An Existential-Humanistic Process Model of Knowledge Creation

Evidence, Limitations, and Potential for Innovation in Virtual Organizations

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***Abstract*—Despite rigorous business strategies, astute leadership, abundant capital, state-of-the-art technology and tools, creative skilled workforce, and established processes, many companies are waking up to a scene of despair. The tumultuous times of change marked by a complex business environment, exponential technologies, and market turmoil are driving the race to the finish for innovation. The premise of this research study was that if people are ultimately responsible for leveraging organizational assets and their own intellectual and imaginative resources for the creation of knowledge, then their need for a sense of community should matter and guide the social structure of their omni-connected work environment. From the participation of 264 knowledge workers across more than 12 industries, this quantitative study found that 48% of knowledge creation can be attributed to sense of community characterized by feelings of co-leadership, connection, belonging, give and take, ability to influence organizational outcomes, and creative growth. The results revealed that both high-tech and high-touch work practices, such as telecommuting, spontaneous face-to-face interactions, and synchronous and asynchronous collaboration lend positive support for sense of community, the source of undeniable advantage. The strategic outcome of this study is an existential-humanistic process model of knowledge creation presented along with evidence, limitations, and potential for innovation in virtual organizations.**

Keywords-knowledge creation; innovation; sense of community; technology-mediated collaboration; virtual organization; telecommuting; needs fulfillment; emotional connection; group membership; influence; socialization; externalization; combination; internalization.

I. INTRODUCTION

A business environment characterized by shocks, disorder, and volatility can drive unadaptive companies to extinction, while persistently favoring, to the bitter end, companies that are prepared to innovate. Knowledge creation has therefore long been recognized in the business literature as a crucial construct [1][2]. Scholars and practitioners from a range of disciplines have devoted their energies to uncovering ways to foster the creation of knowledge [3][4][5]. The reality is that knowledge creation, rather than being about the talent of a single individual, is an interpersonal process [6][7][8]. Knowledge is created out of a rigorous dialectical exercise of gathering, interpreting, communicating, synthesizing, and applying collective reasoning, observations, and experiences [9][10][11].

Dialectic collaboration is a means for amalgamating human ideas permeated in a multiplicity of social, cultural, and historical contexts [12]. Exponential technologies have opened doors for evermore participants to join in virtual collaboration [13] to solve the foremost challenges facing their organizations. Being more impersonal and inhibited than face-to-face interactions, virtual collaboration can lead to conflicts and misunderstandings [5] and increase the risk of perpetuated acrimony and stress [14]. This dilemma surrounding virtual work has spawned off a vociferous debate among practitioners and scholars. Meanwhile, companies across the board are struggling to find ways that not only promote social bonds, workplace fluidity, and serendipitous encounters, but also foster employee flexibility, engagement, and loyalty [4][5]. Yahoo! and Hewlett Packard, two of the companies caught in the virtual work dilemma, have reversed their longstanding telework practices [15][16][17], without comprehending how that makes them vulnerable to a subtractive effect detrimental to innovation [12].

Knowledge is a complex, organic asset [18][19] that arises out of an interdependent process of collective imagination [4][8]. Literature is replete with evidence that throwing money perfunctorily into research and development or incentive systems does little to promote innovation capabilities. Apple ranked the most innovative company for three consecutive years, yet its spending on research and development was nearly half as much as that of its nearest rivals [20][21]. The fact that the companies judged the most innovative and the best places to work for are vastly different [21][22] suggests that innovation is neither a result of inundating research and development with resources nor is it about pampering employees with over-the-top perks.

The most powerful strategy for companies seeking to build and sustain the capacity for innovation is to focus on the virtues, skills, and knowledge of people and how to connect their talents [23][5]. For companies aspiring to produce game-changing breakthroughs for their markets, the game change must begin at home. We argue that sense of community, the imperceptible link that connects and drives people, is both an antecedent and a consequence of knowledge creation and, as such, that the overarching priority of organizations must be to shape the social structures of knowledge work with a careful consideration to sense of community.

The next section comprehends the important theoretical research and empirical studies published in the literature on

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knowledge creation, sense of community, and social structure of virtual organizations. The sections on problem and purpose statements interpret the problem researched and state the purpose of the study. The following sections present the research questions used to extend prior theory, the instruments underpinning the study, and the research framework of this study. The sections that follow present the results and limitations of this study. Finally, the conclusions and the scope for future work are presented.

