

Virtual Proximity to Promote Expatriate Cultural Adjustment, Innovation, and the Reduction of Stress Levels

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Given the dramatic increase in the number of expatriates living and working abroad, there is a need to advance the research into how to make sure these employees achieve success on their assignments. Often, these expatriates assume managerial roles and are intended to be the gatekeepers of information. Typically, this information is necessary for the success of their colleagues, in both their home country and their host country. The expatriate's role is to facilitate the integration of organizational knowledge from both their home and host countries, as well as key sources in their host country's local environment. However, historically, there has been an exceptionally high failure rate in expatriate engagements. There are various factors discussed in the literature related to this failure rate including the stress of cultural integration and isolation from family. This often interferes with the expatriate being able to perform of their key responsibilities, which is to innovate. This research will launch pilot studies to investigate the use of social media, and computer mediated communications, to develop virtual proximity, its effects on cultural integration, the maintenance of professional relationships on a global scale, and its effect on the reduction of stress and the innovation process.

Keywords: *expatriate, stress, virtual, Internet, innovation, digital, success, employee, media, communications*

Introduction

Problem

Over the past couple of decades, there has been a dramatic increase in the number of expatriates living and working abroad. In terms of North American expatriates alone, the current population is estimated to be over 3 million U.S. and 1 million Canadian citizens (Dumont & Lemaître, 2004). Often, these expatriates assume managerial roles and are intended to be the gatekeepers of information. Typically, this information is necessary for the success of their colleagues, in both their home country and their host country. The expatriate's role is to facilitate the integration of organizational knowledge from both their home and host countries, as well as key sources in their host country's local environment. However, historically, there has been an exceptionally high failure rate in expatriate engagements. The most common estimates are between 20% and 50% (Harzing, 2002). There are various factors related to this failure rate, including the stress of cultural

integration and isolation from family. This often interferes with the expatriates being able to perform their key responsibilities, which is to innovate. This research will investigate the use of social media, and computer mediated communications, to develop virtual proximity, its effects on cultural integration, the maintenance of professional relationships on a global scale, and its effect on the reduction of stress and the innovation process.

Current Understanding

Over time the view of what innovation is has changed to ". . .an interactive process in which various specialized actors absorb, assimilate, and exchange knowledge inputs in a shared social context" (Marchegiani & Pirolo, 2004, p. 1303). Success is highly dependent on the ability to combine different sources of knowledge, particularly sources from outside the company, and outside the region (Marchegiani & Pirolo, 2004; Muscio, 2006; Petruzzelli, Albino, & Carbonara, 2007). The level of sharing between nodes in a professional network is highly dependent on the level of trust that has been established. Trust is typically based on "expectation that arises within a community of regular, honest and cooperative behavior based on commonly shared norms on the part of the members of that society" (Eckenhof, 2011, p. 164). However, the establishment and maintenance of this trust is based some form of contact, and the form of contact is to some extent is based on the types of proximity that is established.

Proximity

Proximity to resources, and the clustering of resources by specific industries within a geographic region, has long been considered an important factor in the promotion of both the volume and the quality of innovation (Doloreux, 2004; Porter, 2001). The belief is that close geographic proximity to key resources would reduce friction and speed of access to those resources and therefore increase innovation. Some researchers have gone as far as to suggest that tacit knowledge is an essential ingredient of innovation, and that tacit knowledge can only be transferred in close physical proximity. The true value of clustering emerges when proximity of both key resources and tacit knowledge fosters the spillover of knowledge within and across industries (Greunz, 2003; Knoblen & Oerlemans, 2006).

This however begs the question, what is proximity? The definition of proximity dramatically changed when Wilfred Beckerman (1956) introduced the term *psychic distance*. Beckerman's contention was that distance is not an absolute. The distance between two individuals is a function of the disparity of their cultures. For example, if you were in southern Italy you would likely feel culturally closer to Switzerland than to Turkey. Even if the travel time to each location were the same most would agree the Italian culture is far closer to the Swiss culture than the Turkish culture. The concept of psychic distance has been expanded by a number of researchers and it has led to the development of additional concepts such as *cultural proximity*—how similar the cultures of network participants are on a national level (Hofstede, 2009; Knoblen & Oerlemans, 2006; Sousa & Bradley, 2006); *cognitive distance*—the level of diversity in the skills, knowledge, and cognitive frame (Wuyts, Colombo, Dutta & Nooteboom, 2005); *organizational proximity*—distance felt by members of the same large or multisite organization (Knoblen & Oerlemans, 2006); *technology proximity*—the level of overlap between the firms' technology or patent portfolio; *vision proximity*—the similarity in vision (Cantù, 2010); and *virtual proximity*—the level of emotional closeness developed through the use of information and communications technologies (Coughlan, 2010, 2014).

