Exploring Major Factors Affecting Virtual Team Performance

Murat Topaloglu and Ahmet Serhat Anac

ABSTRACT

Increasing global operations of companies and advances in communication technologies in the last two decades have led companies to create virtual team, in which employees work more productively and cost-effectively from different locations. This situation required virtual team leaders to have a different perspective and management approach than the leaders who manage teams in the usual offices. Performance management is one of the vital tasks of virtual team leaders and is a multidimensional research topic for researchers interested in virtual team management. Knowing the determinants of performance will be useful in quality decision-making, problem-solving, and many other managerial processes. This research aims to explore major factors affecting virtual team performance by using a systematic literature review methodology that includes more than one hundred scientific articles. Findings of this study suggest that these factors are leadership, communication, collaboration, cohesion, commitment, conflict, interpersonal relations, knowledge sharing, feedback, trust, diversity, recognition, and empowerment.

Keywords: Distance Work, Performance, Virtual Organization, Virtual Team.

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Murat Topaloglu

Tokat Gaziosmanpasa University, Turkey. (e-mail: murat.topaloglu@gop.edu.tr) Dr. Ahmet Serhat Anac Tokat Gaziosmanpasa University, Turkey. (e-mail: ahmetserhat.anac@gop.edu.tr)

*Corresponding Author

I. Introduction

As the field of international activity of companies expanded, it became inevitable for them to adapt their organizations to virtual teams due to the geographical dispersion of their employees. Companies have replaced their traditional office work system with a more global and flexible virtual work system. They have already formed virtual teams for tech-focused jobs like software and graphic design for a long time. However, in recent years, they have been employing virtual workers in many other business areas.

Furthermore, the speed of transformation from traditional teams to virtual teams reached its peak with the emergence of the Covid-19 pandemic. This crisis forced companies to create virtual teams for the first time in history. Despite the expectation that the impact of this pandemic will decrease in the future, many companies have made remote working permanent. All these developments show that both organizations and scholars in the field of management will be paying more attention to the research related to virtual teams in the future.

Virtual team research has been on the agenda of researchers since the late 1990s and it is expected to remain up to date. Researchers have made several definitions for a virtual team. Lipnack and Stamps [1] defined it as "a group of people who interact through interdependent tasks guided by a common purpose that works across space, time and organizational boundaries with links strengthened by webs of communication technologies". This known as the oldest definition in the literature. Zigurs [2] stated that "virtual teams are made up of individuals, who are dispersed from each other geographically or organizationally but connected by information technology". Huang et al. [3] mentioned that they are "technology-enabled, and having members who can span different organizations, time zones, geographic locations, and cultures". Besides, Gaudes et al. [4] expressed that "they work interdependently, share responsibility and depend on technology to support their communication". Wong and Burton [5] emphasized that "they are organizationally differentiated".

Moreover, Leigh and Maynard [6] list some important characteristics of virtual team members. They are dispersed, interdependent, and restless. They have a shared purpose, need empowerment and they trust each other. Duarte and Snyder [7] categorize virtual teams as "network, parallel, project development, product development, service, management, and action teams". It can be deduced from all these definitions that dispersion and connection by technology are two main features of a virtual team.

Scholars put forward different reasons for the formation of virtual teams. According to Dimovski and Penger [8], they were created as a response to the changing organizational environment of the 21st century. Chutnik and Grzesik [9] state that the reason is the entrance of corporations into new markets. Leigh and Maynard [6] propose that international entry forms such as mergers and acquisitions were effective in the proliferation of virtual teams. It seems that globalization and internationalization are two major drivers for the emergence of virtual teams.

II. AIM OF RESEARCH

Measuring virtual team performance helps to identify and compare the efforts of team members and leaders to achieve goals, learn how efficiently the budget and other resources are used, and it helps them to develop strategies for performance improvement. The conditions specific to virtual teams, such as lack of face-to-face communication and working from different locations and time zones, make it difficult for managers to understand performance factors. For this reason, it is important for managers to have some knowledge about the determinants of virtual team performance. This research aims to explore the main factors affecting virtual team performance with a detailed literature review and to guide virtual team managers in this regard.