II. LITERATURE REVIEW

Enduring companies are built by people having the passion to bring innovative products to life [4][24]. To such companies, success is more than material gains. Knowledge, the root of innovation, is fueled by humanity. When the participants feel a sense of belonging, know that they make a difference, and believe that their commitment will get them what they need, they are said to share a sense of community [25][26], which helps build trust, inspire sacrifice, and power collaboration [27]. The social connection renders the knowledge creation process organic by helping grow the participants' personalities and extend the response repertoire of the company sustainably over time. While the human ability to find patterns in random noise and apply imagination is crucial [4][24], knowledge creation is not about the talent of a single individual with bounded rationality [10][28][29][30].

Dyer et al. [9] observed that innovators are consistent exemplars of the skills for questioning, observation, networking, experimentation, and association. Knowledge creation includes generation, improvement, application, and utilization of new ideas [31, p.70], the basis of which is in the social, cultural, and historical contexts of the individual [32]. However, interpersonal networks are indispensable to a dynamic evaluation, permeation, and adoption of knowledge [5][33], characterized as complex, tacit, subjective, embedded, and socially constructed [6][34][35].

Sense of community is an invisible force that unites people, embodying trust and affection associated with feelings of sacrifice, loyalty, and engagement [36]. It affords an aggregation of human assets needed to deal with forces in the external and internal environments [37], and delimits in-groups from out-groups and creates a form of safety, belonging, and intimacy among the participants [25]. Interpersonal configurations flourish if the relationships that underpin them are accumulative [38]. Hirshi [39] held that attachment, commitment, involvement, and belief in common values were the principal aspects of social bond, a facet of the sense of community. A measure of bonding is social capital, which Putnam [23] referred to as the currency of trust, partnership, compassion, and communal interplay that not only satisfies the social needs of an individual, but also bears the potentiality for the improvement of the collective unit to which the individual belongs. Nisbet and Perrin [40] observed, "First and foremost of the social bond is the symbolic nature of all true behavior or interaction" (p. 39). Sense of community stimulates extension of the interpersonal selves of participants in the knowledge creation process, resulting in a broadening of the response repertoire of the organization [12][28].

An ever-increasing number of companies are adopting a distributed, networked structure, in which collaboration among dispersed people is largely mediated by technology. Such workplaces are called virtual organizations, wherein the knowledge workers are considered the most valuable asset [1]. Companies across the board are in a battle for talent. Drucker [1] observed that managers must treat knowledge workers as volunteers who are more concerned about autonomy and empowerment, connection with their peers, and engagement in organizational governance than they are about pay. Virtual organizations work when they offer workers a share in collective success, a way to govern themselves, effective collaborative structures and processes, and technologies for communication and coordination [13]. The downsides of virtual organizations, however, include virtual communication being more inhibited than face-to-face interactions and conflicts and misunderstandings being more pronounced [5]. Since social interplay is essential to knowledge creation, the need to understand how proper work practices and social dynamics might help overcome the shortcomings facing virtual organizations is greater than ever before.

Social technologies, including video telephony, have altered the concept of virtual organization. Pervasively available synchronous and asynchronous collaboration tools afford geographically-distant employees with the feeling of being together by enabling them to track position, opinions, movement, actions, and voice [41][42][43]. However, the fundamental prerequisite to knowledge creation is a free and fresh flow of ideas across organizational levels in physical and virtual work environments [44], for only when the participants' subjective and objective discernments afforded the opportunity to fuse is knowledge utilized and proliferated [8]. Hamel [2] suggested that being prisoners to the paradigms established and supported by the bureaucratic class may have limited further innovation. Changing these paradigms is counter to the traditional way of thinking and being [45]. McMillan and Chavis [26] observed that "the first task of the community is to make it safe to tell 'the Truth'" (p. 316). Adverse group and intergroup relationships are the sources of anti-learning behaviors and organizational defenses detrimental to knowledge creation [18], a sense of community fostered by healthy interrelationships is the foundation of knowledge making in human-centered organizations [2][7][46].

