International Academy of Science, Engineering and Technology
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RELATIONSHIP BETWEEN VIRTUAL LEADER'S STYLE AND PERFORMANCE OF SALES TEAMS IN TELECOMMUNICATION COMPANIES

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ABSTRACT

The commercialization of the Internet and the widespread use of information technology have enabled many organizations to enhance their business processes and expand their markets. Virtual sales teams allow the flexibility and convenience of working anywhere and building a geographically diverse workforce. However, an inappropriate leader's style adopted by virtual sales teams may cause potential business failures and economical losses in California Silicon Valley telecommunications organizations. The proposition of this correlational study was to examine the relationship between the virtual leader's style and the team performance (comprised of three factors; achieving virtual sales team objectives and KPIs, individual role clarity, and the sales team collaboration) of California Silicon Valley telecommunication networking virtual sales teams.

The participants included 120 distributed sales professionals employed by California-based telecommunications networking organizations who completed an Internet-based survey regarding virtual leader's styles and team performance. The finding from the study was that a correlation existed between the virtual leader's style and the team performance. While the findings showed significant correlations between the virtual leader's style and the sales team performance for achieving team KPIs (r_{pb}= .667, $p < .01$), role clarity (r_{pb}= .336, $p < .01$), and team collaboration (r_{pb}= .738, $p < .01$) respectively, additional analysis showed weak linear relationships between the variables (R^2= .444, .113, and .545, $p < .01$)

KEYWORDS: *Globalization, Multinational Corporations, Telecommunications Networking Companies, Sales Teams, Virtual Sales Teams, Virtual Teams, Team Performance, Leadership Competency, Leadership Models, Leader Styles, Leadership Development, Distributed Teams, Performance, Sales, Management Styles, Silicon Valley*

INTRODUCTION

The new economy of the digital information-based global computerized network of communication has greatly accelerated innovation, creativity, and economic growth in an unprecedented pace (Kantola, Kabir, & Loiseau, 2017). Ever since the inception of the Internet, virtualization, which is the process when the virtual forms replace the real processes and phenomena, has become a reality (Baeva, 2016). Harvey and Griffith (2007) argued that globalization has been a major contributor to the introduction of virtual global teams and their respective global product launches. Draghici, Aldea, and Draghici (2013) defined virtual teams as those working teams that are physically dispersed and collaborate primarily using electronic means and communication technologies. Given the fast paced growth for global telecommunication companies

over the past few decades (Venkatram & Zhu, 2012), many of these companies moved into a distributed virtual sales team structure, where the front line sales teams cooperate directly with customers in numerous organizational functions, especially the technical sales function.

The new dispersed team structure has caused difficulty in managing virtual teams, which can contribute to business failures and disruption in the traditional management process. To address such risks, we need to have knowledge about any influence that leadership style may have on the performance of the distributed virtual teams. Sales function in global teams is a complex task and many challenges need to be addressed when managing globally distributed sales team such as the divisive different points of view, cultural beliefs, interests, standards, as well as the conflicting roles, task, and priorities (Cleland & Garies, 2006)

Because of the potential business failures and economical losses that employee low performance related to inappropriate leadership styles may have in the distributed virtual sales teams in the telecommunication companies, it is crucial to examine the relationship between the virtual team members' performance and the teams' leadership styles.

Background of the Problem

The contemporary business world has some unique complex characteristics, and teams should be responsive, adaptable, creative, and dynamic to survive and compete in the new changing environments (Cleland & Garies, 2006). A Gallup poll of the American workplace has shown that while 29% of the workforces were engaged, 51% were not, and 20% were completely disengaged. A total of 70% of American workers was disengaged in the workplace and this active disengagement costed the economy about $450 - $550 billion per year (Gallup Poll, 2014). This fact increased the need for more emphasis on teams' performance and overall corporate financial performance.

Trying to deal with this dilemma and to promote a substantial growth for business, organizations across many industries, including telecommunication networking industry, have evolved their teams, such as R&D and sales, from being traditional co-located teams to virtual teams to cut costs and establish an improved high-quality sales pipelines that drive better margins, more sales, and higher revenue. Most of the contemporary organizations use virtual teams, one way or the other. The growth of virtual teams has been constant, and a relevant study showed that more than 1.3 billion people work virtually and that 25% of the teams worldwide are virtual. These data gave an indication of the importance of virtual teams in organizations (Guinalíu & Jordán, 2016).

While virtual teams allowed organizations to have dynamic work environments with a healthy mix of cultures and values (Richards & Bilgin, 2012), Gibson and Cohen (2003) stated that virtual team members depend on technological tools to connect across geographic, organizational, and other boundaries. Although these distributed sales teams were traditional co-located teams initially when they were formed, they evolved into virtual teams driven by the technological advances that made their existence feasible and the cost savings they bring (White, 2014). The technological advances in communication technology enabled organizations to form teams with a broad range of expertise regardless of their location, which was not attainable using the traditional co-located teams (Maruping &Agarwal, 2004). Most of the organizations nowadays employ some level of partial virtuality (Al-Ani, Horspool, & Bligh, 2011; Szewc, 2013). The technology advances have facilitated the development and operation of virtual sales teams and helped modern businesses meet their goals without incurring the high costs and logistical problems associated with co-located teams.

However, this new reality of virtual teams made it imperative for organizations' management to realize the virtual teams' challenges, operation, and how to manage them in a proactive way that assured high team performance. White (2014) argued that virtual teams' leadership and dynamics were entirely different than those of the traditional co-located teams and hence introduced many new organizational challenges, such as managing cultural differences, maintaining remote leadership, and developing trusting relationships within the teams. While traditional team problem-solving processes rely on in person meetings (Ocker, 2005), where team leaders engage their team members using physical conversations, such as para-verbal means; tones, non-verbal indications, and body language to deliver messages more efficiently to employees (Warkentin et al., 1997), virtual sales teams use collaborative technological tools to collaborate and work asynchronously (Eom, 2009).

Additionally, this new reality presented some major challenges to leaders and required them to develop different leadership qualities to maintain and promote the new virtual organizational management (Leonard, 2011). Other challenges this new reality brought were the alignment of clear objectives, concerns for security and reliability of real-time communication channels, fragile team dynamics, the skewness of competence, and the disruptive cultural, national and, language differences. Pauleen (2004) argued virtual environment leadership challenges usually manifest themselves through the team's internal communication, collaboration, and effectiveness. This study examined the correlation between the virtual team members' performance and the teams' leadership styles among distributed teams' salespeople working for California-based telecommunication companies.

Statement of the Problem

Sales have evolved from being a lone wolf activity to be an increasingly team-based approach where many products and services are increasingly complex and fast-changing (Wyld, 2015). Although many organizations invest extensive resources in supporting their sales forces with advanced technological tools to increase work productivity (Román & Rodríguez, 2015), budgetary structure and communication challenges of the sales teams have not diminished. Similarly, sales teams in the telecommunication networking market have been facing many challenges, such as the spending cuts, saturated markets, more competitive landscape, expanded customer needs, and declining revenues. While primarily focusing on selling, salespeople in the networking industry strive to maintain a positive relationship with their customer base to reduce the possibility of customer churn. Because the sales force plays a crucial role in any company's market value, optimal performance of the sales team is vital for their overall growth. Enhancing the sales force motivation is a crucial measure, which can lead to improved sales revenues (Kananen & Akpinar, 2015).

The topic of the study was the examination of the relationship between virtual leader's style and the team performance among telecommunications California Silicon Valley networking companies' sales professionals. The new dispersed team structure has caused a difficulty in managing virtual teams, and an overall organizational competency challenge (Ziek & Smulowitz, 2014). The general problem of the study was the potential business failures and economical losses that employee low performance related to inappropriate leadership styles may have in virtual sales teams. The specific problem was the possible poor performance related to having a difference in virtual leader's style at California Silicon Valley telecommunication networking companies that can contribute to business disruption and costly market growth slowdown.

Purpose of the Study

This correlation study primary purpose was to investigate the relationship between virtual sales teams' leadership styles and the team's performance (in terms of achieving team key performance indicators (KPIs), role clarity, and team collaboration) in the distributed sales teams of California's Silicon Valley networking companies. This quantitative study was employed to research a number of distributed sales professionals at Silicon Valley networking companies using a survey instrument to examine the relationship between the virtual sales teams' leader's style and the team performance.

RESEARCH QUESTION

The purpose of this correlational study was to reconnoiter the relationship between the virtual leader's style (the predictor variable) and the performance of sales teams in telecommunication networking companies (the criterion variable. The following research question guided the study: What is the relationship between virtual sales leader's style and team performance (in terms of achieving team KPIs, role clarity, and team collaboration) in the distributed sales teams of California's Silicon Valley networking companies?

