

2021

The Effect of Virtual Leadership Practices on Work Engagement During Covid-19

Mohamed A. Kandil

Teacher of Business Administration Faculty of Business Administration, Delta University, Egypt

Mohamed Abd-Elmonem Moustafa

PhD researcher, Faculty of Commerce, University of Sadat City, Egypt

Follow this and additional works at: <https://digitalcommons.aaru.edu.jo/dusj>



Part of the [Business Commons](#)

Recommended Citation

Kandil, Mohamed A. and Moustafa, Mohamed Abd-Elmonem (2021) "The Effect of Virtual Leadership Practices on Work Engagement During Covid-19," *Delta University Scientific Journal*: Vol. 4 : No. 1 , Article 5.

Available at: <https://digitalcommons.aaru.edu.jo/dusj/vol4/iss1/5>

This Article is brought to you for free and open access by Arab Journals Platform. It has been accepted for inclusion in Delta University Scientific Journal by an authorized editor. The journal is hosted on [Digital Commons](#), an Elsevier platform. For more information, please contact rakan@aar.edu.jo, marah@aar.edu.jo, u.murad@aar.edu.jo.



The Effect of Virtual Leadership Practices on Work Engagement During Covid-19

Dr. Mohamed A. Kandil¹, Mohamed Abd-Elmonem Moustafa²

¹Teacher of Business Administration Faculty of Business Administration, Delta University, Egypt

²PhD researcher, Faculty of Commerce, University of Sadat City, Egypt

Keywords:

Abstract

- 1- Leadership
- 2- Virtual Leadership
- 3 Work Engagement

Aims: The primary aim of this study was to examine the effect of virtual leadership practices (communication, trust, and coordination) on work engagement (Vigor, Dedication, and Absorption) during the Covid-19.

Study design: The research was applied to faculty members and the assisting body in Egypt, and the researchers used Google Drive forms in preparing the survey, then we available survey links on the Internet via (Facebook, Gmail, Yahoo ... etc.) for 21 days. The convenience sample and snowball sample were relied upon, and the number of investigations valid for analysis was 224.

Results: The results found that some practices of virtual leadership had a significant effect on the dimensions of work engagement.

Conclusion: The results of this article can contribute to a virtual leadership perspective by relying upon it in the future, especially with the changes that occur in organizational life, including the spread of viruses such as Covid 19, which helps organizations succeed in achieving their goals.

Introduction

The COVID-19 crisis in 2020 has prompted many organizations around the world to require their employees to work from home, which has led to the shift from physical leadership to virtual leadership, and the emergence of virtual work teams (Mysirlaki and Paraskeva, 2020).

Several studies also indicated that 42% of American companies pursue remote work as an alternative form of full-time. A survey conducted on a large sample of them, and the results indicated that 87% of them had higher productivity in virtual environment than the traditional environment.

Articles indicate that two-thirds of universities in United States of America offer distance education programs. So, one can speculate that these trends will increase in the future (Wakefield et al, 2008).

Virtual work environment is the environment in which employees work remotely from their colleagues and managers (Ejiwale, 2008). The main reason behind the development of virtual work environments is to solve the problems of the temporal and geographical dimension, and some other advantages such as reducing costs, removing physical limits, forming new partnerships without looking at the location, improving efficiency when implementing projects through virtual work teams, and this type of difference needs a new type Leadership is called "virtual leadership" to improve team performance and enhance its effectiveness, by satisfying the social and material needs of team members (Abbasnejad & Moud, 2012).

According to (Muganda & Pillay, 2013), driving in a virtual environment did not start until recently and this problem needs attention as little research has been done on this topic, especially if it is considered that developing countries in Africa are usually late in adopting them. On the other hand, the concept of work engagement emerged when organizations found their efforts no longer valid, and organizations sought to retain skilled workers to achieve their goals by creating opportunities for engagement (Breevaart et al., 2014).