Knowledge creation at the foundation of innovation has, in fact, been acknowledged as a dynamic process of continuously resolving contradictions, chaos, and conflicts [12], which can often be sources of stress rather than job satisfaction [14]. Employees noted for leading Apple's transformation to the world's most innovative company described their journey as both *inspiring* and *unsettling* [4].

Just as human muscles get stronger when subjected to physical strain [11], knowledge creating organizations benefit from pressure, disorder, and unpredictability, provided their energies are suitably invested in talent, process, and tools [21]. In a global environment where innovation is front and center on the agenda of companies [9], it is crucial to understand how to sustainably foster knowledge creation.

III. PROBLEM STATEMENT

Exponential technologies have placed organizations in a dilemma by lifting the barriers to borderless collaboration [5][41], while rendering social interrelationships more impersonal and inhibited [2][13]. Evermore people are able to collaborate with great flexibility, yet their interplay is prone to conflict, misunderstanding, and distress [14]. Collaboration remains situated in legacy work practices and a leadership mindset that favors hierarchy, silos, and rigidity over practices that free people to stay human, express their creativity, and empower them to design their own work spaces [47]. Sense of community, the tacit link that allows people to build bridges across departments and geographic boundaries, can aid in resolving this dilemma by helping companies balance inclusion, cohesion, and empowerment. Knowledge creation and sense of community have long and independently been investigated [6][9][12][25], but the linkages between the two constructs have not been adequately explored in the ubiquitous context of omni-connected virtual organizations. Innovation is a field of unfair advantage and the lifeblood of business success [48]. There is therefore an urgent need to develop an understanding of the relationship between sense of community and knowledge creation and construct an instrumental model of knowledge-based work practices for the optimization of sense of community.

IV. PURPOSE OF THE STUDY

The purpose of this quantitative research was to investigate the relational linkages between sense of community and knowledge creation in the ubiquitous context of virtual organizations and explore the social structure of knowledge work with regard to sense of community. Knowledge-creating ability can only be sustained when organizations drive out self-protective, coercive, and socially-closed behaviors and instead offer workers a share in communal success, ways to express and govern themselves, and effective collaborative structures, tools, and processes.

V. RESEARCH QUESTIONS

The following three research questions guided this study:

1. What is the nature of relationship between sense of community and knowledge creation?
2. What is the nature of relationship between sense of community and structure of knowledge work?
3. What are the most important variables in the above relationships?

VI. RESEARCH FRAMEWORK

Sense of community has been described as "a feeling that members have of belonging, a feeling that members matter to one another and to the group, and a shared faith that members' needs will be met through their commitment to be together" [26, p. 9]. The four factors that encompass the force of sense of community are group membership, influence, needs fulfillment, and emotional connection. Group membership is a perception of oneness that leads members to act along the salient characteristics of the group. Influence is a mutual sense of significance and making a positive impact. It is a bidirectional concept that applies to the group member as well as the group. The needs of group members may include status, success, and association. A strong community arranges members and provides them with opportunities to satisfy their mutual needs. Emotional connection arises from the history the members share or recognize with. The more the positive experiences the members have experienced together, the greater their bond. In summary, a strong sense of community is built from members sharing a sense of oneness; feeling a bidirectional influence; having their needs of status, success, and association addressed; and experiencing a growth of social bonds with other members.

In Nonaka and Takeuchi's [8] constructionist model, new knowledge forms a spiral resulting from four modes of interactions between implicit and explicit forms of current knowledge, namely socialization, externalization, combination, and internalization. Socialization is the process of transferring implicit knowledge through a sharing of day-to-day experiences. Externalization is the process of making implicit knowledge explicit through articulation and communication. Combination is the process of synthesizing the implicit and explicit forms of current knowledge into an explicit form of new knowledge. Internalization is the process of assimilating or making implicit the explicit knowledge gained through the combination process. The process of incorporating knowledge into the regular activities of the organization has also been termed routinizing [5]. In summary, knowledge creation is a continuous and dynamic process of making current knowledge accessible and, through a dialectical process, enabling interactions among individuals in the organization and external environment drive the construction of new knowledge.