Expatriate

Given the high rate of expatriate failures and the high cost of expatriate assignments, the study of expatriate stress factors and ways to mitigate them is important. Life changes have always resulted in more stressful situations for individuals, and this is well documented in the research. However, expatriates typically experience many life changing events all at once, and this is where the problem can lead to high assignment failure rates. Carraher, Carraher, and Sullivan (2010) found that the seven key stressors for expatriates were (a) language learning, (b) work–family interactions, (c) host country job demands, (d) home country expectations, (e) ease of communications for expatriate within the country, (f) host country political situation (i.e., how safe is the country), and (g) educational opportunities for the expatriate's children. Expatriates can experience one or all of these stressors at the same time at some point or throughout their expatriate assignment. Other researchers who have examined the stress factors on expatriate assignments include Harrison, Shaffer, and Bhaskar-Shrinivas (2004); Kraimer and Wayne (2004); Lei, Liang, and Krieger (2004); McNulty (2015); Silbiger and Pines (2014); and Firth, Chen, Kirkman, and Kim (2014). Interestingly, Silbiger and Pines (2014) found that stress and failure rates with expatriates were negatively correlated when there was high job satisfaction or perceived level of job importance. Firth et al. (2014) discussed some of the self-regulatory behavior in expatriates to reduce stress. It should be noted that many of these stress factors experienced by expatriates can occur throughout the assignment and not just at the beginning of the assignment and during repatriation.

Embedding themselves in the social context of their host environments quickly is often critical to expatriate success; however, at the same time to be an effective conduit they must maintain embeddedness in the social context of their home environments as well. Granovetter (1985) suggested that “. . .most behavior is closely embedded in networks of interpersonal relations” (p. 504), and “what looks to the analyst like nonrational behavior may be quite sensible when situational constraints, especially those of embeddedness, are fully appreciated” (p. 506).

Expatriates are intended to be the gatekeepers of the information, skills transfer, organizational culture, and the environmental context necessary for their colleagues to effectively process information and innovate. Effective gatekeepers should be aggregating, curating, and integrating knowledge while providing access to information, as well as key insights from both inside and outside the organization. Without this function organization can suffer from an environment where too much geographic proximity can be harmful to the development of external learning (Petruzzelli, 2008). Far too often, thinking within the companies becomes siloed and prone to availability bias. The effect is their new products and services become out of touch with the broader environment, and or their innovation trajectory becomes highly predictable. This in turn results in the organization becoming easy prey for a more aggressive competitor.

The use of social networks is an underexplored area in expatriation literature in the context of expatriate adjustment (Crowne & Goeke, 2012; Shen & Hall, 2009). Lu (1999) reported that the use of social networks can lower the anxiety and depression caused by coping with new foreign locales. Crowne and Goeke (2012), through the use of networking theory, developed a model of how readily available technology, such as online social networks can provide support for expatriate's spouse and other family members.

Fogarty (2013) overall concluded that if a transcultural person's ability to maintain relationships throughout life can be aided by technology, then this will serve to improve the overall wellness of the individual. This suggests that the use of virtual proximity via technology such as information

communications technologies including social media will increase the success rates of current international assignments.

Employers are also increasingly focused on maximizing the investment they are making in expatriates. Bhaskar-Shrinivas, Harrison, Shaffer, and Luk (2005) outlined a number of factors that influence the adjustment of expatriates and their job performance while on international assignment. Interestingly, Morgan, Winter, and Young (2004) discovered that one of the important factors that led to success of an expatriate assignment was “individual employee orientation and training (i.e., technical orientation and ability to exploit technology and systems to manage transitions and maintain connectivity)” (p. 1262).

Caligiuri, Hyland, Joshi, and Bross (1998) also discussed an important role of the expatriate in transferring knowledge from the home country to the host country. Assuming this is the case, then one could hypothesize that this can be made more efficient and effective through the use of technology resources. These technology-driven capabilities related to expatriate success were also discussed by Bonache and Zárraga-Oberty (2008), Cox (2004), and Morgan et al. (2004).

The base material of innovation is information. Changes in the quantity, quality, and diversity of that information can greatly affect the outcome of the innovation process. Graphing the productivity of the innovation process over diversity will typically produce an inverted *U*-shaped curve. Without diversity of inputs teams become locked in on existing mindsets and perspectives stifling innovation efforts. Small changes in diversity of information, or context in which that information is viewed, typically help to produce large changes in the volume and quality of the innovation produced. However, there is a point where inputs can be too diverse. When a team lacks a common point of reference or context it is difficult for teams to appreciate the value of an input or the ability to understand the perspective other might have (Boschma, 2005; Petruzzelli et al., 2007).

The prevailing belief is that knowledge can be categorized into codified or explicit and tacit knowledge. Codified knowledge or explicate knowledge is knowledge that can be articulated specifically and captured on some sort of media, whereas tacit knowledge is knowledge that is highly context dependent and difficult to articulate. In the past, it was generally believed that the transfer of tacit knowledge requires personal contact, and to be effective that personal contact need to be based on geographic (Marchegiani & Pirolo, 2004). There are some researchers who believe that classifications of codified and tacit are too broad and interdependent to be considered separately and out of context. Amin and Cohendet (2004) suggested there is an element of space and context that is present in the development of all knowledge.