HYPOTHESES

Because team performance is measured in this study, by the team's ability to achieve goals, role clarity, and team collaboration (as a function of trust level, effective communications, and conflict resolution), three hypotheses related to each performance measures are used for the research question as follows:

- $H_0 1$: There is no significant relationship between the virtual sales leader's style and the ability of the distributed sales teams at California's Silicon Valley telecommunication companies to achieve their KPIs.

- $H_A 1$: There is a significant relationship between the virtual sales leader's style and the ability of the distributed sales teams of California's Silicon Valley telecommunication companies to achieve their KPIs.

- $H_0 2$: There is no significant relationship between the virtual sales leader's style and the role clarity in the distributed sales teams of California's Silicon Valley telecommunication companies.

- $H_A 2$: There is a significant relationship between the virtual sales leader's style and the role clarity in the distributed sales teams of California's Silicon Valley telecommunication companies.

- $H_0 3$: There is no significant relationship between the virtual sales leader's style and the team collaboration in the distributed sales teams of California's Silicon Valley telecommunication companies, measured by the trust level, the effective communications, and the conflict resolution within the team.

- $H_A 3$: There is a significant relationship between the virtual sales leader's style and the team collaboration in the distributed sales teams of California's Silicon Valley telecommunication companies, measured by the trust level, the effective communications, and the conflict resolution within the team.

DEFINITIONS, ASSUMPTIONS, AND LIMITATIONS

Definition of Terms

Global sales teams are teams that spread across national, cultural, and linguistic lines and operate in a globally distributed virtual environment. Numerous multinational organizations operate this form of virtual organization today (Zander, Mockaitis, & Butler, 2012).

Virtual sales teams are sales teams with individuals who are distributed in various geographical locations with little to no in person communications, and who rely heavily on electronic means of communication to accomplish their team objectives. Virtual sales teams connect team members over temporal and distance to collectively work on joint projects to attain shared objectives (Bell & Kozlowski, 2002). The terms virtual sales teams and distributed sales teams were used interchangeably throughout this paper.

Sales co-located teams are the teams where member work is the same location designed to perform their respective project assignments. The sales team members shall operate close together (Reinertsen & Smith, 1997). Throughout this paper, the terms of sales co-located teams, sales traditional teams, and sales face-to-face teams were used interchangeably, and referred to the same meaning.

Leadership is defined as the venue to motivate, inspire, and mobilize subordinate to strive willingly to achieve common goals, through ethical, respectful, and loyal manners (Hersey & Blanchard, 1988).

Leadership styles represent how teams are led and could be either transactional or transformational. While transformational leadership mainly focuses on managing the interpersonal relationships among subordinates, transactional leadership emphasizes on enabling and coordinating the implementation of team tasks to build and deliver products (Iorio & Taylor, 2015).

Trust is a phenomenon that has different aspects, which is important for interactive relationship development, maintenance, and survival (Curtis, 2011). Trust could as well be seen as a social aspect that helps in the alignment of physically dispersed team members.

Knowledge sharing is a process of individuals in an organization, which facilitate sharing and leveraging of knowledge and may result in a new knowledge development (McNurlin et al., 2009).

Key Performance Indicator (KPI) is a crucial measure for defining the health of a team in terms of achieving the team's objectives (Collins, Hester, Ezell, & Horst, 2016).

Team performance characterizes activities directly related with the demonstration and application of technical knowledge, skills, and abilities (KSAs) towards achieving teams' objectives (Grand et al., 2013). Since most teams have a unique set of goals and objectives, there is no off the shelf solution that fits all teams (Davenport & White, 2001) and there is no single, uniform, and agreed-on measure of performance effectiveness for teams (Guzzo & Dickson, 1996). While a real team is defined as an assembly of individuals working committedly to achieve a mutual objective, a high performance team is one that satisfies all of the requirements of real teams, but take their commitment further, expanding their relationships in which members sacrifice for the overall success of each individual on the team as well as the team itself (Regan, 1999). In this study, team performance primarily focused on Hacker and Lang (2000) performance measurement system, which includes the next three structures:

- Accomplishing the team's overall objectives and Key Performance Indicators

- Team members' Role Clarity, which improves efficiency, work environment quality, alignment with a scope, accountabilities, and deliverables.

- Team collaboration associated to team's internal trust, effective communication, and conflict resolution

Role Clarity is the level to which guidance and information are given to employees regarding the expectations and behaviors associated with their work role. The more sufficient information regarding roles increases, the more employees' uncertainty, and lack of clarity decrease (Kahn et al., 1964; Zheng Thundiyil, Klinger, & Hinrichs, 2016). While role clarity was deemed a substantial contributor to the successful formation of organizations, establishing role clarity may empower cooperative working practices and thus facilitate coordination (Curnin, Owen, Paton, Trist, & Parsons, 2015).

Conflict Resolution is the exercise of recognizing and addressing conflicts in a practical, reasonable, and effective way, and it entails certain skills, such as effective communication, problem solving and negotiating with a focus on interests (Saeed, Almas, Anis-ul-Haq & Niazi, 2014). A proper conflict management not only achieves a cessation of hostilities, but also promotes ideas for cooperative behavior (Godiwalla, 2016). It is all about engaging in an exercise with the confidence that those involved will work out a mutually beneficial solution (de Graaf & Rosseau, 2015), and it usually challenges the diplomatic and human relations skills of the most skillful manager (Berry & Kaul, 2014).

Assumptions

Because the major global telecommunication companies are United States of America based, the vast majority of the study participants were United States-based, which poses a potential overrepresentation of the United States as a country, and as an advanced technological culture. Another limitation is the time constraint under which the study had to be completed. The dissertation completion guidelines dictated a certain time by which the study should have been completed, so conducting the study within a finite time might have been a limitation. Because the correlational studies examine the relationships between variables and are employed to inspect if a relationship exists, it could not be assumed that the predictor variable caused changes in the criterion variable. Lastly, participation in the study was voluntary without any form of remuneration, so response rate could have been a limitation.

Limitations

Because the study was conducted in the United States, most of the participants were based in the United States. This could have caused a possible over-representation of participants from a country with advanced communication and technology infrastructure, and a common work culture. Such over-representation may influence the outcomes related to efficiency of technologies virtual teams use in their daily collaboration and communication, and outcomes related to cultural differences among teams.

Moreover, the participants were asked to volunteer to take part of the study, without anticipation of any type of remuneration. This may have resulted in extending the deadline to complete the survey.

Lastly, the selection of the convenience sampling method was another limitation because it can introduce bias (Creswell, 2015). In fact, selecting any single research design or sampling method over others creates an additional research bias.

RESEARCH METHODOLOGY

While a quantitative research is typically employed to quantify defined variables and asks questions, such as what is for quality and how much/how many for quantity, a qualitative research focuses on the quality of data where problems are answered to have an insight into why certain action happens without generally focusing on quantity (Macdonald & Headlam, 2008). A quantitative method was chosen because the purpose of the study was to examine the relationship between the virtual leader's style and virtual sales distributed teams' performance. The proposed study investigated the probable connection between various leadership styles of virtual sales teams and their performance in the telecommunications industry.

Population and Geographic Location

Members of global virtual sales teams belonging to California's Silicon Valley based telecommunication networking companies served as a population for this study. The telecommunications industry major companies design, manufacture, develop, and service both hardware and software for wired, wireless, voice, data, and video services that enable people all over the world to access and transfer information irrespective of time zone, place, or information system media differences. Given its fast-paced growth and fierce competitive nature, the telecommunication industry is one of the most energetic and innovative industries, where products and services are continually evolving, and the rate of obsolescence is high (Mavengere, 2014).

While the telecommunications industry has been growing steadily in the last few decades, California's Silicon Valley has been the primary location for some of the major telecommunication switching companies (Martinelli & Nomaler, 2014; Sutton 1998). Although the term originally referred to the region's large number of silicon chip innovators and manufacturers, Silicon Valley has evolved to refer to all the high-tech businesses in the area, including the world's largest technology companies, such as Apple, Facebook, Yahoo, Cisco, Google, HP, Intel, Salesforce, Adobe, and Oracle. Silicon Valley in California's San Francisco south bay area has been a dominant contributor of the global information and communications technologies (ICTs) and a pillar in the world's information technology (IT) industrialization era (Fairlie & Chatterji, 2013). Silicon Valley has witnessed numerous waves of innovation in the last few decades, starting with the defense industry in the 1950s-1960s, rapid growth of the semiconductor industry in the 1960s-1970s, personal computers (1970s-1980s), and the technology infrastructure and the Internet since the 1990s to present (Henton & Held, 2013).