Sense of community is the locus (source) and work practices are the mechanism (means) in the knowledge creation (outcome) process. The technologies for communication and coordination in virtual organizations include email, audio and video interactions, and asynchronous tools, such as wikis, blogs, and e-learning forums. Collaborative technologies have enabled telecommuting, whereby employees are able to work

remotely. The consideration of the demographics of the participants, namely the diversity of age (generations), gender, role, tenure, and national culture is also important to the comprehension of sense of community and knowledge creation.

Fig. 1 illustrates the broad conceptual framework of this research. Based on the above discussion of knowledge creation, sense of community, and work structure, the following fundamental linkages were hypothesized:

H1. Sense of community is positively related to knowledge creation.

H2. Work practices are positively related to sense of community.

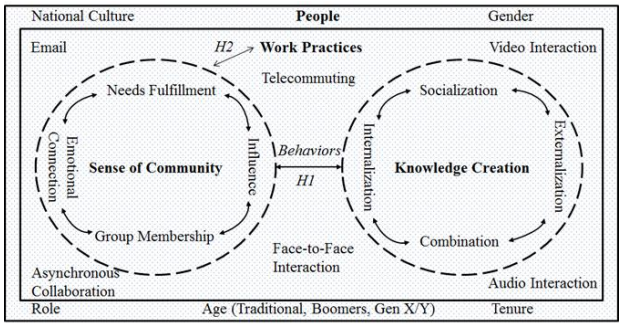

Figure 1. Locus (Sense of Community) and Mechanism (Work Practices) of the Outcome (Knowledge Creation).

VII. INSTRUMENTS

The 8-item Brief Sense of Community Scale (BSCS) [49] represented the sense of community dimensions of needs fulfillment, group membership, influence, and emotional connection. The BSCS was used with certain adaptations to be consistent the format of the combined survey and the research context. The 10-item Knowledge Creation Practices (KCP) [50] assessed the construct of knowledge creation based on Socialization, Externalization, Combination, and Internalization (SECI) processes of the knowledge creation theory. The KCP scale was used with certain significant adaptations not only to be consistent with the format of the combined survey and research context, but also to add further clarity to questions. The authors demonstrated their respective scales to possess acceptable levels of psychometric robustness.

VIII. RESULTS

Data for this research were obtained through a combined survey composed of adapted versions of the BSCS and KCP survey instruments supplemented by five demographic items and eight items related to work practices. The survey was hosted on Constant Contact, an online marketing company. The combined instrument, including the 13 new items and modifications to the original BSCS and KCP scales, was re-tested for reliability and factor goodness. The final instrument was confirmed to be psychometrically sound. Results of the reliability and factor analyses are available upon request.

From a professional contact database comprising 15,979 knowledge workers, such as skilled and qualified engineers, scientists, and managers, a random sample of 2,354 names was drawn, representing a wide range of industries and demographics. Emails were sent to the selected participants informing them of the purpose of the research and soliciting their voluntary and confidential participation. Of the 2,354 invitees, a total of 286 knowledge workers participated. 22 entries had to be discarded due to incomplete entries. A tally of 264 participants made this study, representing an 11.21% return rate. Data were analyzed using both SPSS v.13 and Minitab 16.

45 (17.2%) of the research participants were from the education industry, 44 (16.8%) were from healthcare, 34 (12.9%) from technology and telecommunications, 31 (11.7%) from service, 23 (8.6%) from government, 10 (3.9%) from consumer products, 9 (3.5%) from energy, 8 (3.1%) from banking, 7 (2.7%) from manufacturing, 7 (2.7%) from consulting, 5 (1.9%) from biotechnology, 4 (1.6%) from entertainment and leisure, and the remaining 35 (13.4%) were from the defense; software; food, beverage, and tobacco; transportation; aircraft; automotive; cargo handling; chemical; real estate; and sports industries.

More than twice as many females participated in the study as males. Participants whose work location was the United States dominated the study in terms of raw count. All age groups were represented in the study, except for workers under the age of 21. The participants spanned the entire range of tenure in their organizations. The largest representation was of those with more than 15 years of experience. Similarly, all the roles in the organization were represented, with senior managers having the largest representation.