Media

In a broad sense, media richness theory (MRT) develops a framework for choosing communications media based on equivocality, uncertainty, and immediacy of response. At the top of the hierarchy are face-to-face meetings, and as we move down this hierarchy, we would encounter video conferencing tools, phone calls, emails, and texts, in that order. At the top of the hierarchy are those tools that capture physical expression and intonation and allow for immediate response. As we move down the hierarchy, we lose fidelity in the media, add the possibility of longer response times, and run higher risks of misinterpretation (Daft & Lengel, 1986).

MRT has had its critics. Many most seem to be focused on the tenant that managers should chose richer media when dealing with more uncertainty and high levels of equivocality, and whether the tasks were routine or nonroutine (Lengel & Daft, 1988). Some have gone so far as to create laboratory experiments to test different level of equivocality in decision processes against the use of

different types of media (Dennis, Fuller, & Valacich, 2008). However, most of these studies were with groups who were unfamiliar with the technologies used and with each other, and with decisions that were made in relatively stress free environments.

In addition, to MRT there has been significant interest in media synchronicity theory (MST). “[MST] is composed of two primary processes, conveyance of information and convergence on meaning” (Dennis et al., 2008, p. 576). Conveyance involves transition (preparing information for transmission, transmitting it through a medium, and receiving information from a medium) and the convergence of meaning from processing of information (understanding the meaning of information and integrating it into a mental model; Dennis et al., 2008). There are five major components of MST:

- *Communication processes*—the convergence of information and meaning
- *Interpersonal and cognitive aspects*—context of the individual perspective and method of internalization
- *Capabilities of the media*—which is framed by social context and experience with the media
- *Focus on feature set not on product*—the rate of digital convergence requires that the focus away from product and toward feature set
- *Facilitation of synchronicity*—this is highly affected by the manner in which media is used. (Dennis et al., 2008)

It is reasonable to see MST and an extension of MRT, and both would seem to be useful models in the analysis of information communications technologies between expatriates and their networks. However, it is important to keep in mind that many researchers involved in the analysis of media choices is the effectiveness of media really comes in developing a supportive portfolio of media decision. Each network will react to the use of media differently and it is important to choose a portfolio in context to your environment.

Our successful use of media is often dependent on our familiarity with that media, and our familiarity with the recipient of the message. Another key finding is the less natural we feel in using a media more cognitive resources we will need to expend. However, with time and effort our use of media improves and the cognitive effort declines (Dennis et al., 2008).

Research Questions

From the literature review and discussion, it seems that virtual proximity (operationalized via the use of Internet-based communications including social media) may have multiple uses and effects to address some of the critical factors leading to expatriate success. These factors may at first blush seem unrelated, but for the first time, this research is bringing them together in an interwoven manner, so to speak, because the distance an expatriate experiences from their home country creates unique personal and professional stressors and constraints, which can affect their ultimate business performance. This is a more holistic approach to the study of expatriation than what has been done in the past, where different aspects of expatriate assignments are studied in relative isolation. The key to thinking about this is the effect of the distance the expat is away from their home resources in which they are familiar with and have relatively easy access. Virtual proximity by its very nature (given the fact that it makes things seem closer) is a factor which can potentially mitigate this key challenge. By threading these three concepts or theoretical stories together holistically this then culminates into our composite research question:

Research Question: Does the use of Internet-based communications technologies including social media increase the level of virtual proximity between international expatriates and their global organization—and does this change result in lower stress levels (expatriate

related) and a perceived change in the level and quality of innovation within the organization, and the successful completion of the expatriate engagement?

By answering this composite research question it will contribute to the theory of our understanding of expatriate success factors through the fact that we know from various studies—including Carraher et al. (2010), Harrison et al. (2004), Kraimer and Wayne (2004), Lei et al. (2004), McNulty (2015), Silbiger and Pines (2014), and Firth et al. (2014)—that the physical and emotional distance from one's place of origin or home created a unique combination of life and professional challenges, which can contribute to employee stress and lack of performance at the workplace. We also are lending evidence to the MRT introduced by Daft and Lengel (1986), which postulates that on a number of important levels online text-based communication (emails, text messages, etc.) is less rich than other media and that this form of communication seems to lack the nuanced discussions and the immediacy or feeling of direct and important and urgent involvement that face-to-face communication permits. However, studies show that this can vary by many factors including the emotional intelligence of the two parties communicating (Jorfi, Jorfi, Yacob, & Nor, 2014), including pictures in addition to the textual information (Houts, Doak, Doak, & Loscalzo, 2006) and the personal–professional relationship between the two parties—which, if there is a strong bond or connection, can serve to mitigate some of the immediacy deficiencies of text based communications because there is already a familiarity between individuals engaging in the communication. There is also the effect of MST originally outlined by Dennis and Valacich (1999). MST focuses on the ability of the medium to support a shared pattern of coordinated behavior among individuals (also known as synchronicity) as they work together. Interestingly, MST posits that there is no best-fit communication medium in every situation. Communication performance is situational in that it highly depends on the fit between media synchronicity a given medium can support and the needs for media synchronicity in a given situation. A basket of methods may be the best choice in a given situation rather than a single medium. It is also true that communication performance can be enhanced by providing a balancing of the strengths and weaknesses of media. It is also often noted in today's world that new media technologies are constantly arriving on the scene along with upgrades of new features on existing technologies. Therefore, it may no longer be relevant to discuss discrete media types but rather the different sets of capabilities that a given media form may offer to the communicator. In a later study, Dennis and colleagues (2008) were able to expand the original propositions of MST to make the argument that communication is comprised of two primary processes—conveyance and convergence—and that the familiarity workers have with their coworkers and the specific tasks that they will collaborate with and about in the communication medium(s) will affect the relative amounts of these two processes. These theories are directly related to creating virtual proximity and were useful to explore in the development of the specific hypothesis to be tested in this study.