The researchers point out that work engagement has a positive impact on the organization as it has become a major factor in its success. Also, work engagement leads to satisfaction with the performance of the employee he does. Also, the work engagement increases the talent and individual performance of the employee, which in turn has a positive impact on the performance of the organization as a whole (Suharti & Suliyanto, 2012). (Beatty, 2011) also indicated that the more engaged employee is the more productive, and his behaviors are characterized by ethics, bearing responsibility, commitment to quality, growth, and staying in the organization.

Theoretical background and hypothesis development

A- Virtual leadership practices

Researchers have varied opinions about the concept of virtual leadership, some researchers consider it electronic leadership intended to guide and give instructions through the Internet (Holtmann, 2011). Learned, (2011) believes that virtual leadership is the process of social influence using advanced information technology to effect change in the attitudes, feelings, ideas, behaviors, and performance of individuals and groups.

Caulat, (2010) defines hypothetical leadership as the phenomenon of intentional influence by one person from the members of the organization in the organizational environment where the interaction occurs mostly through computers and phone calls. Also (Hambley, 2007) defines it as the process of social influence that takes place

through advanced information technology to bring about changes in attitudes, feelings, thinking, behavior, and performance, whether at the level of the individual, groups, or the organization as a whole.

Fjermestad, (2009) stated that virtual leadership is the social-influence process through communication and information technology to bring about change in the attitudes, feelings, thinking, behavior, and performance of individuals, groups and organizations. While (Holland et al., 2009) believes that virtual leadership is related to the implementation and performance of remote work at the organizational level and can be described as a process of social influence through the use of advanced information technologies to bring about changes in attitude, feelings, thinking and behaviors, and the performance of individuals, groups and the organization.

While (Flavian et al., 2019) believe that a hypothetical leader is someone who must use information technology tools such as computer programs and Internet communication tools, to manage a team of people spread geographically, to achieve a specific goal.

From the studies reviewed by the researcher, it was found that many studies such as (Hirschy, 2011 - Tan et al., 2019 - Flavian et al., 2019) dealt with three practices for virtual leadership: (Communication, trust, coordination), and this is what prompted the researcher to address them as follows:

1- Communication

Communication is an essential component of disseminating knowledge, innovation and productivity in organizations (Hoch & Kozlowski., 2014). Communication is defined as the transmission and exchange of information and data through the use of common symbols (verbal or non-verbal) between two or more members of the team in an appropriate manner.

Communication also plays a role in clarifying ambiguous problems and ultimately increasing efficiency and effectiveness among team members. The emergence of technology along with the emergence of virtual teamwork, bilateral

partnership and global cooperation has created additional challenges for the organization in pursuing effective communication (Schulze et al., 2017). There is ample evidence focusing on communication challenges that virtual teams face, including time delays in sending comments, lack of a common frame of reference for all members, differences in highlighting and interpretation of a written text, ensuring participation from remote team members, and communication in virtual team lacking language The body, on the other hand, the leader in virtual work environment focuses on avoiding those obstacles and working to increase the effectiveness of communications, as effective communication in virtual teams is a strong key to improving the overall performance and raising the level of achievement (Tan et al., 2019).

The more ineffective communication, the less able to build and maintain personal trust in virtual environments. In this sense, information richness theory assumes that communication varies in richness depending on the medium used to transmit it. Communication levels can be arranged in terms of richness of content as follows (face-to-face contact, telephone, and personal documents such as e-mail and electronic documents). The information richness theory proposes that different communication styles have the different linguistic capacities to convey social signals and the ability to have an immediate response to the message (Flavian et al., 2019).

2- Trust

Trust is defined as the desire of virtual team members to believe in one another based on the expectation that each team member will take actions beneficial to the team's overall success (Gilson et al., 2015). Then, trust is a major factor in socio-economic relations, and it plays a major role in online decision-making, as well as maintaining relationships within virtual work team and thus it is one of the determinants of performance within an organization (Flavian et al., 2019). It is one of the most influencing factors that allow an effective

exchange of information and knowledge among team members to develop it (Guinalú & Jordán, 2016).