Shapiro-Wilk and K-S tests of normality indicated that the constructs of sense of community and knowledge creation as well as their subfactors have bivariate normal distributions, making it possible to run parametric analysis. Data supported both hypotheses, *H1* and *H2*. We concluded that 0.48 (or 48%) of the variation in knowledge creation could be explained by the linear relationship between sense of community and knowledge creation. This means that about 52% of the variation in knowledge creation can be explained by factors other than sense of community. Such other factors may include the skills and creativity of the participants, leadership effectiveness, processes and tools, organizational culture, R&D and capital investments, and so on. The p value of .00 indicates there is sufficient evidence to support the claim of a linear relationship between sense of community and knowledge creation. Fig. 2 presents the linkages across work practices, sense of community, and knowledge creation, representing the first of the three parts of the existential-humanistic process model of knowledge creation.

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Although the factor of group membership was found to be independently related to socialization (r=.50, p=.00), externalization (r=.42, p=.00), combination (r=.49, p=.00), and internalization (r=.50, p=.00), it was found not to be significant when the influence of all the sense of community factors was considered collectively. It was noteworthy that audio teleconferencing and video teleconferencing were not significant to sense of community. This may be attributable to their limited deployment and usage in the participating organizations. Face-to-face interaction was found unrelated to sense of community both on its own and when considered with other work practice factors.

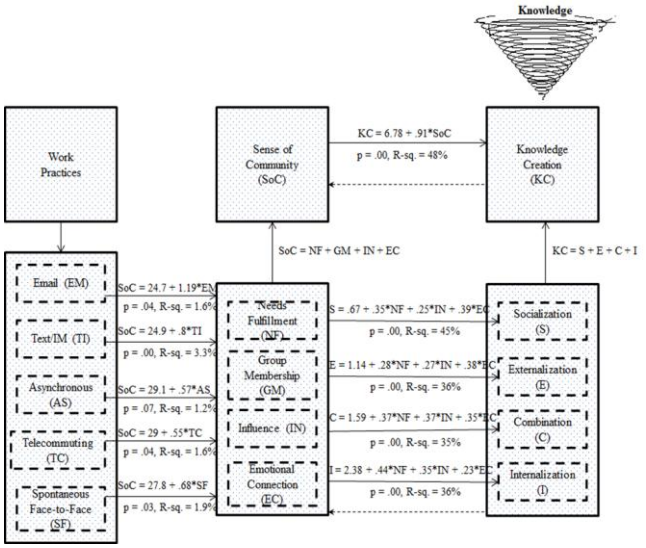

Figure 2. Part I: The Existential-Humanistic Process Model of Knowledge Creation

The results of ANOVA and general linear modeling indicated the significance of work practices on sense of community. The extent of telecommuting was found to be related to sense of community, needs fulfillment, emotional connection, and influence. The extent of ad interaction, defined as those interactions using instant/text messaging and spontaneous face-to-face meetings, was found to be related to sense of community, group membership, influence, and emotional connection. The extent of synchronous interaction, defined as those interactions taking place face-to-face, over instant/text messaging and audio/video conferencing, was found to be related to sense of community, emotional connection, group membership, and influence. The extent of asynchronous interaction, defined as those interactions taking place over email, wikis, blogs, and e-learning forums, was found to be related to sense of community, group membership, and influence.

A significant difference in the needs fulfillment score was found across the genders, with females reporting a higher mean score. The scores for sense of community, emotional connection, influence, and group membership were found to be significantly different across age and role. A significant difference in the needs fulfillment score was also found across age. No significant difference was found to exist in any of the sense of community dimensions across tenure. Participants aged 60 and above reported the highest scores for needs fulfillment, group membership, influence, emotional connection, and sense of community, whereas those between the ages of 21 and 30 reported the lowest scores. Senior managers reported the highest scores for group membership, influence, emotional connection, and sense of community, whereas individual contributors reported the lowest scores.

Fig. 3 illustrates the second part of the existential-humanistic process model of knowledge creation. Virtual collaboration is defined as the interface that occurs over email, text and instant messages, and asynchronous means, whereas proximate collaboration is defined as the interface that occurs over a face-to-face contact and over audio and video teleconferencing.