III. RESEARCH METHODOLOGY

This research is based on a systematic literature review. Firstly, well-accepted keywords in the literature such as "virtual team, virtual organization, and team performance" were selected for initial research to discover related articles in respected databases such as Scopus, Web of Science, EBSCOhost, Research Gate and Google Scholar. Secondly, our research was limited to the last two decades in these databases and more than 500 articles were found. Some articles which were unrelated to the subject of virtual team performance were eliminated. Moreover, some other articles were also eliminated after reading their abstract and conclusion sections of the publications and 265 publications were left. After detailed reading, 134 articles were found eligible to explore and examine the factors of virtual team performance. Thirdly, based on our literature survey, virtual team performance factors were presented, and some mainstream topics were mentioned.

IV. LITERATURE REVIEW

A. Leadership

One of the most studied topics in research on virtual teams is leadership. It is defined as "the process of interactive influence that occurs when, in a given context, some people accept someone as their leader to achieve common goals" [10] and "the use of social influence and power to direct or change the character of others by a social network of influence" [11]. Qualifications of leaders such as communication power, the trust provided to team members, and the ability of quality decision-making have significant effects on virtual team performance. In addition to these, other competencies that effective virtual team leaders should possess are mentioned in the literature. They are aware of their duties such as forming the team, mission statement, goal setting, training staff, feedback, and encouragement [12]. They know the distinctions between traditional and virtual work environments very well [13]. They can influence the emotions, thoughts, and behaviors of their teams [14]. They also help them keep a work-life balance and care about their well-being [15]. In addition, according to Lumseyfai [16], virtual team leaders should know four main subjects in order to be a good virtual team leader,

which are "governance methodology, human interaction, technology management and organizational environment".

The leadership style adopted by the virtual team leader is one of the factors affecting performance. For example, Purvanova and Bono [17] argue that transformational leadership increases the satisfaction and performance of virtual teams, regardless of cultural differences in the team. It has a positive impact on organizational agility [18] and mediates the relationship between the perceived emotional intelligence of the leader and team performance [19].

Other leadership styles influencing virtual performance are shared leadership and proactive leadership. Pearce et al. [20] reveal that shared leadership strengthens team dynamics. It increases collaboration [21], supports engagement [22], and promotes relationship building among the team members [23]. On the other hand, proactive leadership helps virtual team leaders detect challenges before they emerge and prevent them [24].

However, virtual team leaders encounter some difficulties because of the absence of face-to-face communication and working from different locations, for this reason, they may end up with less performance and productivity in forming, designing, maintaining, and financially supporting their virtual teams [25].

Because virtual team leaders manage people working in different locations, they must have a stronger communication ability than they use in traditional team management. Consistency of communication [26], effective usage of communication tools [27], organization of face-toface meetings and facilitation of information exchange [23], and coordination of communication between team members and upper management [28] are crucial factors of leader's communication affecting virtual team performance.

Virtual team leaders have some other roles related to decision-making and tasks, which have an impact on performance. Edwards and Sridhar [29] assert that how leaders distribute tasks is influential in the efficiency and performance of the team. Brake [30] suggests that they should know how to clear up confusion before assigning a task. Kirkman et al. [31] emphasize the elimination of task uncertainty by understanding the processes that the virtual team goes through and observing the team members. Arvidsson et al. [32] mention the importance of clearly explaining what is expected from team members while delivering the tasks. Kayworth and Leidner [33] examine the role of decision making on performance and comment that team leaders should have a qualification of decision-makers in complex circumstances. Pridmore and Phillips-Wren [34] reveal that leaders need more time to make a quality decision in virtual settings than they need in traditional teams.

Research on virtual team leadership shows that qualifications of leader, leadership skills and the type of leadership are significant determinants of virtual team performance.

B. Communication

Communication has important functions such as building relationships, providing information, persuading, motivating, integrating, and socializing team members. It is also an important indicator of virtual team performance. Peters and Manz [35] mention that openness of communication channels restricts conflicts and unnecessary discussions among team members. Maznevski and Chudoba [36] argue that communication leads to the formation of common ideas and close relationships, and thus reduces complexity. Sharma and Patterson [37] express that the meaningfulness and timeliness of communication are beneficial for coordination. Kanawattanachai and Yoo [38] emphasize that frequency and volume of communication affects performance in the initial stages of a project. Furthermore, Glikson and Erez [39] reveal that communication contributes to the emergence of a psychologically secure environment.