Method

Research Design 1

The first research design was developed for answering the question of whether virtual proximity could invoke a perceived change in the level and quality of innovation within the organization and the successful completion of the expatriate engagement. Given the geographic dispersion of the participants, and the nature of the research question, it seemed reasonable to develop this project as an online survey. The sample included 42 expatriates who were recruited at random from multiple industries and deployment locations. After a series of qualifying questions, the survey respondents were asked questions to quantify the volume and nature of their usage of information communications technology and social media. The study looked at the use of video chat, text chat,

social media, SMS, professional video conferencing, and enterprise messaging systems. These questions were followed by questions addressing their perceived levels of virtual proximity, expatriate engagement, and innovation in their organization.

Research Design 2

The second research design was developed for answering the question of whether virtual proximity could lead to lower expatriate stress levels. Given a high concentration of expatriates in Hong Kong, it seemed reasonable to develop this project as a survey interview. The sample was derived through field research conducted in the Hong Kong Central District and Kowloon over 2 weeks in July 2016. Participants were asked to review the key expatriate stress factors (see Appendix) and then were asked a qualifying question as to how many of these stress factors they were exposed to recently. The participants were then asked a series of questions to quantify the linkage between the volume of their usage of information communications technology and social media (video chat, text chat, social media, SMS, professional video conferencing, and enterprise messaging systems) and their level of stress or stress reduction. The choice of Hong Kong was advantageous for several reasons. The first is that, being the gateway to China, it is a place that many multinationals from across the globe establish foreign offices. This provides a variation in the culture and business types in which the expatriates are working. Second, Hong Kong itself is different enough from a cultural perspective when compared to most other countries (even Mainland China) to enable the measurement across the full variety of stress factors. In other words, even expats from Mainland China will experience many of the unique expatriate stress factors documented.

Findings

Research Design 1

Because the data from the survey was at the ordinal level of measurement, a measure of concordance was chosen for the primary analysis. This measure of concordance was Kendall's tau correlation coefficient. Correlation analysis measures the strength and direction of the relationship. Because the survey contained primarily ranked variables, the Kendall's tau, which is a nonparametric measure, was appropriate. The Kendall's tau correlation coefficient is used to assess statistical associations in our survey based upon the survey information in which the responses related to virtual proximity were ranked according to the dependent variable related to expatriate success measures. The Kendall's tau correlation analysis was run across all measures of success and all measures of virtual proximity. The latter included both quantity of usage and the quality of using the tool for its normal function (i.e., improving relationships with family and coworkers). The Kendall's tau was chosen above other nonparametric measures of association like the Spearman's rho correlation because the calculations based on concordant and discordant pairs in the Kendall's tau are less sensitive to error and the p values with the Kendall's tau are proven to be more accurate with smaller sample sizes. Spearman's rho, which calculates the measure of correlation based upon deviation is known to be much more sensitive to error and discrepancies in data. Given that we have fewer than 50 responses in our sample, and also due to the fact that our data was at the ordinal level of measurement, we chose to go with the Kendall's tau as our primary measure of association. Moving forward, we will be presenting the raw coefficients along with the hypotheses to provide the reader with the technical details of the analysis if they so desire to understand more about the study.

In this study, we measured all of the various channels of communication or virtual proximity and assessed their impact on the expatriate assignment. In all cases the null hypothesis was tested that virtually proximity is not related to expatriate success. An alpha level of .05 was set for this study,

which is in line with other behavioral studies including those conducted in a business environment. In some of the correlation analyses we conducted, we failed to reject the null hypothesis at the .05 level of significance. This was to be expected given the broad coverage of our operational definitions of expatriate success and virtual proximity. Given that both of these constructs are rather difficult to operationalize, we broadened the scope of the study to make sure we didn't have a reliability challenge related to whether or not we were measuring virtual proximity correctly or whether we were measuring expatriate success correctly, as both of these constructs can be measured across a number of different dimensions. One interesting finding was that for all variables related to the quantity of usage in terms of the tools of virtual proximity, we failed to reject the null hypothesis. However, for the independent variables related to the quality of usage of virtual proximity tools for their normal functions (i.e., maintaining close relationships with family and coworkers), there were some very interesting significant correlations.