Building trust in virtual environment is a problem because team members usually have no common past, no future to refer to as a basis for building trust, and have never met face to face in the past. However, because virtual team members are geographically dispersed to work on interconnected tasks, trust is crucial to achieving a common goals and team cohesion together. This is because virtual team members have to rely on others' experience (knowledge sharing) and accountability (keeping promises) to complete tasks (Tan et al., 2019). Understanding how trust affects virtual team is essential to help management monitor appropriate activities that affect components of trust throughout virtual team life cycle. Consequently, the organization, the leader, and each team member must develop transparency to build and maintain trust within teams (Ford et al., 2017).

Confidence in virtual teams depends on actions and not on good intentions that are difficult to evaluate in virtual environments, so expectations of actions and actions must be according to clear criteria, and moreover, the leaders of virtual team must be sensitive to any warnings that suggest a rapid intervention to overcome any Divisions can harm the team, through the use of communications and technology that focus on how information is communicated, re-adjusting communication standards as the team evolve, and progress is demonstrated through the team's use of virtual workplace (Chatterjee et al. 2017).

3- Coordination

Coordination is defined as the set of efforts exerted by team members to manage the organization's resources and the extent of consistency and coherence of the work activities of team members (Tan et al., 2019). In a well-coordinated organization, work activities are integrated and directed towards a common goal without duplication or fragmentation of effort, as well as the use of strategies and behavior patterns that aim to integrate and harmonize procedures,

knowledge and goals for team members to achieve common tasks (Hoch & Kozlowski, 2014).

Virtual teams face challenges as they try to coordinate work across time zones, cultural divides, and mental models. The volume of technological knowledge flows between company headquarters and subsidiary operations, and coordination of knowledge through the use of multi-functional teams distributed geographically, and many large companies have realized that they are an enabler of the competitive advantages of companies (Malhotra et al., 2007). Factors affecting the effectiveness of virtual teams, and found that coordination positively correlates with performance. Virtual team members must have the appropriate coordination to achieve performance (Paoli et al, 2014).

And the leaders work to coordinate efforts between members of virtual team, places and various work units, and monitor their situations. By doing so, you can identify errors or problems early, and the chances of quick or immediate solutions are more likely (Guinalú & Jordán, 2016).

B- Work engagement

Schaufeli et al., (2008) defined work engagement as positivity and loyalty, the connection of work with the mind and characterized by the following: (1) vitality (i.e. high levels of energy and mental flexibility at work, a willingness to invest effort in one's work, and also perseverance in the face of difficulties) , (2)dedication (meaning a sense of importance, vigor, inspiration, pride, and challenge),(3)absorption (meaning that employees remain focused and engaged in work, so that work time passes quickly).

Also, the concept of work engagement suggests that it includes everything about how to benefit from the employees themselves in the performance of their jobs, including the use of behaviors and emotions in addition to awareness (Sadri & Singh, 2014).

Work engagement is an advanced stage of commitment or excess (Robinson & Hayday, 2004). It's related to the individual's condition at work and his

ability to do it with vigor, dedication and comprehension (Hakanen et al., 2006).

Beatty, (2011) also indicated that work engagement is the quality that employees display in their work to reflect their adherence to the performance of their work roles physically, emotionally and cognitively.

Among the studies reviewed by the researcher, it was found that many studies such as (Pallavi& Patrick, 2015; Breevaart et al., 2014; Lu et al., 2014; Xanthopoulou& Bakker, 2012; Alvi&Abbasi, 2012; Beatty, 2011) dealt with work engagement through three dimensions: (Vigor, Dedication, and Absorption), and this is what prompted the researcher to address it as follows:

1- Vigor

Beatty, (2011) has indicated that vigor reflects an individual's willingness to devote effort in their work, demonstrate high levels of energy while at work, and a tendency to remain bent on difficulties or failure.