Some researchers suggest that communication should be limited by certain rules or norms [40]. Li and Hambrick [41] argue that establishing clear principles for interpersonal communication has an impact on the efficiency of virtual team processes.

Studies state that better technology results in better communication. Saafein and Shaykhian [42] inform that the quality of communication technology has a critical role in performance. Having better synchronicity [43] and the usefulness and functionality of communication tools [44] are qualifications contributing to virtual team performance. On the other hand, inadequate technology hinders the correct and timely evaluation of the behavior of other team members and increases misunderstandings among team members [45]. Filos and Ouzounis [46] assert that a textonly tool is sufficient for ordinary communication, but for higher-level communication, using a more developed visual communication tool will be more beneficial for performance.

It is inferred from the above literature that the frequency of communication, setting rules for it and the quality of technology have an impact on virtual team performance.

C. Collaboration

Team collaboration is a significant determinant of virtual team performance. Letaifa and Goglio-Primard [47] define it as "a process where two or more parties work closely with each other to achieve mutually beneficial outcomes". Several researchers reveal that it contributes to the productivity of team members [48] and mediates the relationship between trust and knowledge sharing [49]. It also facilitates conflict management [50] and prevents the exclusion of team member from a subgroup [51].

There are some other team-specific factors that can support the influence of collaboration on performance. Composition of the virtual team [5], level of shared understanding among team members [52], shared leadership [53], and conflict management [54] can create a collaborative team climate.

D. Cohesion

Despite working from different locations, members of a virtual team should act in complete unity and with a team spirit to achieve the same goal, as they do in traditional teams. There is a positive relationship between team cohesion and performance [55]. Team cohesion supports group functioning and extra-role helping [56].

Researchers reveal that team tenure coordination [58], encouraging teamwork and creating high-

performance expectations [59], trust among team members [60], goal setting in the early stages of projects [52] and training employees for working in a virtual team [61] can lead to high levels of team cohesion for high virtual team performance.

E. Commitment

Researchers have proposed different ideas about the effect of commitment on performance. Commitment is defined as "the attachment or determination to attain any goal or to extend efforts over time and to be unwilling to abandon a goal" [62]. Hasanah and Mujanah [63] reveal that it is essential for virtual team performance. It contributes to innovation processes in a virtual team [64] and decreases conflict and misunderstanding among team members [65].

On the other hand, lack of commitment leads to loafing and extra workload [66]. If leaders force team members to commit to a project, it causes quality problems [67]. Researchers also state that inspirational leadership [68], the energy of knowledge leaders [69], and self-awareness and job satisfaction [70] are antecedents of commitment in a virtual team.

F. Conflict

Opposite interactions and disincentive actions or behaviors, namely conflicts can be observed in virtual teams. Researchers put forward different ideas about how conflicts in a team alter virtual team performance. Paul et al. [71] state that conflict in the decision-making stage of a project is harmful to virtual team performance. Jehn and Mannix [72] find that relationship conflict can have a negative impact on it. Hinds and Bailey [73] mention that task conflict negatively influences the performance of distributed teams. On the other hand, Scott and Wildman [74] reveal that conflict is found as one of the major determinants of global virtual team success. Griffith and Neale [75] claim that a certain level of task conflict can be useful for team performance.

According to Chang and Lee [76], conflict has a positive effect on learning performance. Moreover, having conflict resolution skills [77], quality of communication technologies [54], shared identity and context [78], and an integrative conflict resolution method [71] can decrease conflict and affect virtual team performance.

G. Interpersonal Relations

Interpersonal relations are major dynamics in virtual teams, even though they are more dominant in traditional teams. Lurey and Raisinghani [79] examine the role of interpersonal relations and state that the strength of relations affects performance. Pinjani and Palvia [80] affirm that relationship building supports team effectiveness. Ocker [81] asserts that the absence of shared understanding has a negative impact on performance. Moreover, studies show that more frequency of interaction among team members [82], level of empathy and emotional intelligence [83], emotional authenticity [84], emotional management in the team [85] and emotional understanding [86] can foster virtual team performance.