The first significant correlation was between "video chat improved my relationship with family" and "the use of Internet technology made the transition easier." The Kendall's tau correlation value was .312044, which was significant at the .05 level. This suggests a positive relationship between video chatting and overall expatriate success.

The second significant correlation was between "online chat improved my relationship with family" and "the use of Internet technology made their transition easier." The Kendall's tau correlation value was .280655, which was significant at the .05 level. This suggests a positive relationship between online chat and overall expatriate success.

The third significant correlation was between "online chat (e.g., Facebook Message) helped in maintaining close professional relationships" and "the use of Internet-based technologies (other than email) has improved idea flow for my team." The Kendall's tau correlation value was .239393, which was significant at the .05 level. This suggests a positive relationship between online chatting and expatriate success as measured by idea flow.

In addition to online chat, "online texting, which has helped in maintaining close professional relationships" was also positively correlated with "the use of Internet-based technologies (other than email) has improved idea flow for my team." This was represented by a Kendall's tau-*b* coefficient of 0.278158, which was significant at the .05 level.

"Moving over to the use of Internet technology has increased the level of innovation in my organization; video chat helping me to maintain close professional relationships" showed a Kendall's tau-*b* coefficient of 0.198397, which was significant at the .05 level. "Enterprise Messaging (private messaging system) helping me to maintain close professional relationships" also showed a Kendall's tau-*b* of 0.250231, which was also significant at the .05 level. This suggests that some of these online tools are related to expatriate innovation.

"Now moving to my expatriate assignment was successfully completed; online chat helping me to maintain close professional relationships" demonstrated a Kendall's tau-*b* coefficient of 0.250097, which was significant at the .05 level. "Texting, which helped to maintain close professional relationships" also showed a Kendall's tau-*b* coefficient of 0.274180 with success on the expatriate assignment, which was significant at the .05 level. Again, the use of some of these tools is related to overall expatriate success.

The final significant correlation was with the dependent variable, which was "my expatriate assignment has improved my overall reputation on the organization." This variable had a significant relationship with "video chat helping to maintain close professional relationships" (Kendall's tau-*b* =

0.235211, $p < .05$), “texting helping to maintain close professional relationships” (Kendall’s tau- b = 0.241654, $p < .05$), and “enterprise messaging helping to maintain close professional relationships” (Kendall’s tau- b = 0.234071, $p < .05$). Finally, we have evidence that suggests that virtual proximity in the form of online tool usage can help expatriates to further develop their professional reputations.

Research Design 2

The survey developed to evaluate the expatriate’s perceived ability to mitigate stress via Internet-based communications technology including social media was administered in person to a random sample of 41 expatriates currently on international assignment in Hong Kong during the time period July 10–22, 2016. The first significant discovery was that not one of the expatriates surveyed indicated they experienced none of the stress factors identified in the previous 6-month period. A total of 44% of respondents experienced one to two stress factors, 34% experienced three to five of these stress factors, and 22% experienced five or more of these stress factors over the previous 5 months. This validates that on average, expatriates are a pretty stressed-out group. In terms of the use of digital communications, only 12% of respondents reported using Internet-based communications technologies not very often, 34% reported an average use of Internet-based communications technologies, and over half reported a heavy use of Internet-based communications technologies. A majority of the respondents in the survey agreed that Internet-based communications technologies can be used to alleviate expatriate stress factors, and most planned to increase their use of Internet-based communications technologies in the future to alleviate expatriate stress factors.

In terms of correlations between these factors using Kendall’s tau- b , we correlated the number of stress factors and how often respondents used Internet-based communications technologies. In this analysis, we calculated a value of -0.114564 ($p > .05$). Therefore, we don’t have enough evidence for confirming a statistical relationship between the number of stress factors and how often respondents used Internet-based communications technologies such as electronic messaging.

When we examined the number of stress factors that expatriates were exposed to and the how much respondents thought that internet based communications technologies could ease stress we calculated a Kendall’s tau- b value of -0.0089 ($p > .05$). Again we fail to reject the null hypothesis that a statistical relationship does not exist between the number of stress factors experienced and the amount of impact respondents thought Internet-based communications technologies could be used to relieve stress. This was a positive finding given the fact that it’s not only the stressed-out expatriates who believe there could be a benefit to using Internet-based communications technologies such as social media to relieve stress. The final correlation of variables with the number of stress factors experienced was whether or not participants planned to increase their use of Internet-based communications technologies in the future. For this analysis we uncovered a Kendall’s tau- b value of -0.0805 ($p > .05$). We therefore fail to reject the null hypothesis that a significant statistical relationship does not exist between the number of stress factors experienced was whether or not participants planned to increase their use of internet based communications technologies in the future.