While (Alvi & Abbasi, 2012) indicated that vigor is the high levels of energy and morale, which works to the employee's keenness to exert effort to perform tasks, and perform roles efficiently in difficult circumstances.

Vigor also indicates high levels of energy, flexibility and a willingness to invest effort in one job, the ability not to be stressful and for the employee to be persistent in the face of difficulties (Xanthopoulou & Bakker, 2012).

In that context, (Breevaart et al., 2014) indicated that vigor is the individual's exertion of high levels of energy and mental flexibility at work.

Also, (Lu et al., 2014) indicated that vigor refers to higher levels of energy, stamina and perseverance at work.

Under certain circumstances, the vigor may decrease and therefore the important details must be scrutinized to obtain the elements of success such as the integration of employees into their work, job resources such as social support from colleagues, performance, reactions, diversity of skills, autonomy and learning opportunities. These factors are positively related to work

engagement (Pallavi & Patrick, 2015).

2- Dedication

Dedication refers to a strong identity in one's business and includes feelings of inspiration, pride and challenge. Dedication goes beyond the typical level of an individual's identity as it includes both the emotional dimension and the cognitive or ideological state (Beatty, 2011).

Dedication refers to the set of good habits surrounding passion, joy, and work-related motivation (Alvi & Abbasi, 2012).

Dedication expresses high participation in one's work and a sense of importance, inspiration, pride and challenge (Lu et al., 2014).

Breevaart et al., (2014) noted that dedication at work expresses that an individual is motivated to work and is inspired by work tasks.

3- Absorption

Absorption is characterized by the individual's preoccupation with work and doing happily, and it is characterized by increased experiences directed towards a specific situation, person, or behavior (Beatty, 2011).

Absorption also indicates the complete focus and a strong immersion in business (Alvi & Abbasi, 2012).

Whereas (Xanthopoulou & Bakker, 2012) pointed out that absorption expresses the enjoyable state of total immersion in an individual's work, which is characterized by the rapid passage of time without the employee being away from work.

Absorption refers to a person's total focus, indulgence and happiness (Lu et al., 2014).

Absorption refers to being fully focused at work and feeling happy when spending time at work (Breevaart et al., 2014).

The researcher conducted a pilot study on a convenience sample of 30 individual faculty members and the assisting body, aimed to examining the effect of virtual leadership practices on work engagement. The study revealed ambiguity as to the applicability of virtual leadership practices, and the role of virtual leadership in influencing work engagement was not

clear. In light of the results of the exploratory study, the researcher can formulate the research problem in the ambiguity as to the applicability of virtual leadership practices, also it isn't clear the role of virtual leadership on work engagement.

This study, therefore, sought to examine the effect of virtual leadership practices on work engagement by applying to faculty members and the assisting body in Egypt. The following specific objectives were established:

- 1- Determine the nature of the relationship between virtual leadership practices and work engagement.
- 2- Study the nature of the impact of virtual leadership practices on vigor.
- 3- Measuring the impact of virtual leadership practices on dedications.
- 4- Measuring the impact of virtual leadership practices on communication.

Hypothesis development

The following sections provide reasoning for setting forth hypothesis development. Numerous studies are linking virtual leadership practices with the variables' work engagement.

The effect of virtual leadership practices on work engagement

The study (Mitchell, 2015) focused on examination if a significant correlation exists between employee engagement (the dependent variable) and the quantity and perceived quality of virtual management communication (the independent variables). The results of the regression analysis were statistically significant between virtual management communication and employee engagement.

The study (Barhite, 2017) found that perceived organizational communication satisfaction has the most significant relationship with employee engagement, followed by the quality of leader-member exchange relationship. However, the frequency of lean, moderate, and rich communication channels did not have a significant impact on employee engagement. This includes information communication technologies categorized within these three channels. The frequent

use of virtual technologies also did not have a significant relationship with employee engagement. However, the regression data revealed that rich face-to-face communication channels do affect organizational communication satisfaction. Finally, one of the most surprising results of the study was that being collocated with one's manager did not affect employee engagement or organizational communication satisfaction. Therefore, as employees continue to be spatially distributed, this will not affect employee engagement compared to perceived organizational communication satisfaction and leader-member exchange.