H. Knowledge Sharing

Knowledge sharing is a key to virtual team success. It is defined as "a two-way process, in which individuals mutually exchange their knowledge and jointly create new knowledge" [87]. Lee [88] states that it can be disseminated among team members in the forms of "formal and informal, personal and impersonal". Moreover, MacNeil [89] mentions that "it occurs when people who share a common purpose come together to exchange ideas". According to Pangil and Chan [90], there is a positive link between performance and knowledge sharing. This relationship is stronger in pure virtual teams than semi-virtual teams [91]. Kock and Lynn [92] reveal that knowledge sharing among team members is important in predicting virtual team efficiency and effectiveness. Cross and Prusak [93] assert that it promotes nurturing environments in the team. It also helps team members solve complex problems. Davidavičienė et al. [94] show that cultural diversity, leadership, and motivation have a strong impact on knowledge sharing.

I. Feedback

A feedback culture is essential to increase employee engagement of virtual team members, to ensure a healthy working climate, and to provide them with an environment where they can develop their skills. Feedback is also a critical factor for virtual teams since it helps team members recognize the quality and the results of the works and encourages them to perform better in their next projects. It increases the feeling of security [95] and contributes to the level of competence and development of team members [62]. It conduces to a climate of trust and high information processing [96]. It is beneficial for team functioning [97]. It also avoids the feeling of exploitation [65].

J. Trust

Trust has a vital role in virtual team performance. Choi and Cho [49] define it as "the shared belief toward positive actions of virtual team members dealing with uncertainty or vulnerability of the team members". Jarvenpaa and Leidner [98] state that it is created by communication behavior in virtual settings. Sarker et al. [99] mention that there are three types of trust which are called "personality-based, institutional-based, and cognitive".

Trust has a positive impact on virtual team performance and productivity [100]. It helps the formation of a successful virtual team [101] and increases the quality of decisions and facilitates conflict management [102]. It develops learning ability among team members [103], promotes creative thinking [104], and boosts task performance in remote work [105]. It solves problems related to cultural differences [106], increases organizational citizenship behavior in the team [107], and impedes opportunism and exploitation of team members [108] as well.

K. Diversity

Scholars put forward different opinions about how diversity influences virtual team performance. Hobman et al. [109] state that diversity prevents communication and causes conflict. Levasseur [110] mentions that it decreases

personal social contact. Swartz et al. [111] reveal that it has a negative effect on collaboration. Presbitero [112] states that foreign language anxiety can occur in such a multilingual work environment. Another study related to language states that low level of diversity of English language proficiency among team members in a multinational team causes higher perceived proximity, which positively affects multinational virtual team performance [113].

Many other studies provide information about how to prevent the negative effects of diversity on team performance. Han and Beyerlein [114] suggest training the team for cultural awareness. Staples and Zhao [115] offer to promote respect for diversity. Wong and Burton [5] emphasize creating a common team culture. Garrison et al. [116] suggest developing trust.

According to Hobman et al. [109], diversity paves the way for the emergence of different ideas, which can contribute to performance. Chang et al. [117] state that cultural adaptation reduces cultural distance within the team. In addition to them, developing cultural intelligence in the team boosts virtual team performance [118].

L. Recognition

Regardless of being a member of a traditional or a virtual team, team members need respect and recognition to be appreciated for their efforts. It is one of main duties of human resources specialists in the organizations to keep their employees satisfied, engaged and productive with recognition programs. Recognition is defined as "the judgement for a person's contribution, which comprises performance, dedication as well as engagement" [119]. It is a remarkable note team member receives for a well-done job [120]. Saunderson [121] classifies it as "organization-wide recognition, departmental-specific formal informal recognition, and everyday spontaneous recognition".

Recognition has a positive effect on employee performance. It encourages the team to perform better [122]. Team members have the potential for better performance, but their leaders should drive them with recognition. In a virtual team, recognition can have a prominent role in wellbeing and promote positive psychological functioning [123]. It also helps to keep employees in the organization by giving them morale and a sense of trust in their managers [124].

When employees are recognized and acknowledged, it is expected that working capacity and performance increase. Employees find themselves in a competition to be recognized, however, it is important to note that this competition may affect employee morale and performance negatively in some situations [125].

The most common type of employee recognition is the reward. It can help virtual team members to focus on their efforts to succeed in organizational goals [126]. It can transform the potential of the team to performance [127]. It can also increase the loyalty of team members and motivation for work [128].