The final correlation analysis conducted was whether or not those participants who thought that electronic messaging could reduce expatriate stress levels also planned to use more Internet-based communications technologies in the future. For this analysis, we calculated a Kendall’s tau- b value of 0.4615 ($p < .05$). Therefore, we reject the null hypothesis that a statistical relationship does not exist between the levels of agreement that participants had in that Internet-based communications

technologies can reduce expatriate stress factors and whether or not participants would increase their use of Internet-based communications technologies in the future. This is an interesting finding, as it indicates that once people believe in the stress reduction capabilities of Internet-based communications technologies, they will aim to increase their use in the future.

Discussion and Conclusion

Contribution

All of the statistically significant correlations discussed for Research Design 1 provide solid statistical evidence which suggests that virtual proximity may be related to expatriate success. Therefore, we have statistical evidence to reject the overall null hypothesis which states that virtual proximity is not related to expatriate success. This finding is huge given the failure rates and overall expense of expatriate assignments. If companies can introduce more virtual proximity tools in the workplace environment the evidence from this research indicates they can increase the probability of success of their employees on international assignment and also the employees at the home office dealing with the international employees. In Research Design 2, we see that there is a firm belief from expatriates that virtual proximity can lead to reduced stress levels and increasing the use of Internet-based communications technologies (other than email) can further reduce levels of stress.

Practical Implications

This research developed two interesting and insightful pilot studies. Even though these two studies used a limited sample size, the results suggest that a fully developed study should take place as a next step. Given the pace of change, and that the effective use of these technologies is highly dependent on familiarity, the focus of future technology training should be on feature sets and not products. For expatriate assignments many companies are now investing in preassignment preparations such as health assessments, assignment compatibility, and readiness testing and cultural training. It is suggested that training on the use of these technologies can also serve to increase the chances of assignment success. Also, given the fact that employers are continuing to grow their global and globally mobile workforce, it suggests that this training should be regular and there should be attempts to integrate it into the culture of the organization. Interestingly, this is counter to what most companies have been doing with these technologies, as they have been slow to let employees embrace them for fear of what they will post and whether they will expose the company to reputation loss for even legal actions. Successes in such cultural changes seem to be more common in technology related fields; however, there are documented examples of such cultural changes across a variety of industries and organizational structures (Whitehurst & Hamel, 2015). The literature search uncovered evidence of a relationship between perceived importance of the expat's assignment and his or her ability to overcome stress and prevent burnout. Further research could be conducted to demonstrate whether achieving virtual proximity via the use of Internet technology could also serve to enhance the expat's perceived assignment importance in addition to using it to reduce stress levels as investigated in this research. One way this could be imagined would be to encourage (or make part of the job requirement) the expat to facilitate a regular online chat with members from the same function within the firm across the globe. This can help the expat establish a global thought leadership position within the firm. Other further research around how virtual proximity can help expats to achieve greater knowledge and input to be able to prescribe the self-regulatory or self-awareness process necessary to reduce stress and achieve assignment success would also be useful. Interestingly, firms spend a great deal on international expatriate health benefits and often overlook stress factors related to health that can be partially mitigated via virtual proximity. Given the high cost of providing expatriate health benefits, the further study of how to

mitigate expatriate stress factors can lead to high cost savings for firms in terms of healthcare costs for expatriates and their families. Further research in this area, which is sometimes defined as *global wellness*, may have a practical benefit to health insurance companies providing benefits to expatriates. Moreover, drug companies continue to produce specialty pharmaceutical products for dealing with stress, anxiety, and other mental health issues that have a high cost and serious side effects. This further research can lead to a partial solution to reducing the amount and effect of these, which are of key concern to many benefits managers on their expatriate employee populations.