The study (Zanin, 2018) was conducted to better understand the factors of team effectiveness, especially the relationship between two team leadership functions (promotion of team self-management and promotion of a good social climate) and two components of team effectiveness: satisfaction and viability of team members. Back-up behaviors were found to be a mediator of the relationship between team self-management and satisfaction, and teamwork engagement does moderate the relationship between social climate and viability.

Also, a study (Lee, 2018) indicated that remote workers experience strengthened and sustained levels of workplace engagement more when working environments where they have a personal connection to the organization's mission and vision and where they feel the work culture is familial.

In the study (Benjamin, 2020), revealed that interpersonal relationships with coworkers, clearly stated team goals, and autonomy is three factors that increase employee engagement and commitment in virtual environments. Study findings suggest that effective management strategies can be implemented into organizations to reduce attrition rates and retain passionate employees.

Based on the above, the research hypotheses can be formulated as follows:

1- There is a significant effect of virtual leadership practices on work engagement.

2- There is a significant effect of virtual leadership practices on vigor.

3- There is a significant effect of virtual leadership practices on dedication.

4- There is a significant effect of virtual leadership practices on absorption.

Methodology

a- Population and sample

The research was applied to faculty members and the assisting body in Egypt. The convenience sample and snowball sample were relied upon, and the number of investigations valid for analysis was 224 in April of 2020 during the Covid-19 so, the researchers' available survey links on the Internet.

b- Data Collection Procedure

researchers used Google Drive forms in preparing the survey, then we available survey links on the Internet via (Facebook, Gmail, Yahoo ... etc.) for 21 days.

In the study, we used a survey research method to investigate the effect of virtual leadership practices on work engagement. The statements assessed by using a Likert scale of five points scale ranging from 5" completely agree" to 1" completely disagree". Confidentiality and the rights of withdrawal were observed.

c- Measurement

1- The independent variable: Virtual leadership practices

It was measured using a scale (Flavian et al., 2019), and it consists of three practices : communication, trust, coordination.

2- The dependent variable: Work engagement

It was measured using a scale (Beatty , 2011 ;Trevino , 2009). It has three dimensions: vigor, dedication and absorption.

d- Validity and Reliability

The researcher used Cronbach's Alpha to test the reliability of measures of all variables (virtual leadership practices, work engagement and it's dimensions).

Table 1: Reliability Analysis

Variable	Cronbach's alpha
Communication	0.873
Trust	0.862
Coordination	0.756
virtual leadership practices	0.944
Vigor	0.882
Dedication	0.859
Absorption	0.891
work engagement	0.953

The analysis in table 1 suggests that the Cronbach's alpha values for all the study variables (dependent and independent) exceeded 0.7 thresholds. This indicates that the instruments employed were reliable enough to conduct the study and to make a conclusion.

Results and discussion

The research used mean and standard deviation to summarize data collected. Simple regression, and multiple correlation coefficient were also adopted to assess the effects between the variables.

a- Descriptive analysis of virtual leadership practices, work engagement.

Table 2 shows means and standard deviations of virtual leadership practices, work engagement and it's dimensions, as follows:

Table 2: means and standard deviations of the research variables

Variable	Means	Standard deviations
Communication	3.443	1.017
Trust	3.717	0.947
Coordination	3.198	0.951
virtual leadership practices	3.502	0.921
Vigor	3.284	1.058
Dedication	3.214	1.043
Absorption	3.179	1.157
work engagement	3.226	1.027

It is clear from Table 2 that mean of virtual leadership practices reached 3.502,

which means that the concept of virtual leadership practices is available among faculty members and the assisting body in Egypt with a medium degree. It is also clear from the table that means of dimensions' virtual leadership practices fall between (3.198) to (3.717). The trust got the highest average and it was 3,717, while coordination got the lowest value, reaching 3,198, while communication got 3,443, this reflects the availability of virtual leadership practices among faculty members and the assisting body in Egypt with a degree greater than mean.