M. Empowerment

In the virtual team literature, there are various studies about the effects of team empowerment on team performance. Page and Czuba [129] define empowerment as "a process that fosters power in people for use in their own lives, their communities, and in their society by acting on issues that they define as important". According to Seibert et al. [130], empowerment is interrelated with job satisfaction and job performance. Gondal and Khan [131] find a positive link between team empowerment and team performance in a study conducted in the telecommunication sector. Kirkman et al. [132] examine sales teams and reveal that empowerment is related to process improvement and customer satisfaction. Jiang et al. [133] state that it increases the level of knowledge sharing and facilitates conflict resolution. Hempel et al. [134] propose that it is supported by the formalization of processes and removal of uncertainty

V. CONCLUSION

A. Findings and Discussion

A virtual team is no longer a foreign term for organizations. Fostered by the recent pandemic, it became a trend for them. Virtual team management is a series of processes that require following technological developments, new management methods, and situations in the business world. Performance management is an important part of it. The purpose of this research is to investigate major factors affecting virtual team performance. It reveals that these factors are leadership, communication, collaboration, cohesion, commitment, conflict, interpersonal relations, knowledge sharing, feedback, trust, diversity, recognition, and empowerment.

There are studies in the literature that examine the factors of virtual team performance separately, however, this study tried to analyze them with a more holistic approach. This study also aimed to investigate the determinants and the antecedents of each factor in detail and find some mainstream lines in this field.

B. Managerial Implications

Virtual team management is a multidimensional topic and this study provides meaningful implications for virtual team leaders. It aims to help managers to learn the dynamics of performance management very well in virtual settings and it facilitates achieving their organizational goals. It also helps team leaders to review their leadership characteristics and abilities and broaden their horizons related to performance management.

C. Recommendations for Future Research

Further researchers can focus on two topics. The first one is to examine the effects of the Covid-19 pandemic on virtual team performance. The second one is to focus on the effects of the transition from traditional teams to virtual teams on performance during this pandemic. These topics are important because the pandemic caused unexpected problems in virtual team management and led to a radical shift to virtual working and there is still a lack of scientific knowledge about it in the literature, since it is a very recent and undiscovered area.

Another suggestion is that researcher can prepare a scale to measure the performance of virtual teams by benefiting from this literature review, conduct a questionnaire and provide more empirical information about the nature of virtual teams.