References

- Amin, A., & Cohendet, P. (2004). *Architectures of knowledge: Firms, capabilities, and communities*. Oxford, United Kingdom: Oxford University Press.
- Beckerman, W. (1956). Distance and the pattern of intra-European trade. *Review of Economics and Statistics*, 38, 31–40.
- Bhaskar-Shrinivas, P., Harrison, D. A., Shaffer, M. A., & Luk, D. M. (2005). Input-based and time-based models of international adjustment: Meta-analytic evidence and theoretical extensions. *Academy of Management Journal*, 48, 257–281. doi:10.5465/AMJ.2005.16928400
- Bonache, J., & Zárraga-Oberty, C. (2008). Determinants of the success of international assignees as knowledge transferors: A theoretical framework. *The International Journal of Human Resource Management*, 19, 1–18. doi:10.1080/09585190701763743
- Boschma, R. (2005). Proximity and innovation: A critical assessment. *Regional Studies*, 39, 61–74.
- Caligiuri, P. M., Hyland, M. M., Joshi, A., & Bross, A. S. (1998). Testing a theoretical model for examining the relationship between family adjustment and expatriates' work adjustment. *Journal of Applied Psychology*, 83, 598–614.
- Cantù, C. (2010). Exploring the role of spatial relationships to transform knowledge in a business idea: Beyond a geographic proximity. *Industrial Marketing Management*, 39, 887.
- Carraher, S. M., Carraher, C. E., & Sullivan, S. (2010). Validation of a measure of expatriate stress: Findings from multinational entrepreneurial health care service organization professionals. *Journal of Applied Management and Entrepreneurship*, 9, 3–21.
- Coughlan, T. (2010). A model for quantifying the effects of virtual proximity on innovation. *International Journal of Business, Marketing and Decision Sciences*, 3, 138–152.
- Coughlan, T. (2014). Enhancing innovation through virtual proximity. *Technology Innovation Management Review*, 4, 17–22.
- Cox, J. B. (2004). The role of communication technology, and cultural identity in repatriation adjustment. *International Journal of Intercultural Relations*, 28, 201–219.
- Crowne, K. A., & Goeke, R. J. (2012). Utilizing online social networks for expatriate's families. *International Journal of Business and Social Science*, 3, 9–16.
- Daft, R. L., & Lengel, R. H. (1986). Organizational information requirements, media richness and structural design. *Management Science*, 32, 554–571.
- Dennis, A. R., Fuller, R. M., & Valacich, J. S. (2008). Media, tasks, and communication processes: A theory of media synchronicity. *MIS Quarterly*, 32, 575–600.
- Dennis, A. R., & Valacich, J. S. (1999). Rethinking media richness: Towards a theory of media synchronicity. In *Proceedings of the 32nd Hawaii International Conference on System Sciences*, Maui, HI.

- Doloreux, D. (2004). Regional networks of small and medium sized enterprises: Evidence from the metropolitan area of Ottawa in Canada. *European Planning Studies*, *12*, 173–189.
- Dumont, J.-C., & Lemaître, G. (2004). Counting immigrants and expatriates in OECD countries: a new perspective (Social Employment and Migration Working Paper 25). Paris, France: Organisation for Economic Co-Operation and Development.
- Eckenhof, E. (2011). Influence of organisational changes on social networks: A longitudinal study of knowledge sharing and cooperation of PhD students. In V. Ribiere & L. Worasinchai (Eds.), *Proceeding of the 8th International Conference on Intellectual Capital, Knowledge Management and Organisational Learning* (pp. 164–171). Reading, United Kingdom: Academic Publishing.
- Firth, B. M., Chen, G., Kirkman, B. L., & Kim, K. (2014). Newcomers abroad: Expatriate adaptation during early phases of international assignments. *Academy of Management Journal*, *57*, 280–300.
- Fogarty, D. J. (2013). Using technology to improve adolescent adjustment during and after international expatriate assignments. *Intercontinental Journal of Human Resource Review*, *1*, 13–21.
- Granovetter, M. (1985). Economic action and social structure: The problem of embeddedness. *American Journal of Sociology*, *91*, 481–510.
- Greunz, L. (2003). Geographically and technologically mediated knowledge spillovers between European regions. *Annals of Regional Science*, *37*, 657–680. doi:10.1007/s00168003-0131-3
- Harrison, D. A., Shaffer, M. A., & Bhaskar-Shrinivas, P. (2004). Going places: Roads more and less traveled in research on expatriate experiences. *Research in Personnel and Human Resources Management*, *22*, 203–252.
- Harzing, A.-W. (2002). Are our referencing errors undermining our scholarship and credibility? The case of expatriate failure rates. *Journal of Organizational Behavior*, *23*, 127–148.
- Hofstede, G. (2009). *Geert Hofstede cultural dimensions*. Retrieved August 21, 2010, from <http://www.geert-hofstede.com/>
- Houts, P.-S., Doak, C. C., Doak, L. G., & Loscalzo, M. J. (2006). The role of pictures in improving health communication: A review of research on attention, comprehension, recall and adherence. *Patient Education and Counseling*, *61*, 173–190.
- Jorfi, J., Jorfi, S., Yaccob, F. B., & Nor, K. M. (2014). The impact of emotional intelligence on communication effectiveness: Focus on strategic alignment. *African Journal of Marketing Management*, *6*, 82–87.
- Knoben, J., & Oerlemans, L. A. G. (2006). Proximity and inter-organizational collaboration: A literature review. *International Journal of Management Reviews*, *8*, 71–89. doi:10.1111/j.14682370.2006.00121.x
- Kraimer, M. L., & Wayne, S. J. (2004). The role of situational stressors and perceived organizational support in predicting expatriate success. *Journal of Management*, *30*, 209–237.
- Lei, L., Liang, Y. X., & Krieger, G. R. (2004). Stress in expatriates. *Clinics in Occupational and Environmental Medicine*, *4*, 221–229.
- Lengel, R. H., & Daft, R. L. (1988). The selection of communication media as an executive skill. *Academy of Management Perspectives*, *2*, 225–232. doi:10.5465/AME.1988.4277259