It is also evident from the table that mean of work engagement as a whole reached 3.226, which means the availability of the concept of responses among faculty members and the assisting body in Egypt with a medium degree, and it was also clear from the table that dimensions of the work engagement recorded high means, so the vigor got the highest mean and it was 3.284, while the dedication reached 3.214, absorption got 3.179. From the above, the convergence of the concepts means that refers to the responses of the vocabulary of the research.

b- Hypotheses Testing

This part discusses the results of the statistical analysis related to determining the type of relationship between virtual leadership practices and work engagement, as follows:

Table 3: Results of a simple regression analysis of the impact of virtual leadership practices on work engagement

Independent	β	F	Sig.	R ²
virtual leadership practices	0.734	875.031	0.000	0.361

Table 3 data indicate that the regression model was significant, as the value of F (875.031) was significant at the level of 1% of significance. The value of R² was (0.361), which means that virtual leadership practices explain 36.1% of the changes that occur in work engagement, and the remaining 63.9% is due to the influence of other factors that did not appear in the model.

The effects of virtual leadership practices on vigor.

Table 4: Multiple correlation analysis of the effect of virtual leadership practices on vigor

Independent variable	Beta	R	R ²
Communication	0.188*	0.694	0.481
Trust	0.193*	0.738	0.544
Coordination	0.088	0.568	0.322
multiple correlation coefficient (R)			0.699
(R ²)			0.489
F			414.719
Sig.			0.000

Table 4 data indicate that the calculated F value of the model reached (414.719), and the significant value reached (0.000), which means high morale of the model, and it clear that there are significant effect of virtual leadership practices on vigor. Also, the value of R² for the model reached (0.489), which indicates that virtual leadership practices explain (48.9%) of the change that occurs in the dependent variable vigor. The model also excludes coordination from virtual leadership practices from influencing vigor because it does not have a moral effect.

Table 5: Multiple correlation analysis of the effect of virtual leadership practices on dedication

Independent variable	Beta	R	R ²
communication	0.069	0.530	0.280
trust	0.177*	0.683	0.466
coordination	0.047	0.434	0.188
multiple correlation coefficient (R)			0.673
(R ²)			0.454
F			521.016
Sig.			0.000

It became clear that the calculated F value of the model reached (521.016), and the significant value reached (0.000), which means high morale of the model, and from the model, it becomes clear that there is a significant effect of virtual leadership practices on dedication. It also became clear that the value of R² for the model reached (0.454), which indicates that virtual leadership practices explain (45.4%) of the change that occurs in the dependent variable dedication. The model excludes two practices of virtual leadership practices, namely coordination, and communication from influencing dedication because they are not significantly influencing.

The effects of virtual leadership

practices dimensions on absorption.

Table 6: Multiple correlation analysis of the effect of virtual leadership practices dimensions on absorption

Independent variable	Beta	R	R ²
communication	0.030	0.680	0.462
trust	0.287*	0.672	0.451
coordination	0.092	0.501	0.251
multiple correlation coefficient (R)			0.597
(R ²)			0.357
F			319.487
Sig.			0.000

It became clear that the value of F calculated for the model reached (319.487), and the significant value reached (0.000), which means high morale of the model, and from the model it becomes clear that there is a significant effect of virtual leadership practices on absorption. It also became clear that the R² value of the model reached (0.357), indicating that virtual leadership practices explain (35.7%) of the change that occurs in the dependent variable absorption. The model excluded two practices of virtual leadership practice coordination and communication from influencing absorption because they were not significantly influencing.

Conclusions

The purpose of this research find out the effect of virtual leadership practices on work engagement. Accordingly, the results demonstrated that there is a positive relationship between virtual leadership practices and work engagement. That is, the more effective virtual leadership practices, the more effective work engagement, and therefore the hypothesis can be accepted.