All four types of collaboration namely, virtual, proximate, synchronous, and asynchronous were found to be positively related to sense of community. The relationship of sense of community was found to be stronger with virtual collaboration than with proximate collaboration. Similarly, the relationship of sense of community was found to be stronger with synchronous collaboration than with asynchronous collaboration. To summarize, the five key findings of this study were as follows:

1. Sense of community is positively related to knowledge creation. 48% of the variation in knowledge creation can be explained by its linear relationship with sense of community.
2. Needs fulfillment, influence, and emotional connection are positively related to the four stages of knowledge creation, namely socialization, externalization, combination, and internalization.
3. Work practices are positively related to sense of community. Email, text and instant messaging, asynchronous interaction, telecommuting, and spontaneous face-to-face interactions are supportive of sense of community.
4. Virtual collaboration is more positively related to sense of community than proximate collaboration. Synchronous collaboration is more positively related to sense of community than asynchronous collaboration. Despite their positive relationship with sense of community, telecommuting and spontaneous face-to-face interactions are in sparse use across virtual organizations.
5. The more senior the member in both age and role terms, the higher his or her score for sense of community.

IX. LIMITATIONS

The cross-sectional nature of this study yielded only a snapshot of the understanding of sense of community, knowledge creation, and work practices. The sample for this study was not representative of the workforce. For

instance, twice as many females participated in this study than males. As such, the results could not be generalized.

A limitation to the reliability stemmed from the low Cronbach's alpha for the factor of influence, suggesting a small degree of inconsistency in the meaning drawn by the participants for the factor. The influence of microeconomic and macroeconomic conditions, the honesty of the participants in their responses, and the culture and maturity of the participating companies was uncontrolled. No definitive cause-and-effect relationships could be drawn.

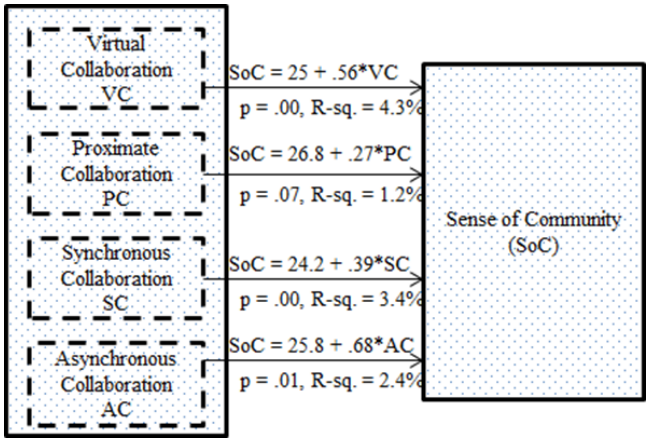

Figure 3. Part II: The Existential-Humanistic Process Model of Knowledge Creation

X. CONCLUSION AND FUTURE WORK

This quantitative study integrated the two constructs significant to knowledge-driven organizations, namely sense of community and knowledge creation and investigated their interrelationships through an examination of talent, technology, and work practices. From the participation of 264 knowledge workers across more than 12 industries, this quantitative study found that 48% of knowledge creation is attributed to sense of community, which is characterized by feelings of connection, belonging, give and take, ability to influence organizational outcomes, and creative support in omni-connected organizations. The results revealed that both high-tech and high-touch work practices, such as telecommuting, spontaneous face-to-face interactions, and synchronous and asynchronous collaboration lend support for sense of community, the source of undeniable advantage. The strategic outcome of this study was an existential-humanistic process model of knowledge creation presented along with evidence, limitations, and potential for innovation in virtual organizations.

While this study investigated the linkages between the constructs of sense of community and knowledge creation, follow-on research may focus on associated factors that may work together to sway the constructs. This study evaluated the constructs of sense of community and knowledge creation without considering the influence of other contributing factors, such as business strategies, leadership, capital and R&D spending, state of technology and tools, creativity and skills of the workforce, and processes in use. Subsequent research may replicate this research study with longitudinal approaches and triangulation methods to test the consistency of findings. Such studies might explore the lived experiences of the participants and the performance of their organizations over time.

This study serves as a reflection of technological adoption at a given point in time. Follow up studies might track shifts in the use of technology. As previously mentioned, it cannot be said that geographic and national culture differences do not contribute to relational outcomes. The opportunity to repeat this study across national cultures is also present in order to grow a multicultural understanding of knowledge and people practices.

