and Skype at work, were not found to be significantly associated with project success at work. Restrictive Facebook policies in the work environment can mitigate the negative impact of Facebook on project success. While using Facebook, perhaps by marketing departments, at work could be beneficial for marketing campaigns and advertising campaigns to target certain consumers, our results show that its use reduces the ability to undertake projects successfully.

LinkedIn is a social media platform that is specifically designed for professional use and for use in professional networking and career advancement. Therefore, the nature of LinkedIn can inherently provide informational sources and capabilities related to the work-related projects, particularly for college-educated employees. In contrast, Twitter and Skype, may have a double-edged function. The double-edge arises from opposing forces: The positive attribute is that the platforms may provide benefit for work related projects and the negative effect arising from use for personal purposes, which can negatively affect project success. Such dual effect causes the net effect of using Twitter and Skype to be neutral for project success at work. Our finding is that Twitter and Skype platforms are not significantly associated with project success at work.

Our findings have a number of implications for practice. Many organisations invest time and money to develop and implement strategies in technological, informational and organisational infrastructure to control and monitor the use of social media platforms at work. Our results show that such efforts can be value-enhancing to organisations in a very specific case, such as by enabling the use of other social media which may be firm-specific or enterprise-specific. Devising policies to control usage of Facebook would be advisable. Attempting to control the use of Twitter and Skype at work may be a wasted effort since their use has no effects project success as shown by our analysis.

Use of Skype at work, unlike the anecdotal narratives, does not enhance the project-related communicative and collaborative qualities of work (The Skype Team, 2016) with respect to project success. Microsoft, which owns Skype, is attempting to offer an enterprise version of Skype to make the platform more work-oriented and professional. There may be value in pursuing the enterprise version of Skype, based on our findings. We also find that with age, gender and education as controls, using LinkedIn at work enhances project success. The implication is that use of the LinkedIn platform may be effective for employees with some college education.

We recognise a number of limitations in our study. First, project success is measured using self-reported responses. The view of project success may vary among respondents because of the self-reported nature of the study. The subjective view of project success can be a limitation. At the same time, the various interpretations of project success can be beneficial in capturing the diversity of ways in which success of a work project is evaluated or viewed. Second, we did not precisely capture whether the respondents used social media at work for work purposes or for personal and leisurely purposes. We simply asked whether they use social media at work in the survey. Third, we included the

catchall item ‘other social media’ to address social media platforms specifically designed and used for work purposes, or other less popular social media. The broad scope of this variable does not reveal the exact platforms used. Finally, our respondents in the survey are mostly from the northwest region of the United States and not geographically spread across the country.

7 Conclusions

The results and analysis of our empirical study suggest that the use of social media at work have a limited association with project success. Indeed, using Facebook was found to have a negative effect on project success. Using LinkedIn was found to have a positive effect on project success when the employee has some education. Using other social media at work was found to have a positive and significant association with work project success, when controls were not included in the analysis. The findings of our study can be used by managers, including social media managers, such as the chief digital officer (CDO), the chief marketing officer (CMO) and the chief information officer (CIO), to leverage the potential of social media platforms to improve organisational productivity. Our findings can help social media policy makers, executives and managers in organisations to steer the direction of social media usage at work to improve job performance and enhance productivity. For future research, we suggest studies in the areas that explore the impact of enterprise social media usage on productivity of firms. Future research can also investigate the impact of specific capabilities of social media platforms on organisational performance, information diffusion and knowledge management within the context of specific units, departments and industries.

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Notes

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- 5 <https://www.brandwatch.com/blog/44-twitter-stats-2016/>
- 6 <http://www.techrepublic.com/blog/data-center/five-benefits-of-linkedin-for-organizations-and-it-pros/>
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- 8 <https://www.yammer.com>.

Appendix

Survey questions

- 1 Are you currently working?
 - a Yes
 - b No

Demographics (there are 15 demographic questions. Full demographic questions can be provided upon request)

- 2 What is your age group (years)?
 - a less than 20
 - b 20 to less than 35
 - c 35 to less than 50
 - d 50 to less than 65
 - e 65 and higher
- 3 What is your gender?
 - a Female
 - b Male
- 4 What is your highest educational degree?
 - a High School
 - b Community College
 - c Four Year College
 - d Graduate School

Project success

- 1 Identify any project or task you have worked on or are working on and let's call it project or task 1. Check NA if you have not worked on or are not working on any project or task. Project or Task 1: Rate your face-to-face communications with your project team members:
 - a Very low or none
 - b Low
 - c Moderate
 - d High
 - e Very high or always
 - f NA
- 2 Project or task 1: Rate the success of this project:
 - a Unsuccessful
 - b Somewhat successful
 - c Met expectations
 - d Exceeded expectations
 - e Very successful
 - f NA

Social media usage

- 1 Rate your weekly use of Facebook at work
 - a Very low or none
 - b Low
 - c Moderate
 - d High
 - e Very high or always
- 2 Rate your weekly use of Twitter at work
 - a Very low or none
 - b Low
 - c Moderate
 - d High
 - e Very high or always
- 3 Rate your weekly use of Skype at work
 - a Very low or none
 - b Low
 - c Moderate
 - d High
 - e Very high or always
- 4 Rate your weekly use of LinkedIn at work
 - a Very low or none
 - b Low
 - c Moderate
 - d High
 - e Very high or always
- 5 Rate your weekly use of other social media at work
 - a Very low or none
 - b Low
 - c Moderate
 - d High
 - e Very high or always