Correlating the relationship between virtual leadership styles and sales teams' performance in the telecommunication networking industry will address a gap in research and offer top management the opportunity to better manage the new virtual sales teams' reality and develop a trusting relationship between the teams. Although previous studies described the functions of virtual team leadership in greater details (Eissa et al., 2012; Kai-Tang et al., 2014; Ziek & Smulowitz, 2014), many gaps still exist in regard to the relationships of leadership capabilities and their impact on the virtual sales team overall performance and effectiveness in the telecommunication networking industry. This proposed study addressed these gaps by correlating the relationship of leadership styles to the technical sales' virtual teams' effectiveness and performance in the networking companies in California.

Sampling Size

Since researchers cannot study every case of whatever they are interested in, they sample, where they select targeted cases to study in more detail and then use what they learn to understand a much larger set of cases (Neuman, 2014). The population in this study was well beyond few thousands. Hence, based on a proposed guide by Leedy and Ormrod (2016), the size of the population was almost irrelevant. The power analysis was used to calculate the sample size of one hundred and twenty (120) as described below. While calculating the statistical testing and sample size of the study, both Type I and Type II errors were considered. Type I error (referred to as alpha (α) error), is falsely claiming a significant relationship between two or more variables and Type II error (referred to as beta (β) error) is a false non-significance incorrectly claiming two or more variables are unrelated (Yamatani, Mann, & Feit, 2013).

The suitable study's sample size was found using power analysis, which is recognized as a rigorous and defensible method of determining sample size while taking into consideration the level of statistical significance (alpha), the amount of power desired in a study, and the effect size (Bacchetti, Deeks, & McCune, 2011; Creswell, 2013). Simon (2011) stated that power analysis depends on the following variables: sample size, population variance, the magnitude of the difference between a null hypothesis and a true alternative hypothesis, significance level, and directionality of the test. Statistical power, which is the probability of correctly rejecting a false null hypothesis (H0), is affected by Type I errors (α) and Type II errors (β), the size of the effect, and the size of the sample used to detect it (Schneider, 2015). The power of a test is measured as "$1 – β$", where β (beta) is the Type false negative, which is the error of failing to accept an alternative hypothesis when we are unable to observe a difference when in truth there is one, and is inversely related to the probability of making a Type II error (β) (Kuo & Zaykin, 2013).

A *p* value describes the probability of obtaining the observed result or one more extreme given that the null hypothesis is true (Myles & Gin, 2000; Kusuoka, & Hoffman, 2002). If the probability is less than a pre-specified value (α, acceptable type I error) set by the authors, the null hypothesis is rejected (Gibbs & Gibbs, 2015). According to Ferreira and Patino (2015) and Gibbs and Gibbs (2015), the cutoff value to reject the null hypothesis is typically 0.05 but could be 0.01 or 0.1 or another value determined by the authors. The smaller the *p* value is the stronger evidence researchers have to conclude that the null hypothesis is false. Additionally, effect size (ES) is a measure that represents the size of the relationship strength between the study's variables (Bosco, Aguinis, Singh, Field, & Pierce, 2015). G*Power is an accurate power analysis program for statistical tests, commonly used in social and behavioral research to select an appropriate sample size (Faul, Erdfelder, & Buchner, 2007). Heinrich Heine University G*Power tool is free of charge tool that performed high precision power analyses and used for non-commercial purposes.

The probability value used to calculate the sample size of this study was 0.05. The power in the quantitative hypothesis testing is typically set to the value of 0.8, or 80% (Diegmann, Basten, & Pankratz, 2017; Fujino & Kawamoto, 2013). The sample size was calculated to be 120 participants, based on an Alpha (α) =.05, an effect size equal to 0.25, and power equal to 0.80 as follows:
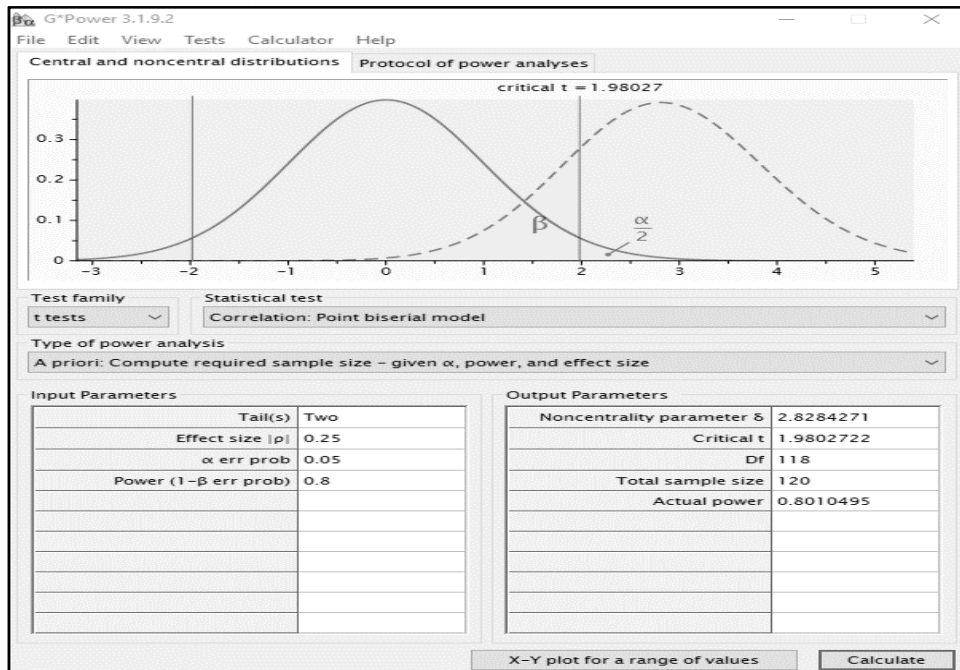
Figure 1: Power Analysis to Calculate Sample Size.

The population effect size is a tool to measure the strength of relationship between variables in a quantitative study (Creswell, 2013). Effect sizes are important to the practical significance of the results, and effect sizes from previous studies can be used when planning a new study (Lakens, 2013). Although the effect size usually has a 0.5 value in educational research (Creswell, 2015), an assumption of the medium value is made when the effect size of the population is not known (Cohen, 1988).

Pilot Test

A pilot test was conducted to ensure participants had a clear understanding of the survey completion instructions, the survey questions, and responses, and to refine the wording of the questions for clarity and focus. A pilot test on a few participants can usually help decide which questions to use (Creswell, 2013). Tsang, Royse, & Terkawi (2017) argued that researchers can validate predicted outcomes using a pilot study. Twelve participants (which were 10% of the total number of the study intended sample) were asked to participate in the pilot study and a comment section was made available for participants to give their feedback in an attempt to further enhance the instrument.

Although all participants in the pilot study were employees of virtual technical sales teams in Silicon Valley-based telecommunication networking companies, they were chosen from different geographies (four from the United States, four from India, two from Germany, one from the United Kingdom, and one from Japan) to not only solicit feedback on the instrument reliability and validity, but also to verify the clarity of the survey's language, instructions, and various items as it applies to participants from different backgrounds. In addition to answering the intended survey questions, the pilot test participants were requested to provide feedback about the structure, the format, the questions' clarity, and any other comment that may help revise the instrument before distributing it to the actual sample. Cronbach's alpha, which is a numerical coefficient of reliability (Reynaldo & Santos, 1999), was calculated to test the reliability of the used pilot test.

Data Collection Design and Procedure

For access convenience, a web link to the survey was created and simultaneously electronically mailed to the stated population sample. Electronic data collection provides an easy and a quick form of data collection (Creswell, 2013). An electronic mail was sent to 240 prospective participants, which was 100% more than the required sample size of 120 to offset the risk of a low response rate. A week after sending the link of the questionnaire link electronically, about 49 individuals (20% of the 240 prospective participants) had completed the survey. A week later, an electronic mail was sent to all 240 prospective participants to thank the participants who have completed the survey and to remind those who have not completed it to do so.

A week after emailing the survey link referenced above, another email was sent to the participants thanking those who completed the survey and kindly asking those who have not completed the survey to do so. During the data collection process, 12 (5%) responses were removed because they were partially completed (abandoned). Another 14 (6%) started the survey but exited due to the lack of prior experience in the virtual sales environment. This process continued up until the goal sample size of 120 valid responses was achieved, which lasted for 27 days. Accordingly, the survey was locked, and the data collection process and analysis began.