This study did not attempt to examine the physical environment within which knowledge work is accomplished. Future research may explore the blend of work practices, such as telecommuting, ad hoc interactions, and synchronous and asynchronous collaboration in order to optimize sense of community and knowledge creation. Research may be supplemented with more in-depth evaluation of the specific work practices within companies, prevailing extent of sense of community, and innovation outcomes. In particular, research is warranted in understanding the influence of sense of community among the learners in online universities and its long-term consequences on the overall development and success of their graduates.

The participants in this study indicated a limited use of video technology, making it difficult to glean the influence of video-based collaborative technologies on sense of community. It might be worth replicating this study in companies where video technologies are more broadly deployed.

REFERENCES

[1] P. Drucker, Peter Drucker on the profession of management. Boston, MA: Harvard Business School Publishing, 1998.

[2] G. Hamel, The future of management. Boston, MA: Harvard Business School Press, 2007.

[3] C. Christensen, The innovator's dilemma: The revolutionary book that will change the way you do business. New York, NY: HarperCollins Publishers Inc., 2011.

[4] W. Isaacson, Steve Jobs. New York, NY: Simon & Schuster, 2011.

[5] E. M. Rogers, Diffusion of innovations (5th Ed.) New York, NY: Free Press, 2003.

[6] C. Argyris and D. A. Schon, Organizational learning II: Theory, method, and practice. Reading, MA: Addison-Wesley, 1995.

[7] D. Katz and R. L. Kahn, The social psychology of organizations. New York, NY: John Wiley & Sons, Inc, 1966.

[8] I. Nonaka and H. Takeuchi, The knowledge-creating company: How Japanese companies create the dynamics of innovation. New York, NY: Oxford University Press, 1995.

[9] J. Dyer, H. Gregerson, and C. Christensen, The Innovator's DNA: Mastering the Five Skills of Disruptive Innovators. Harvard Business School Publishing, 2011.

 ISBN: 978-1-61208-328-5

[10] K. Ichijo and I. Nonaka, Knowledge creation and management: New challenges for managers. New York, NY: Oxford University Press, 2006.

[11] N. N. Taleb, Fooled by randomness: The hidden role of chance in life and in the markets. New York, NY: Random House, 2004.

[12] I. Nonaka and R. Toyama, "The knowledge-creating theory revisited: Knowledge creation as a synthesizing process," Knowledge Management Research in Practice, 1, 2-10, 2011.

[13] M. L. Markus, B. Manville, B., and E. C. Agres, "What makes a virtual organization work?" Sloan Management Review, vol. 42, no. 1, pp. 13-26, 2000.

[14] P. Pritchett, and R. Pound, The stress of organizational change. Pitchett: http://www.pritchettnet.com, 2008.

[15] AllThingsD, "Survey says despite Yahoo! ban, most companies support work-from-home for employees," http://allthingsd.com/20130225/survey-says-despite-yahoo-ban-most-tech-companies-support-work-from-home-for-employees/, 2013.

[16] Mercury, "HP reportedly calling workers back to the office," http://www.siliconbeat.com/2013/10/08/hp-reportedly-calling-workers-back-to-the-office/, 2013.

[17] SHRM, "Yahoo bans telecommuting," http://www.shrm.org/hrdisciplines/technology/Articles/Pages/Yahoo-Bans-Telecommuting.aspx, 2013.

[18] C. Argyris, On organizational learning (2nd Ed.). Oxford, UK: Blackwell Publishers Inc, 1999.

[19] M. Polanyi, Personal knowledge. Chicago: University of Chicago Press, 1969.

[20] Apple, "10-K Annual Report," http://investor.apple.com/financials.cfm, 2013.

[21] Booz, "The 10 most innovative companies of 2013," http://www.booz.com/global/home/what-we-think/global-innovation-1000, 2013.

[22] Fortune, "100 best companies for work for." http://money.cnn.com/magazines/fortune/best-companies/, 2013.

[23] R. D. Putnam, Bowling alone: The collapse and revival of American community. New York, NY: Simon & Schuster, 2000.

[24] N. Silver, The signal and the noise: Why so many predictions fail—but some don't. New York, NY: The Penguin Press, 2012.