REFERENCES

- [1] J. Lipnack and J. Stamps, Virtual Teams: Reaching Across Space, Time and Organizations with Technology, 1st ed. Canada: John Wiley and Sons, 1997.
- I. Zigurs, "Leadership in Virtual Teams: Oxymoron or Opportunity?" Organizational Dynamics, vol. 31, no. 4, pp. 339-351, 2003.
- R. Huang, S. Kahai, and R. Jestice, "The contingent effects of leadership on team collaboration in virtual teams," Computers in Human Behavior, vol. 26, no. 5, pp. 1098-1110, September 2010.
- [4] A. Gaudes, B. Hamilton-Bogart, S. Marsh, and H. Robinson, "A framework for constructing effective virtual teams," The Journal of *E-working*, vol. 1, pp. 83-97, December 2007.
- S.S. Wong, and R. M. Burton, "Virtual Teams: What are their Characteristics, and Impact on Team Performance?" Computational & Mathematical Organization Theory, vol. 6, pp. 339-360, December 2000.
- A. Leigh and M. Maynard, Leading Your Team: How to Involve and Inspire Teams, 2nd ed. UNKNO, 2002.
- D. L. Duarte and N. T. Snyder, Mastering Virtual Teams: Strategies, Tools and Techniques That Succeed, San Francisco: Jossey-Bass, 1999.
- V. Dimovski and S. Penger, "Virtual Management: A Cross-Section of The Management Process Illustrating Its Fundamental Functions of Planning, Organizing, Leading and Controlling In A New Era Organization," Journal of Business and Economics Research (JBER), vol. 1, no. 10, pp. 1-10, February 2011.
- M. Chutnik and K. Grzesik, "Leading a Virtual Intercultural Team. Implications for Virtual Team Leaders," *Journal of Intercultural* Management, vol.1, no 1, pp. 67-75, April 2009.
- [10] A. Silva, "What is leadership?" Journal of Business Studies Quarterly, vol. 8, no. 1, pp. 1-5, September 2016.
- [11] D. D. Donald, "The Tao of leadership in virtual team", Organisational Dynamics, vol. 35, no. 1, pp. 47-62, 2004.
- [12] F. P. Morgeson, D. S. DeRue, and E. P. Karam, "Leadership in Teams: A Functional Approach to Understanding Leadership Structures and Processes," Journal of Management, vol. 36, no. 1, pp. 5-39, 2010.
- [13] S. Turkay, and D. Tirthali, "Youth leadership development in virtual worlds: a case study," Procedia - Social and Behavioural Sciences, vol. 2, no. 2, pp. 3175-3179, December 2010.
- [14] B.J. Avolio, J.J. Sosik, S.S. Kahai and B. Baker, "E-leadership: reexamining transformations in leadership source and transmission," The Leadership Quarterly, vol. 25, no. 1, pp. 105-131, 2014.
- [15] F. Contreras, E. Baykal, and G. Abid, "E-Leadership and Teleworking in Times of COVID-19 and Beyond: What We Know and Where Do We Go," Frontiers in Psychology, vol. 11, pp. 3484, 2020.
- [16] J. Lumseyfai, "A Four-Pillared Holistic Model for Improving Performance in Engineering Virtual Project Teams," Engineering Management Journal, vol. 32, no. 2, pp. 107-119, 2020.
- [17] R. K. Purvanova, and J. B. Bono, "Transformational leadership in context. Face-to-face and virtual teams," The Leadership Quarterly, vol. 20, no. 3, pp. 343-357, June 2009.
- [18] A. S. Wanasida, I. Bernarto, N. Sudibjo, and R. Pramono, "Millennial Transformational Leadership on Organizational Performance in Indonesia Fishery Startup," The Journal of Asian Finance, Economics and Business, vol. 8, no. 2, pp. 555-562, February 2021.
- [19] S. Mysirlaki and F. Paraskeva, "Emotional intelligence and transformational leadership in virtual teams: lessons from MMOGs," Leadership & Organization Development Journal, vol. 41, no. 4, pp. 551-566, 2020.
- [20] C. L. Pearce, C. L. Wassenaar, and C. C. Manz, "Is Shared Leadership the key to Responsible Leadership?" Academy of Management Perspectives, vol. 28, no. 3, pp. 275-288, October 2014.
- [21] S. Kudyba, J. Fjermestad and T. Davenport, "A research model for identifying factors that drive effective decision-making and the future of work" Journal of Intellectual Capital, vol. 21, no. 6, pp. 835-851, 2020.
- [22] S. A. Newman and R. C. Ford, "Five Steps to Leading Your Team in the Virtual COVID-19 Workplace," Organizational Dynamics, vol. 50, no. 1, pp. 100802, January-March 2021.
- C. Liao, "Leadership in virtual teams: A multilevel perspective," Human Resource Management Review, vol. 27, no. 4, pp. 648-659, December 2017.