This result is in agreement with the study (Mitchell, 2015) which focused on examination if a significant correlation exists between the quantity and perceived quality of virtual management communication and employee engagement. The results indicating that the quantity of time a manager spent communicating with virtual employees and virtual employees' perceived quality of communication positively affected employee engagement. Also, findings indicated that managers who communicate more frequently and have a higher perceived quality of communication

are more likely to have engaged employees.

The results of this study differed with the results of a study (Barhite, 2017) which found that communication channels did not have a significant impact on employee engagement. Also, this study differed from the results of a study (Benjamin, 2020) which found that coordination has a significant impact on employee engagement.

This study recommends that, Attention to providing the technological infrastructure to facilitate the communication process. And increase the effectiveness of personal relationships with different workgroups to increase coordination and cooperation between them.

Also, Measuring the level of work engagement of faculty members and the assisting body, by preparing a work team to measure this to maintain a good level of engagement and submit the report to the university administration to take the necessary decisions.

University administration must create a safe and friendly environment that encourages sharing and exchange of information and cultural backgrounds among team members. Seminars will be held to discuss the feedback.

The meeting leader must be respecting the time differences when holding virtual meetings, and ensuring that everyone participates in work and responsibility, by establishing regular schedules for communication with colleagues.

References

1. Abbasnejad, B., & Moud, Hashem I., (2012), Leadership Functions and Challenges in Virtual Teams - A Review Paper, **International association of computer science and information technology**, 45.
2. Barhite, B., (2017), The effects of virtual leadership communication on employee engagement, **Doctor of Education**, College of Bowling Green.
3. Benjamin, L., (2020), Achieving The Dream Through A Screen: Exploring Employee Engagement And Commitment In Virtual Environments, **Master of Science in Organizational Dynamics**, University of Pennsylvania.
4. Caulat , G., (2010) , Virtual Leadership: on becoming a real leader , **Doctor of Education**, Middlesex University .

5. Chatterjee, S., Sarker, S. and Siponen, M., (2017), How do mobile ICTs enable organizational fluidity: toward a theoretical framework, **Information and Management**, 54 (1), 1-13.
6. [Devendhiran, S.](#) & [Wesley, J.](#), (2017), Spirituality at work: enhancing levels of employee engagement, **Development and Learning in Organizations**, 31(5), 9-13.
7. Ejiwale, James A.,(2008), E-Leadership In Virtual Workforce , Jackson State University, Proceedings of the 2008 Midwest Section Conference of the American Society for Engineering Education.
8. Fjermestad,J.,(2009), Virtual Leadership for Virtual Workforce, Chief Learning Officer – Solutions for Enterprise Productivity, www.clomedia.com.
9. Flavian, C., Guinalfú, M., & Jordan, P., (2019), Antecedents and consequences of trust on a virtual team leader, **European Journal of Management and Business Economics**, 28 (1), 2-24.
10. Ford, R., Piccolo, R., & Ford, L., (2017), Strategies for building effective virtual teams: trust is key, **Business Horizons**, 60 (1), 25-34.
11. Gazor , H. (2012), A Literature Review on Challenges of Virtual Team's Leadership, **Journal of Sociological Research**, 3(2),134-145.
12. [Gupta, M.](#), & [Shaheen, M.](#), (2018), Does work engagement enhance general well-being and control at work? Mediating role of psychological capital, **Evidence-based HRM**, 6(3), 272-286.
13. Hambley, A., O'Neill, A., & Kline, B.,(2007), Virtual team leadership: The effects of leadership style and communication medium on team interaction styles and outcomes, **Organizational Behavior and Human Decision Processes**, 103,1-20.
14. [Hidayah, Ibrahim, S.](#), [Suan, C.](#),& [Karatepe, O.](#), (2019),The effects of supervisor support and self-efficacy on call center employees' work engagement and quitting intentions, **International Journal of Manpower**, Vol. 40 No. 4, pp. 688-703.
15. Hirschy, M., (2011), Virtual team leadership: A case study in Christian higher education, **Christian Higher Education**, 10(2), 97-111.
16. Hoch, J., & Kozlowski, S., (2014), Leading virtual teams: hierarchical leadership, structural supports, and shared team leadership, **Journal of Applied Psychology**, 99(3), 390 - 406.
17. Holland, J., Malvey, D., & Fottler, F., (2009), Heath care globalization: a need for virtual leadership, **The Health Care Manager**, 28 (2), 117-123.
18. Holtmann , P., (2011), Virtual leadership in radical islamist movements : mechanisms, justifications and discussion , **working paper**, February , 6-9 .1-14.
19. [Lathabhavan, R.](#), [Balasubramanian, S.](#), & [Natarajan, T.](#), (2017), A psychometric analysis of the Utrecht Work Engagement Scale in Indian banking sector, **Industrial and Commercial Training**, 49 (6), 296-302.