[25] D. W. McMillan, "Sense of community," Journal of Community Psychology, vol. 24, no. 4, 315-325. John Wiley & Sons, Inc, 1996.

[26] D. W. McMillan, and D. M. Chavis, "Sense of community: A definition and theory," Journal of community psychology, vol. 14, 1986.

[27] B. E. Ashforth and F. Mael, "Social identity theory and the organization," The Academy of Management Review, 14, 1, 20-39, 1989.

[28] S. M. Anderson and S. Chen, "The relational self: An interpersonal social-cognitive theory," Psychological Review, 2002, vol. 109, no. 4, 619-645, 2002.

[29] A. A. Gawande, "Slow ideas," http://www.newyorker.com/reporting/2013/07/29/130729fa_fact_gawande, 2013.

[30] J. March and H. Simon, Organizations. Cambridge, MA: Blackwell Publishers, 1993.

[31] R. Mitchell and B. Boyle, Knowledge creation measurement methods. West Yorkshire, UK: Emerald Group Publishing Limited, 2010.

[32] L. Vygotsky, Thought and language. Boston, MA: Massachusetts Institute of Technology, 1986.

[33] J. C. Spender, "Making knowledge the basis of the dynamic theory of the firm," Strategic Management Journal, vol. 17, Winter, 45-63, 1996.

[34] A. Chua and D. Goh, "Untying the knot of knowledge management measurement: A study of six public service agencies in Singapore," Journal of Information Sciences, vol. 34, no. 3, 259-274, 2008.

[35] J. Piaget, The mechanisms of perception. Abingdon, Oxon: Routledge, 1969.

[36] W. B. Miller and J. L. Rodgers, The ontogeny of human bonding systems: Evolutionary origins, neural bases, and psychological manifestations. New York, NY: Springer, 2001.

[37] R. Dawkins, The greatest show on earth: The evidence for evolution. New York, NY: Free Press, 2009.

[38] P. G. Zimbardo, C. Haney, W. C. Banks, W. C., and D. Jaffe, "The mind is a formidable jailer: A Pirandellian prison," The New York Times Magazine, section 6, pp. 38-42, April 8, 1973.

[39] T. Hirshi, Causes of delinquency. Berkeley, CA: University of California Press, 1969.

[40] R. Nisbet and R. G. Perrin. The social bond. New York, NY: Knopf, 1977.

[41] L. S. Bacow, W. G. Bowen, K. M. Guthrie, K. A. Lack, and P. Long, "Barrier to adoption of online learning systems in the U.S. higher education," http://www.sr.ithaka.org/research-publications/barriers-adoption-online-learning-systems-us-higher-education, 2012.

[42] S. Klososky, Enterprise social technology: Helping organizations harness the power of social media, social networking, social relevance. Austin, TX: Greenleaf Book Group Press, 2011.

[43] M. A. Lakhani and M. Marquard, "Classroom of the future: A purposeful application of technology and context to personalize adult learning, foster social attachment, and promote collaboration," www.thinkmind.org/download.php?articleid=elml_2013_1_20_50050, 2013.

[44] D. A. Garvin, Learning in action: A guide to putting the learning organization to work. Boston, MA: Harvard Business School Publishing, 2000.

[45] M. Marquard, "Leadership Behavior Impact on Employee Engagement," (Doctoral Dissertation, Pepperdine University) UMI ProQuest Digital Dissertations, 2011.

[46] B. M. Bass and R. E. Riggio, Transformational leadership (2nd Ed.) Mahwah, NJ: Lawrence Erlbaum Associates, 2006.

[47] T. Kelley, The art of innovation. New York, NY: Doubleday, 2001.

[48] T. Kelley and D. Kelley, Creative confidence: Unleashing the creative potential within us all. New York, NY: Crown Business, 2013.

[49] N. A. Peterson, P. Speer, and D. W. McMillan, "Validation of a brief sense of community scale: Confirmation of the principal theory of sense of community," Journal of Community Psychology, vol. 36, no. 1, 61-73, 2007.

[50] J. H. Song, X. Uhm, and X. Yoon, "Organizational knowledge creation practice," Leadership & Organization Development Journal, 32.3 (2011): 243-259, 2010.

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