Reliability of the Instrument

Creswell (2013) recommended several factors to enhance reliability of a good research instrument, such as the clearly stated and easy to follow questions, uniformity of test administration procedures, and level of ease of the participant's experience. The research used clear, easy to follow, and easy to interpret questionnaire format, keeping in mind participants should not be pressured, or nervous while answering the online survey. Since a pilot test on a subset of the participants can help establish the validity of an instrument scores and enhance questions and format (Creswell, 2013), a pilot testing was employed to revise the clarity of the questionnaire and make changes based on their feedback.

According to Sekaran and Bougie (2010), the most popular test of inter-item reliability is Cronbach's alpha coefficient. The value of the Cronbach's alpha (α) coefficient of reliability ranges from 0 to 1 (DeVellis, 2003), with the higher the α is, the more reliable the test is. Although there is not a generally agreed cutoff, 0.7 and above is acceptable (Nunnally, 1978). The calculated Cronbach's alpha values for the final questionnaire were 0.927 for achieving team KPIs, 0.810 for role clarity, and 0.837 for team collaboration, respectively, which indicated a high reliability of the study's final instrument.

Validity of the Instrument

Validity is defined as the degree to which a concept is correctly calculated in a quantitative study (Heale & Twycross, 2015), and usually refers to "the ability of the instrument to collect meaningful data, which enables the researcher to draw conclusions from the sample to the population, and it may be internal or external" (Creswell, 2013, p. 159). According to Sullivan (2011), determining the validity of an instrument includes building an evidence to support, or not support, a specific use of the instrument tool, and that evidence can be found in the content, response process, relationships to other variables, and consequences. The representation of sales professionals who have both virtual leadership styles supported the data validity and credibility of the instrument and the results of the current study, because they provided feedback supported by real-world assessment of both virtual leadership styles. In addition, the study's participants identified themselves as belonging to one of three different job functions, namely, sales professional, sales leader, or others.

This representation supported the data validity and credibility of the instrument and the results of the current study, which addressed primarily the sales function in the telecommunications industry companies. The study's validity was also confirmed by comparing and contrasting the information drawn from this study with other studies' information.

Internal Validity

Creswell (2013) recommended pilot testing to increase internal validity in quantitative studies. Similarly, Kimberlin and Winterstein (2008) recommended pilot testing an instrument to enhance quantitative methods internal validity and overall research quality. Accordingly, a pilot test was performed in this study to improve the internal validity, in which a subset of the compiled list of prospective participants had the chance to review the applicability of the questions, the efficiency of the procedure, and the questions contents.

External Validity

Increasing both the sample size as well as the participants' convenience level can be used to improve the study external validity (Creswell, 2015). Hence, this study has planned a large sample size of 120 technical sales professionals in an effort to improve the external validity. Likewise, easy to access and use web-based questionnaire was developed and administered, so participants' convenience was elevated. Additionally, data external validity was confirmed by comparing and contrasting the information drawn from this study with information from other studies (Bonet & Jawadi, 2015; Chang & Lee, 2013; Zander, Mockaitis, & Butler 2012). The external reliability verified whether the information that gathered for the conducted study was aligned with the data collected by earlier studies. This study was not intended to examine any variables other than those highlighted and stated in the purpose statement of the study.

RESULTS

The size of the sample group was 120 sales professionals and managers. The study included a point-biserial correlation analysis, a simple regression analysis, a hypothesis testing, and a partial correlational analysis of the variables; the leadership style and each of the three performance factors, namely, achieving virtual sales team objectives and KPIs, individual role clarity, and the sales team collaboration.

Demographic Data

The study's demographic categories included gender, years with the current team, job function within the organization, and work location. The demographic data allowed the development of a demographic-based understanding of the sample. The demographic data was only used to describe the respondents' sample, and did not play a role in the data analysis of this study.

The respondents of the survey categorized themselves to be one of four diverse groups based on their years of employment with their respective teams. The largest category was those who have been with their present team for one to five years. While the likelihood of employees quitting their jobs in their first five years of employment and before they even build a solid commitment to their teams (Bluedorn, 1982), the results were in line with the average employee retention rate of technology companies in the Silicon Valley.
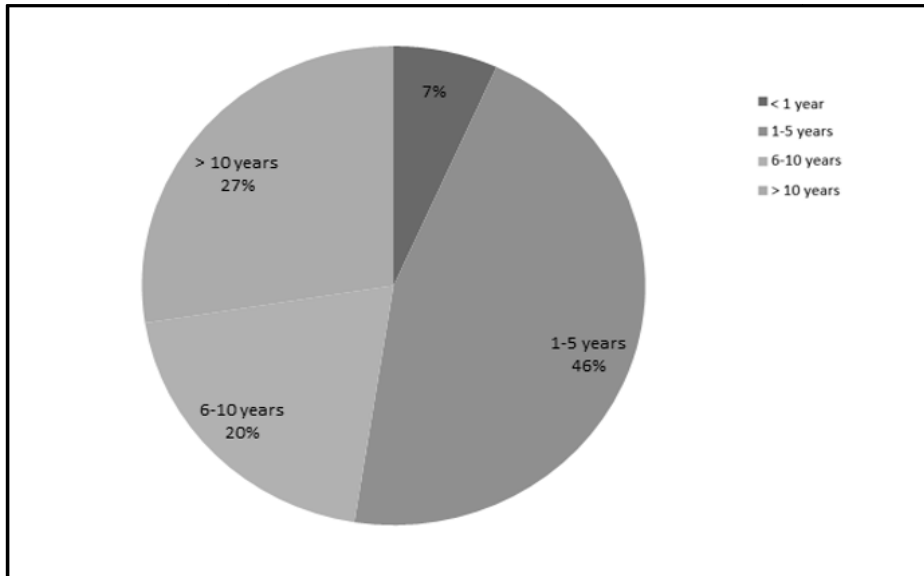
Figure 2: Experience of Participants with their Current Teams.

Furthermore, the participants identified themselves as belonging to one of three different job functions, namely, sales professional, sales leader, or other. The clear majority of the participants identified themselves as sales professionals. The three groups' representation of sales teams' members among respondents supported the data validity and credibility of the results of the current study, which is addressing primarily sales function in the telecommunication industry companies. Figure 3 below illustrates the participants' allocation based on their stated job function.
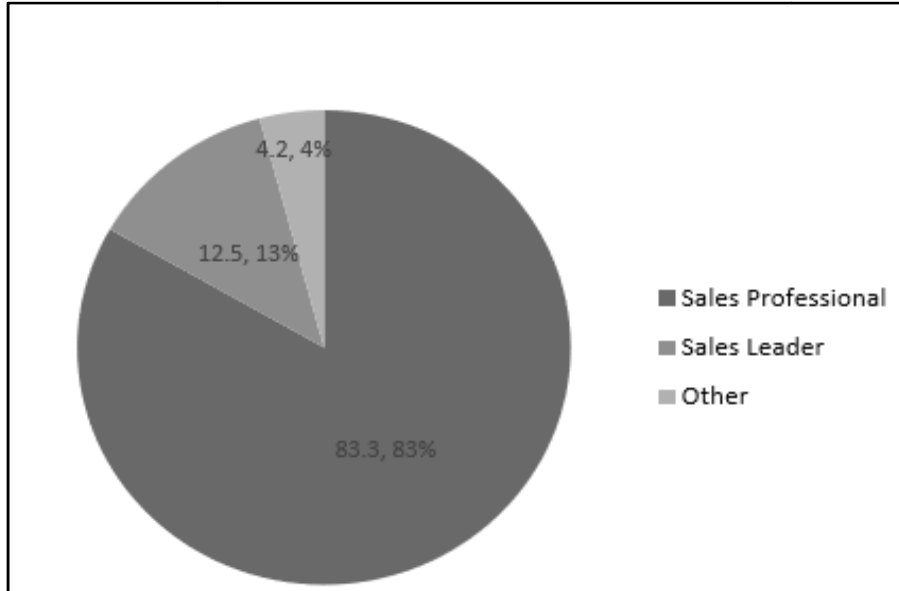

Figure 3: Job Function Demographics of the Participants.

While most participants indicated that they worked in the United States, approximately 43% of participants specified that they worked in 13 other countries. Yet, all participants confirmed working for virtual sales teams at telecommunication corporations. Table 1 shows the participants allocation based on their place of work.