20. [Lazauskaite-Zabielske, J.](#), [Urbanaviciute, I.](#), & [Rekasiute, Balsiene, R.](#), (2018), From psychosocial working environment to good performance: the role of work engagement, **Baltic Journal of Management**, 13 (2), 236-249.
21. Learned, N. , (2011), Emergent leadership in virtual work teams, **Master of Arts in Communication and Leadership Studies**, Gonzaga University.
22. Lee, Aaron M., (2018), An Exploratory Case Study of How Remote Employees Experience Workplace Engagement, **Doctor of Philosophy**, Walden University.
23. Lin, C., Standing, C. & Liu, Y.-C. (2008), A model to develop effective virtual teams, **Decision Support Systems**, 45 (4), 1031-1045.
24. Malhotra, A., Majchrzak, A., & Rosen, B.,(2007), Leading Virtual Teams, The Academy of Management Perspectives.
25. Mitchell, Ryan N., (2015), The Correlation between Virtual Communication and Employee Engagement, **Doctor of Business Administration**, Walden University.
26. Muganda, N., & Pillay, K., (2013), Forms of power, politics and leadership in asynchronous virtual project environment An exploratory analysis in South Africa, **International Journal of Managing Projects in Business**, 6 (3), 457-484.
27. Mysirlaki, S., & Paraskeva, F., (2020), Emotional intelligence and transformational leadership in virtual teams: lessons from MMOGs, **Leadership & Organization Development Journal**, 41 (4), 551-566.
28. Paoli, D., Ropo, A., & Sauer, E., (2014),The Physicality of Leadership: Gesture, Entanglement, Taboo, **Possibilities Monographs in Leadership and Management**, 6, 59-79.
29. Schulze, J., Schultze, M., West, S.G., & Krumm, S., (2017), The knowledge, skills, abilities, and other characteristics required for face-to-face versus computer-mediated communication: similar or distinct constructs, **Journal of Business and Psychology**, 32 (3), 283-300.
30. Shaik, Farheen F., & Makhecha, Upam P., (2019), Drivers of Employee Engagement in Global Virtual Teams, **Australasian Journal of Information Systems**, 23, 1-44.
31. Tan, C., Ramayah, T., Teoh, A., & Cheah, J., (2019), Factors influencing virtual team performance in Malaysia, **Kybernetes**, 48 (9), 2065-2092.
32. Verbeke, A., (2008), Growing the Virtual Workplace : The Integrative Value Proposition.
33. Wakefield, R., Leidner, D., & Garrison, G., (2008), A model of conflict, leadership and performance in virtual teams, **Information Systems Research**, 19, 434-455.
34. Zanin, N.,(2018), The Impact of Leadership on Virtual Team Satisfaction and Viability: the Role of Performance Monitoring and Team Work Engagement, **MSc in Management**, Patricia Costa.

Zofi, Y., (2012), A Manager's Guide to Virtual Teams, American Management Association, (New York).