- Lu, L. (1999). Personal or environmental causes of happiness: A longitudinal analysis. *Journal of Social Psychology, 139*, 79–90.
- Marchegiani, L., & Pirolo, L. (2004). The proximity paradox: How localization influences relational exchange and innovation diffusion: Evidences from a cluster level analysis. In L. Galetic (Ed.), *An enterprise odyssey: Building competitive advantage: Proceeding of the second international conference* (pp. 1301–1316). Zagreb, Croatia: Innovation Institute.
- McNulty, Y. (2015). Till stress do us part: the causes and consequences of expatriate divorce. *Journal of Global Mobility, 3*, 106–136.
- Morgan, L. O., Winter, J., & Young, S. T. (2004). Operational factors as determinants of expatriate and repatriate success. *International Journal of Operations and Production Management, 24*, 1247–1268.
- Muscio, A. (2006). Patterns of innovation in industrial districts: An empirical analysis. *Industry and Innovation, 13*, 291–312.
- Petruzzelli, A. M. (2008). Proximity and knowledge gatekeepers: The case of the Polytechnic University of Turin. *Journal of Knowledge Management, 12*, 34–51.
doi:10.1108/13673270810902920
- Petruzzelli, A. M., Albino, V., & Carbonara, N. (2007). Technology districts: Proximity and knowledge access. *Journal of Knowledge Management, 11*, 98–114.
doi:10.1108/13673270710819834
- Porter, M. E. (2001). Innovation: Location matters. *MIT Sloan Management Review, 42*, 28–36.
- Shen, Y., & Hall, D. T. (2009). When expatriates explore other options: Retaining talent through greater job embeddedness and repatriation adjustment. *Human Resource Management, 48*, 793–816.
- Silbiger, A., & Pines, A., M. (2014). Expatriate stress and burnout. *International Journal of Human Resource Management, 25*, 1170–1183.
- Sousa, C. M., & Bradley, F. (2006). Cultural distance and psychic distance: Two peas in a pod? *Journal of International Marketing, 14*, 49–70. doi:10.1509/jimk.14.1.49
- Whitehurst, J., & Hamel, G. (2015). *The open organization: Igniting passion and performance*. Cambridge, MA: Harvard Business Review Press.
- Wuyts, S., Colombo, M. G., Dutta, S., & Nooteboom, B. (2005). Empirical tests of optimal cognitive distance. *Journal of Economic Behavior & Organization, 58*, 277–302.

[Appendix follows]

Appendix

Expatriate Stress Factors

- Death of a family member back in your home country
- Illness of a family member in your home country
- Family problems in home country
- Had an interview for another expatriate job
- Had an interview for another job in the home country
- Illness of a family or yourself in the host country
- Searching for schools of expatriate children
- Challenges as a single expatriate
- Issues with career of trailing spouse
- Marital or family issues in general
- Dealing with expatriate child syndrome
- Job pressures in the host country
- Job pressures in the home country
- Difficulties in learning the language of the host country
- Difficulties in adapting to the cultures of the host country
- Adapting to the business environment in the host country
- Making new friends in the host country and missing friends from the host country
- Dealing with tax issues in the home and host country
- Learning to drive or taking public transportation in the host country
- Thinking about and preparing for an upcoming repatriation
- Learning how to navigate personally in the host country
- Adjust to the food and water of the host country
- Financial challenges related to assets and activities in the home country
- Dealing with safety issues in the host country
- Financial challenges related to activities in the host country (e.g., cost of living)
- Planning visits of home leave under a busy schedule
- Finding proper housing in the host country
- Planning holidays as an expat
- Career planning or career worries as an expat
- Managing global staff as an expat
- Dealing with global matrix reporting structures as an expat
- Challenges in being able to regularly exercise and engage in healthy activities in the host country
- Dealing with the management of the trailing spouse career
- Dealing with national and international crises as an expat
- Managing and preparing for visits of home country managers as expats
- Managing the quarantine and adjustment to having a pet as an expat
- Managing global banking as an expat
- Planning college attendance for teenagers as an expat
- Dealing with local weather, pollution, or the physical environment as an expat
- Keeping up with regional, local, and home politics as an expat
- Adapting to hazardous assignment conditions as an expat (political turmoil, war, personal safety)
- Being on assignment when the home country is changing rapidly
- Dealing with home selling, buying, or leasing issues in the home country
- Dealing with the transport of goods to or from the home country
- Dealing with taxation issues as an expat in both the home and host countries
- Dealing with healthcare access issues as an expat
- Planning healthcare services in both the home and host countries as an expat
- Dealing with a chronic illness as an expat
- Dealing with a mental health issues as an expat
- Adapting your leadership style as an expat
- Dealing with a global, local, or regional financial crisis or recession as an expat
- Dealing with a issues in one or more other countries in a global or regional role as an expat
- Dealing with a issues in the home country function while being in a global role as an expat

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