Table 1: Location of Participants (N = 120)

Location	Participants Number	Proportion
India	13	10.83
Singapore	11	9.16
Australia	7	5.83
Netherlands	5	4.17
Germany	3	2.5
Japan	3	2.5
China	2	1.66
United Kingdom	3	2.50
Dubai	1	0.83
Hong Kong	1	0.83
Italy	1	0.83
Saudi Arabia	1	0.83
Spain	1	0.83
United States	68	56.7
Total	120	100

Team Performance, Communication Tools, and Challenges in Virtual Environment

The respondents ranked factors in terms of their importance to improving the performance of the virtual sales team. According to the collected ranking, the most significant factor was trust among team members, followed by KPI Achievement. The high ranking that participants had specified to trust, which captured the standing of trust in enabling virtual teams' smooth operations and performance (Bhat, Pande, & Ahuja, 2014; Robertson, Gockel, & Brauner, 2013; Anantatmula & Kanungo, 2010).

The essential role of trust in enhancing and promoting virtual environment, and the high standing of effective communication methods in team's performance, as illustrated in Table 2, both confirmed and justifies the necessity to have the current study. This research study examined the relationship between the virtual leader's style employed by virtual sales teams in telecommunication companies and their performance. Table 2 below displays the ranking of the most significant factors of the performance of virtual sales teams.

Table 2: Ranking of Critical Virtual Team Performance Factors (N = 120)

Rank	Critical Performance Factor	Percentage of Participants (Either Important or Very Important)
1	Trust among team members	95
2	KPI achievement	93
3	Attaining a role clarity	92
4	Effective communication	86
5	Efficient conflict resolution	76
6	Team size	47

Also, the participants classified the challenges that sales teams encounter while employed by a virtual sales leader. The most important challenge was alleged to be the trust relationships in the team followed by achieving KPIs in the virtual team. This outcome was aligned with the ranking given to trust among team members, which was marked as the most significant factor in as far as the virtual sales team performance is concerned. Table 3 displays the challenges ranking that the survey respondents encounter when employed in a virtual setting.

Table 3: Ranking of Challenges that Sales Professionals Face in Virtual Environment (N = 120)

Rank	Team Challenge	Score a
1	Achieve Key Performance Indicators (KPIs)	417
2	Trust Relationships in the Team	410
3	Communication Gaps Challenges	364
4	Role Ambiguity	339
5	Conflict Resolution	263

Total Score = Score is a Weighted Calculation by SPSS Software Based on the Sum of all Rank Counts.

Data Analysis

The answers to the survey's questions were coded based on 5-Point Likert-type responses. Each question carried an equal weight when aggregated into the final score for each performance factor. Once the aggregated scores of each performance factor were found, the analysis to answer the research questions began. Table 4 below shows the values of different variables and other relevant team classifications that the participants provided.

Table 4: Frequency of Variables in Both Modes of Operation (N = 120)

Variable and Classifications	Aggregated Value of the Performance Factors	No. of Participants	%
Transformational Achieving KPI Goals	$Score^* > 80\%$	59	49
	$Score^*$ between 60-79%	44	37
	$Score^* < 60\%$	17	14
Role Clarity	$Score^* > 80\%$	42	35
	$Score^*$ between 60-79%	52	43
	$Score^* < 60\%$	26	22
Collaboration	$Score^* > 80\%$	14	12
	$Score^*$ between 60-79%	95	79
	$Score^* < 60\%$	11	9
Transactional Achieving KPI Goals	$Score^* > 80\%$	38	32
	$Score^*$ between 60-79%	45	37
	$Score^* < 60\%$	37	31
Role Clarity	$Score^* > 80\%$	38	31.5
	$Score^*$ between 60-79%	39	32.5
	$Score^* < 60\%$	43	36
Collaboration	$Score^* > 80\%$	37	31
	$Score^*$ between 60-79%	35	29
	$Score^* < 60\%$	48	40

*Score = Aggregated Score Based on Participants Answers.

FINDINGS

The study investigated a research question that addressed the relationship between sales virtual leader's style and team performance of virtual sales teams in networking telecommunication corporations based in California's Silicon Valley. In the following paragraphs, the findings of the data analysis are discussed and explained to present the answers to the research questions. The data are further analyzed to accept/reject the respective hypotheses.

Research Question

The research question asked whether a relationship between sales virtual leader's style and team performance of sales teams in telecommunication companies. Since the study's team's performance extent is constructed upon three different factors; team's capability to accomplish set KPI objectives, role clarity, and team collaboration, one hypothesis for each of the three measures was utilized in answering the primary research question. The point-biserial correlations employed to tackle each respective hypothesis is illustrated in Table 5 below.

Table 5: Point-Biserial Correlations for the Study's Variables (N = 120)

Performance Factor	Virtual Leader's Style a
Achieving team's KPIs	.667**
Role Clarity	.336**
Team Collaboration	.738**

[a]Mode of operation: 1 = *face-to-face*, 0 = *virtual*
* *P < .01*

Hypothesis H_01 predicted no significant relationship between the sales virtual leader's style and the ability of sales virtual teams in telecommunications networking organizations to accomplish their KPIs. The correlation of attaining team's KPIs, as shown in Table 5 above, gave a point-biserial correlation coefficient (r_{pb}) value of .667 (p < 0.01), that specified a significant correlation. Therefore, there is enough evidence to reject the hypothesis H01.

Table 6: Simple Regression Analysis

Model	R	R Square	Adjusted R Square	Std. Error of Estimate
Achieving Goals	.667 a	.444	.440	12.9293140783
Role Clarity	.336 a	.113	.105	11.8771939357
Team Collaboration	.738 a	.545	.541	8.47280

[a]Predictors: (Constant) *Mode of Operation*

By choosing a *p*-value of 0.01, there was an indication that there is a 1% probability that the correlation between the virtual leader's style and achieving team's KPIs is inadvertent or accidental, further supporting that the detected relationship is highly significant. In the test conducted, and with the *p* value of 0.01, we rejected the null hypothesis and concluded that there was a statistically significant relationship between the virtual leader's style and the ability to achieve team goals.

Simple regression between the sales virtual leader's style and the ability of sales virtual teams in telecommunications networking organizations to accomplish their KPIs, measured in terms of attaining key business objectives, as illustrated in Table 6 above, showed that the regression analysis coefficient of determination (R^2) value of .444, which indicated that almost 44% of the KPI goals accomplishment may well be attributed to the varying value of the virtual leader's style, namely, transactional or transformational. This showed a strong linear relationship representing the relationship between the two sets of variables. Figure 4 below shows the linear correlation between virtual leader's style and achieving team KPIs factor.
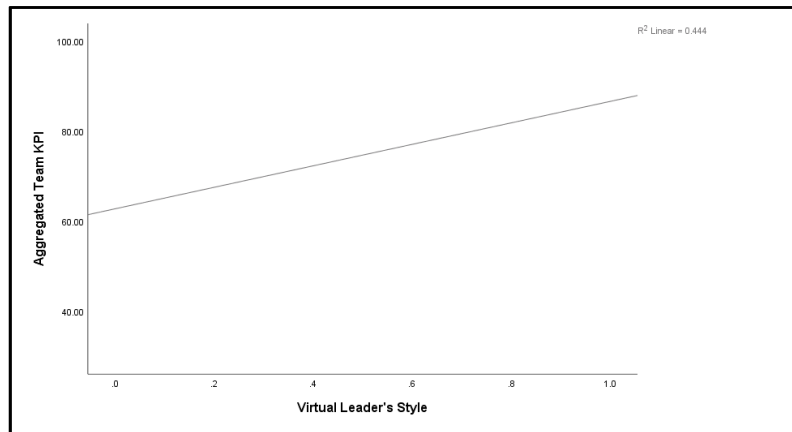
Figure 4: Linear Correlation between Virtual Leader's Style and Achieving KPI.

Hypothesis $H_0 2$ predicted no significant relationship between the sales virtual leader's style and the sales teams' role clarity in telecommunication companies. As Table 5 above illustrated, the correlation for team role clarity and virtual leader's style (r_{pb}= .336, p < .01) was significant, that gave backing to reject Hypothesis $H_0 2$.Simple regression between the sales virtual leader's style and the sales teams' role clarity, and as shown in Table 6 above, led to a value of .113 for R^2, which specified that almost 11% of team role clarity could be attributed to the changing value of the virtual leader's style. This shows a strong linear relationship between the two variables since almost 11% of team role clarity could be attributed to the changing value of the virtual leader's style. Figure 5 below shows the linear correlation between virtual leader's style and the sales teams' role clarity.
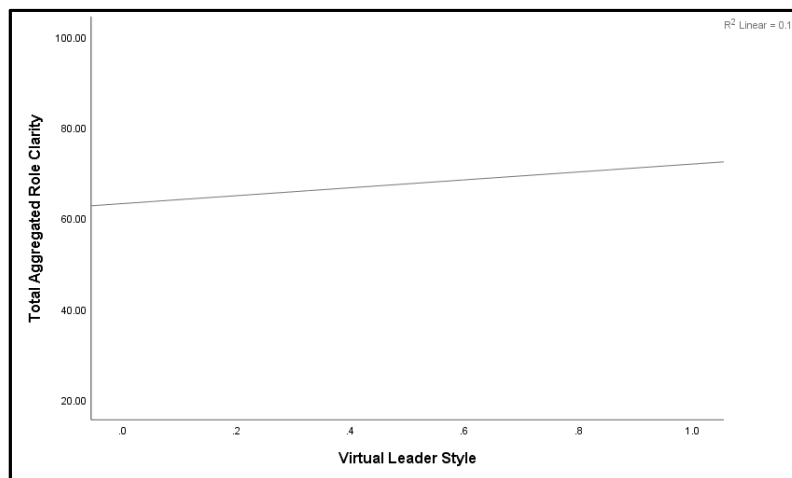

Figure 5: Linear Correlation between Virtual Sales Leader Style and Role Clarity.

Hypothesis $H_0 3$predicted no significant relationship between the virtual leader's style and the virtual sales teams' collaboration in California Silicon Valley-based telecommunication corporations. As illustrated in Table 5 above, the correlation for virtual sales teams' collaboration and virtual leader's style of (r_{pb} = .738, p < .01) was significant, which gave backing to reject Hypothesis $H_0 3$. Simple regression between virtual sales teams' collaboration and virtual leader's style, as shown in Table 5 above, resulted in a value of .545 for R^2, as shown in Table 6 above, which showed that almost 55% of team collaboration could be credited to the changing of the virtual leader's style value. This shows a strong linear correlation between the two sets of variables since almost 48% of the variability in the virtual sales teams' collaboration could be ascribed to other factors than the relationship between virtual sales teams' collaboration and virtual leader's style. Figure 6 below shows the linear correlation between virtual leader's style and the sales teams' collaboration.
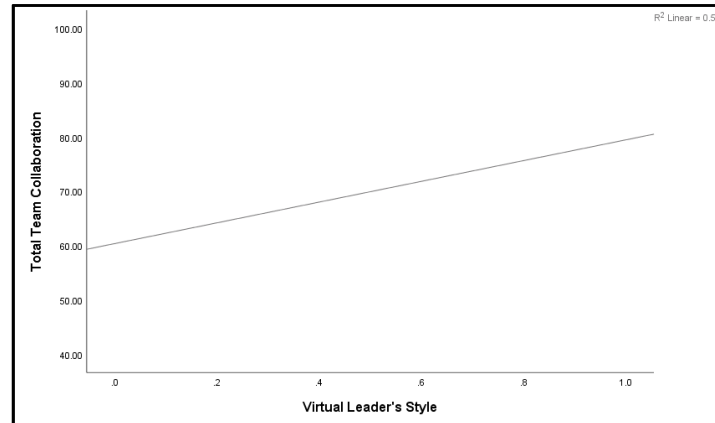
Figure 6: Linear Correlation between Virtual Sales Leader and Collaboration.

CONCLUSIONS AND RECOMMENDATIONS

While telecommunication industry is witnessing a fast-paced adoption of distributed and virtual structure, telecommunication companies need to manage their growing virtual sales teams, improve their business productivity, increase their employee satisfactions, and enhance their overall performance. The study addressed the lack of knowledge about the relationship between virtual leader's style that distributed sales teams in telecommunication companies adopt and the overall team performance. Also, the findings from this study contributed to the body of knowledge base of virtual teams by expanding the understanding of virtual leadership among telecommunication companies and the variables that impact team performance.

Conclusions

The study's instrument statistical results and the analysis of the collected data indicated that there were indeed relationships between virtual leader's style and the three measures of virtual sales team performance, namely, achieving virtual sales team objectives and KPIs, role clarity, and team collaboration, in terms of trust, effective communication, and conflict resolution. Hence, the following can be determined.

First, virtual leader's style was indeed related to virtual sales team performance. The relationship might be influenced by the factors listed by participants, and shown in Table 6 above, such as trust among team members, KPI achievement, and attaining role clarity. However, the study's goal was not to neither find the impact those factors may have on team performance nor to measure it.

Second, participants indicated the unimportance of conflict resolution as far as team performance is concerned, as shown in Table 6. While this may be in contradiction of what Pazos (2012) and Ayoko et al. (2012) concluded, this may point to the enhanced tools many of the global telecommunication organizations use to improve feedback mechanisms, knowledge sharing, and task alignment within their teams (Eissa et al., 2012).

Lastly, the outcomes of the current study presented constituency with numerous past pertinent studies as outlined earlier in the literature review section and offered as secondary data. Hence, the shared supposition between the current study and the past studies was that they established a significant relationship between virtual leader's style and team performance. This may emphasize the importance role virtualization plays on the distributed teams, including telecommunication sales organizations. Nevertheless, the current study was not conducted to neither compute nor quantity the impact of virtual leader's style on the overall team's performance.

Recommendations

The latest advances in globalization and technology have helped expand and distribute business functions to various locations globally not only to cut costs, but also to reach more customer bases and telecommunication industry is no exception. While telecommunication industry is witnessing a fast-paced adoption of distributed and virtual structure, telecommunication companies need to manage their growing virtual sales teams, improve their business productivity, increase their employee satisfactions, and enhance their overall performance. Based on the findings of this study, the next recommendations were made.

First, virtual sales teams' leaderships in the telecommunication industry need to understand factors that are related to the teams' effectiveness as well as the aspects that can impact their team dynamics when building and running their virtual sales. By concluding the existence of a relationship between the virtual leader's style and sales team performance, the findings of this study can promote sales organizations leaders' awareness of the various challenges facing the newly formed distributed teams, so that they may address them properly. Table 3 above listed numerous challenges the study participants raised, which can be deemed as a basis for further investigation and discussion.

Second, Table 3 above showed that trust was highlighted to be the most significant factor in the virtual sales environments; hence, organizational leaders of sales organizations should pay a very close attention to it not only as a social aspect that helped in the alignment of physically dispersed team members, but also as a crucial element in operating successful and effective virtual sales teams' structures and operations.

Third, as represented in Table 6, team collaboration was found to be the strongest performance factor to the virtual leader's style. This finding as well as realizing most of the participants ranked trust to be the first significant performance factor, as shown in Table 2, sales teams' leaderships should consider collaboration and trust as the most essential elements in operating virtual teams. While culture has a great impact on virtual teams, the culture of the company is superior to national culture (Pinar et al., 2014); hence, leaders should pay a close attention to collaboration and trust when tackling challenges in the virtual sales environments.

SUMMARY

The findings of the current study backed the relationship between virtual leader's style and the three parameters used to measure the performance of the virtual sales team, namely, achieving virtual sales team objectives and KPIs, role clarity, and team collaboration, in terms of trust, effective communication, and conflict resolution. However, the findings of the study showed a weak positive correlation between the virtual leader's style and the three performance measures, which indicated that virtual sales team performance may not necessarily be predicted based on their virtual leader's style.

DATA AVAILABILITY STATEMENT

All data, models, and code generated or used during the study appear in the submitted article.

REFERENCES

1. Al-Ani, B., Horspool, A., & Bligh, M. C. (2011). Collaborating with 'virtual strangers': Towards developing a framework for leadership in distributed teams. Leadership, 7(3), 219-249. doi:10.1177/1742715011407382

2. Anantatmula, V. S., & Kanungo S. (2010). Modeling enablers for successful KM implementation. Journal of Knowledge Management, 14(1), 100-113. doi:10.1108/13673271011015598

3. Ayoko, O. B., Konrad, A. M., & Boyle, M. V. (2012). Online work: Managing conflict and emotions for performance in virtual teams. European Management Journal, 30(2), 156-174. doi:10.1016/j.emj.2011.10.001

4. Bacchetti, P., Deeks, S. G. & McCune, J. M. (2011). Breaking free of sample size dogma to perform innovative translational research. Science Translational Medicine, 3(87), 23-24.

5. Baeva, L. V. (2016). Virtual communication: Strengthening of real relationships or simulation? International Journal of Technoethics (IJT), 7(1), 51-61. doi:10.4018/IJT.2016010104

6. Berry, H. & Kaul, A. (2014). Global sourcing and knowledge seeking. Management Science, 61(5), 1052-1071.

7. Bhat, S. K., Pande, N., & Ahuja, V. (2014). Factors impacting effectiveness in virtual teams. International Journal of Virtual Communities and Social Networking, 6(3), 42-52. doi:10.4018/ijvcsn.2014070103

8. Bosco, F. A., Aguinis, H., Singh, K., Field, J. G., & Pierce, C. A. (2015). Correlational effect size benchmarks. The Journal of Applied Psychology, 100(2), 431-449. doi:10.1037/a0038047

9. Bluedorn, A. C. (1982). A unified model of turnover from Organizations. Human relations, 35(2), 135-153. doi:10.1177/001872678203500204

10. Bonet Fernandez, D. B., & Jawadi, N. (2015). Virtual R&D project teams: From E-leadership to performance. Journal of Applied Business Research, 31(5), 1693-1708. doi:10.19030/jabr.v31i5.9384

11. Brown, K. G., & Kozlowski, S. W. J. (2002). The dispersion model: Beyond a dichotomous conceptualization of emergent constructs. Working paper.

12. Chang, W., & Lee, C. (2013). Virtual team e leadership: The effects of leadership style and conflict management mode on the online learning performance of students in a business planning course. British Journal of Educational Technology, 44(6), 986-999. doi:10.1111/bjet.12037

13. Cleland, D. I., & Gareis, R. (2006). Global project management handbook. New York, NY: McGraw Hill.

14. Cohen, J. (1988). Statistical Power Analysis for the Behavioral Sciences. New York, NY: Routledge Academic.

15. Collins, A. J., Hester, P., Ezell, B., & Horst, J. (2016). An improvement selection methodology for key performance indicators. Environment Systems and Decisions, 36(2), 196-208. doi:10.1007/s10669-016-9591-8

16. Creswell, J. W. (2015). Educational research: Planning, conducting, and evaluating quantitative and qualitative research (5th ed.). Upper Saddle River, NJ: Prentice Hall.

17. Creswell, J. W. (2013). Research design: Qualitative, quantitative, and mixed methods approaches(4th ed.). Thousand Oaks, CA: SAGE Publications.

18. *Curnin, S., Owen, C., Paton, D., Trist, C., & Parsons, D. (2015). Role clarity, swift trust, and Multi Agency coordination. Journal of Contingencies and Crisis Management, 23(1), 29-35. doi:10.1111/1468-5973.12072*

19. *Curtis, B. R. (2011). Psychology of trust. Hauppauge, NY: Nova.*

20. *Davenport, C., & White, D. (2001). Human factors, operations, and high-performance teams. Flying Safety. 57(7), 1-2.*

21. *De Graaf, A., & Rosseau, M. (2015). Transactional analysis and conflict management: Embracing conflict as an opportunity for growth and learning. Transactional Analysis Journal, 45(4), 250-259. doi:10.1177/0362153715606172*

22. *DeVellis, R. (2003). Scale development: theory and applications: theory and application. Thousand Oaks, CA: Sage.*

23. *Diegmann, P., Basten, D., & Pankratz, O. (2017). Influence of Communication on Client Satisfaction in Information System Projects: A Quantitative Field Study. Project Management Journal, 48(1), 81–99.*

24. *Draghici, A., Aldea, C. C., & Draghici, G. (2013). Decision making process approach for choosing the adequate ICT tool in virtual teams. International Journal of Human Capital and Information Technology Professionals, 4(2), 56-71. doi:10.4018/jhcitp.2013040105*

25. *Dulebohn, J. H., & Hoch, J. E. (2017). Virtual teams in organizations. Human Resource Management Review, 27(4), 569-574. doi:10.1016/j.hrmr.2016.12.004*

26. *Eissa, G., Fox, C., Webster, B. D., & Kim, J. (2012). A framework for leader effectiveness in virtual teams. Journal of Leadership, Accountability, and Ethics, 9(2), 11-12.*

27. *Eom, M. (2009). Cross-cultural virtual team and its key antecedents to success. The Journal of Applied Business and Economics, 10(1), 11-24.*

28. *Etzkowitz, H. (2013). Silicon Valley at risk? Sustainability of a global innovation icon: An introduction to the special issue. Social Science Information, 52(4), 515-538. doi:10.1177/0539018413501946*

29. *Fairlie, R. W., & Chatterji, A. K. (2013). High technology entrepreneurship in Silicon Valley. Journal of Economics & Management Strategy, 22(2), 365-389. doi:10.1111/jems.12015*

30. *Faul, F., Erdfelder, E., & Buchner, A. (2007). G*Power 3: A flexible statistical power analysis program for the social, behavioral, and biomedical sciences. Behavioral Research Methods, 39(2), 175-191.*

31. *Ferreira, J. C. & Patino, C. M. (2015). What does the p value really mean? Brazilian Journal of Pulmonology, 41(5), 485-485. doi:10.1590/S1806-37132015000000215*

32. *Fujino, Y., & Kawamoto, R. (2013). Effect of information and communication technology on nursing performance. Computers, Informatics, Nursing, 31(5), 244-250.*

33. *Gallup World Poll (2014). State of the American Workplace. Washington, DC: Gallup Inc.*

34. *Gibbs, N. M. & Gibbs, S. V. (2015). Misuse of 'trend' to describe 'almost significant' differences in anaesthesia research. British Journal of Anaesthesia, 115(3). 337–339. doi:10.1093/bja/aev149*

35. *Gibson, C. B., & Cohen, S. G. (2003). Virtual teams that work: Creating conditions for virtual team effectiveness. San Francisco, CA: Wiley.*

36. *Godiwalla, Y. H. (2016). Conflict management strategies in global firms. Journal of Management Policy and Practice, 17(2), 11-18.*

37. *Grand, J. A., Pearce, M., Rench, T. A., Chao, G. T., Fernandez, R., & Kozlowski, S. W. J. (2013). Going DEEP: Guidelines for building simulation-based team assessments. BMJ Quality & Safety, 22(5), 436-448. doi:10.1136/bmjqs-2012-000957*

38. *Green, A. (2018). Just how long do employees stay at Apple, Tesla, Facebook, Netflix, and Google? Retrieved from https://www.bizjournals.com/sanjose/news/2018/04/13/tech-employers-retention-google-facebook-apple.html*

39. *Guinalíu, M., & Jordán, P. (2016). Building trust in the leader of virtual work teams. Spanish Journal of Marketing, 20(1), 58-70.*

40. *Guzzo, R. A., & Dickson, M. W. (1996). Teams in organizations: Recent research on performance and effectiveness. Annual Review of Psychology, 47(1), 307-338. doi:10.1146/annurev.psych.47.1.307*

41. *Hacker, M. E., & Lang, J. D. (2000). Designing a performance measurement system for a high technology virtual engineering team: A case study. International Journal of Agile Management Systems, 2(3), 225-232. doi:10.1108/14654650010356130*

42. *Harvey, M. G., & Griffith, D. A. (2007). The role of globalization, time acceleration, and virtual global teams in fostering successful global product launches. Journal of Product Innovation Management, 24(5), 486-501. doi:10.1111/j.1540-5885.2007.00265.x*

43. *Heale, R., & Twycross, A. (2015). Validity and reliability in quantitative studies. Evidence - Based Nursing, 18(3), 66-67. doi:10.1136/eb-2015-102129*

44. *Henton, D., & Held, K. (2013). The dynamics of Silicon Valley: Creative destruction and the evolution of the innovation habitat. Social Science Information, 52(4), 539-557. doi:10.1177/0539018413497542*

45. *Hersey, P., & Blanchard, K. H. (1988). Management of organizational behavior (5th ed.). Englewood Cliffs, NJ: Prentice-Hall.*

46. *International Telecommunication Union (2016). ICT facts and figures, 2016. Geneva, Switzerland: ITU. Retrieved from https://www.itu.int/en/ITUD/Statistics/Documents/facts/ICTFactsFigures2016.pdf*

47. *International Telecommunication Union (2018). Telecommunications industry. Retrieved from http://www.itu.int/en/about/Pages/default.aspx*

48. *Iorio, J., & Taylor, J. E. (2015). Precursors to engaged leaders in virtual project teams. International Journal of Project Management, 33(2), 395-405.*

49. *Kahn, R. L., Wolfe, D. M., Quinn, R. P., Snoek, J. D. & Rosenthal, R. A. (1964). Organizational Stress: Studies in Role Conflict and Ambiguity. New York, NY: Wiley.*

50. *Kai-Tang, F., Yuan-Ho, C., Ching-Wen, W., & Chen, M. (2014). E-leadership effectiveness in virtual teams: Motivating language perspective. Industrial Management & Data Systems, 114(3), 421-437. doi:10.1108/IMDS-07-2013-0294.*

51. *Kananen, J., & Akpinar, M. (2015). Gamification of the sales process at a telecommunications company to improve the motivation of the salesforce. Finnish Business Review, 2(11), 1-14.*

52. *Kantola, R., Kabir, H., & Loiseau, P. (2017). Cooperation and End-to-End in the Internet. International Journal of Communication Systems, 30(12). doi:10.1002/dac.3268*

53. *Kimberlin, C. L., & Winterstein, A. G. (2008). Validity and Reliability of Measurement Instruments Used in Research. American Journal of Health-System Pharmacists, 65(1), 2276-2284. doi: 10.2146/ajhp070364.*

54. *Kuo, C., & Zaykin, D. (2013). The ranking probability approach and its usage in design and analysis of large-scale studies. PloS One, 8(12), e83079. doi:10.1371/journal.pone.0083079*

55. *Kusuoka, H. & Hoffman, J. I. E. (2002). Advice on statistical analysis for circulation research. Circ Res, 91(8), 662–71.*

56. *Lakens, D. D. (2013). Calculating and reporting effect sizes to facilitate cumulative science: A practical primer for t-tests and ANOVAs. Frontiers in Psychology, 4(1). doi:10.3389/fpsyg.2013.00863*

57. *Leedy, P. D., & Ormrod, J. E. (2016). Practical research: Planning and design (11th ed.).Upper Saddle River, NJ: Prentice Hall.*

58. *Leonard, B. (2011). Managing virtual teams: Selection, engagement, communication, and performance management matter when supervising employees who rarely meet face to face. HR Magazine, 56(6), 38-42.*

59. *Martinelli, A. A., & Nomaler, Z. Ö. (2014). Measuring knowledge persistence: A genetic approach to patent citation networks. Journal of Evolutionary Economics, 24(3), 623-652. doi:10.1007/s00191-014-0349-5*

60. *Maruping, L. M., & Agarwal, R. (2004). Managing team interpersonal processes through technology: A task-technology fit perspective. Journal of Applied Psychology, 89(6), 975- 990.*

61. *Mavengere, N. B. (2014). Role of information systems for strategic agility in supply chain setting: Telecommunication industry study. Electronic Journal of Information Systems Evaluation, 17(1), 327-340.*

62. *McNurlin, B., Sprague, R., & Bui, T. (2009). Information Systems Management in Practice, (8th ed.). Upper Saddle River, New Jersey: Prentice Hall.*

63. *Myles, P. S., & Gin, T. (2000). Statistical methods for anesthesia and intensive care. Edinburgh, UK: Elsevier.*

64. *Neuman, W. L. (2014). Social research methods: Qualitative and quantitative approaches (7th ed.) Upper Saddle River, NJ: Prentice Hall.*

65. *Nuechterlein, J., & Weiser, P. (2007). Digital Crossroads: American Telecommunications Policy in the Internet Age, Cambridge, MA: MIT Press.*

66. *Nunnally, J. C. (1978). Psychometric theory (2nd ed.). New York, NY: McGraw-Hill.*

67. Ocker, R. J. (2005). Influences on creativity in asynchronous virtual teams: a qualitative analysis of experimental teams. *IEEE Transactions on Professional Communication, 48(1)*, 22-39.

68. Pauleen, D. (2004). *Virtual Teams: Projects, Protocols and Processes*. Hershey, PA: Idea Group Publishing.

69. Pazos, P. (2012). Conflict management and effectiveness in virtual teams. *Team Performance Management, 18(7/8)*, 401-417. doi:10.1108/13527591211281138

70. Regan, M. D. (1999). *The journey to teams: A practical step-by-step implementation plan*. New York, NY: Holden Press.

71. Reinertsen, D., G., & Smith, P.G., (1997). *Developing products in half the time: New rules, new tools*. New York, NY: John Wiley & Sons, Inc.

72. Reynaldo, J. A. & Santos, A. (1999) Cronbach's Alpha: A tool for assessing the reliability of Scales. *Journal of Extension, 37(2)*, 1-4.

73. Richards, D., & Bilgin, A. (2012). Cross-cultural study into ICT student attitudes and behaviours concerning teams and project work. *Multicultural Education & Technology Journal, 6(1)*, 18-35. doi:10.1108/175049712112162

74. Robertson R., Gockel, C., & Brauner, E. (2013). Trust your teammates or bosses? Differential effects of trust on transactive memory, job satisfaction, and performance. *Employee Relations, 35(2)*, 222–242. doi:10.1108/01425451311287880

75. Román, S., & Rodríguez, R. (2015). The influence of sales force technology use on outcome performance. *Journal of Business & Industrial Marketing, 30(6)*, 771-783. doi:10.1108/JBIM-01-2015-0001

76. Saeed, T., Almas, S., Anis-ul-Haq, M., & Niazi, G. (2014). Leadership styles: Relationship with conflict management styles. *International Journal of Conflict Management, 25(3)*, 214-225. doi:10.1108/IJCMA-12-2012-0091

77. Salters, D. (2015). Transactional analysis and conflict management: A response. *Transactional Analysis Journal, 45(4)*, 260-265. doi:10.1177/0362153715606171

78. Schneider, J. W. (2015). Null hypothesis significance tests. A mix–up of two different theories: the basis for widespread confusion and numerous misinterpretations. *Scientometrics, 102(1)*, 411–432. doi:10.1007/s11192-014-1251-5

79. Sekaran, U. & Bougie, R. (2009). *Research methods for business: a skill-building approach (5th ed.)*. Haddington, NJ: John Wiley & Sons.

80. Simon, M. K. (2011). *Dissertation and scholarly research: Recipes for success*. Seattle, WA: Dissertation Success.

81. Sullivan, G. M. (2011). A Primer on the Validity of Assessment Instruments. *Journal of Graduate Medical Education, 3(2)*, 119–120. doi:10.4300/JGME-D-11-00075.1

82. Szewc, J. (2013). Selected success factors of virtual teams: literature review and suggestions for future research. *International Journal of Management and Economics, 38(1)*, 67–83. DOI:10.2478/ijme-2014-0015

83. *Tiruwa, A. & Yadav, R. (2015). Social CRM: An emerging medium. Advances in Computer Science and Information Technology, 2(11), 48-52.*

84. *Townsend, A. M., DeMarie, S. M., & Hendrickson, A. R. (1998). Virtual teams: Technology and the workplace of the future. The Academy of Management Executive, 12(3), 17–29. doi:10.5465/ AME.1998.1109047*

85. *Tsang, S., Royse, C. F., & Terkawi, A. S. (2017). Guidelines for developing, translating, and validating a questionnaire in perioperative and pain medicine. Saudi journal of anesthesia, 11(Suppl 1), 80–89. doi: 10.4103/sja.SJA_203_17*

86. *Warkentin, M. E., Sayeed, L., & Hightower, R. (1997). Virtual teams versus face-to-face teams: An exploratory study of a web-based conference system. Decision Sciences, 28(4), 975-996. doi:10.1111/j.1540-5915.1997.tb01338.x*

87. *White, M. (2014). The management of virtual teams and virtual meetings. Business Information Review, 31(2), 111-117. doi:10.1177/0266382114540979*

88. *Wyld, D. (2015). How does conflict impact sales team performance? Academy of Management Perspectives, 29(1), 7-9. doi:10.5465/amp.2015.0018*

89. *Yamatani, H., Mann, A., & Feit, M. (2013). Avoiding type III, IV, and V errors through collaborative research. Journal of Evidence-Based Social Work, 10(4), 358-364. doi:10.1080/15433714.2012.664050*

90. *Zander, L., Mockaitis, A. I., & Butler, C. L. (2012). Leading global teams. Journal of World Business, 47(4), 592-603. doi:10.1016/j.jwb.2012.01.012*

91. *Zheng, X., Thundiyil, T., Klinger, R., & Hinrichs, A. T. (2016). Curvilinear relationships between role clarity and supervisor satisfaction. Journal of Managerial Psychology, 31(1), 110-126. doi:10.1108/JMP-06-2013-0175*

92. *Ziek, P., & Smulowitz, S. (2014). The impact of emergent virtual leadership competencies on team effectiveness. Leadership & Organization Development Journal, 35(2), 106-120. doi:10.1108/LODJ-03-2012-0043*