- [24] A. Mitchell, "Interventions for effectively leading in a virtual setting," Business Horizons, vol. 55, pp. 431-439, 2012.
- [25] C. B. Gibson and J. L. Gibbs, "Unpacking the concept of virtuality: the effects of geographic dispersion, electronic dependence, dynamic structure, and national diversity on team innovation," Administrative Science Quarterly, vol. 51, no. 3, pp. 451-495, September 2006.
- [26] D. J. Neufeld, Z. Wan, and Y. Fang, "Remote Leadership, Communication Effectiveness and Leader Performance," Group Decision and Negotiation, vol. 19, pp. 227-246, 2010.
- [27] S. A. Newman, R. C. Ford, and G. W. Marshall, "Virtual Team Leader Communication: Employee Perception and Organizational Reality," International Journal of Business Communication, vol. 57, no. 4, pp. 452-473, 2020.
- [28] R. C. Ford, R. F. Piccolo, and L. R. Ford, "Strategies for building effective virtual teams: Trust is key," Business Horizons, vol. 60, no. 1, pp. 25-34, January-February 2017.
- [29] H. K. Edwards, and V. Sridhar, "Analysis of Software Requirements Engineering Exercises in a Global Virtual Team Setup," Journal of Global Information Management, vol. 13, no. 2, pp. 21-41. 2005.
- T. Brake, "Leading global virtual teams," Industrial and Commercial Training, vol. 38, no. 3, pp. 116-121, 2005.
- [31] B. L. Kirkman, B. Rosen, C. B. Gibson, P. E. Tesluk and S. O. McPherson, "Five challenges to virtual team success: Lessons from Sabre, Inc." Academy of Management Perspectives, vol. 16, no. 3, pp. 67-79, 2002.
- [32] M. Arvidsson, C. Johansson, A. Ek, and R. Akselsson, "Situational leadership in air traffic control," Journal of Air Transportation, vol. 21, no. 1, pp. 68-86, 2007.
- T. R. Kayworth and D. E. Leidner, "Leadership effectiveness in global virtual teams," Journal of Management Information Systems, vol. 18, no. 3, pp. 7-40, 2002.
- [34] J. Pridmore, and G. Phillips-Wren, "Assessing decision making quality in face-to-face teams versus virtual teams in a virtual world,' Journal of Decision System, vol. 20, no. 3, pp. 283-308, January 2011.
- [35] L. M. Peters and C. C. Manz, "Identifying antecedents of virtual team collaboration," Team Performance Management, vol. 13, no. 3/4, pp. 117-129, 2007.
- [36] M. L. Maznevski and K. M. Chudoba, "Bridging Space Over Time: Global Virtual Team Dynamics and Effectiveness," Organization Science, vol. 11, no. 5, pp. 473-492, September-October, 2000.
- [37] N. Sharma and P. G. Patterson, "The impact of communication effectiveness and service quality on relationship commitment in consumer, professional services," Journal of Services Marketing, vol. 13, no. 2, pp. 151-170, 1999.
- [38] P. Kanawattanachai and Y. Yoo, "The Impact of Knowledge Coordination on Virtual Team Performance over Time," MIS Quarterly, vol. 31, no. 4, pp. 783-808, December 2007.
 [39] E. Glikson and M. Erez, "The emergence of a communication climate
- in global virtual teams," Journal of World Business, vol. 55, no. 6, pp. 101001, October 2020.
- [40] M. Lu, M. B. Watson-Manheim, K. M. Chudoba, and E. Wynn, "Virtuality and team performance: Understanding the impact of variety of practices," Journal of Global Information Technology Management, vol. 9, no. 1, pp. 4-23, 2006.
- [41] J. Li and D. C. Hambrick, "Factional groups: a new vantage on demographic faultlines, conflict and disintegration in work teams,' Academy of Management Journal, vol. 48, no. 5, pp. 794-813, 2005.
- [42] O. Saafein, and G. A. Shaykhian, "Factors affecting virtual team performance in telecommunication support environment," Telematics and Informatics, vol. 31, no. 3, pp. 459-462, January 2013.
- [43] J. V. Hacker, M. Johnson, C. Saunders, and A. L. Thayer, "Trust in Virtual Teams: A Multidisciplinary Review and Integration," Australasian Journal of Information Systems, vol. 23, 2019.
- [44] A. May and C. Carter, "A case study of virtual team working in the European automotive industry," International Journal of Industrial Ergonomics, vol. 27, no. 3, pp. 171-186, March 2001.
- [45] C. D. Cramton, "Information problems in dispersed teams," Academy of Management Proceedings, pp. 298-302, 1997.
- [46] E. Filos and V. Ouzounis, "Virtual organizations: technologies, trends, standards and the contribution of the European R&D programs," International Journal of Computer Applications in Technology, vol. 18, no. 4, pp. 6-26, January 2003.
- [47] S. B. Letaifa and K. Goglio-Primard, "How does institutional context shape entrepreneurship conceptualizations?" Journal of Business Research, vol. 69, no. 11, pp. 5128-5134, 2016.
- [48] M. H. Jarrahi and S. Sawyer, "Social technologies, informal knowledge practices, and the enterprise," Journal of Organizational Computing and Electronic Commerce, vol. 23, no. 1-2, pp. 110-137,

- [49] O. Choi and E. Cho, "The mechanism of trust affecting collaboration in virtual teams and the moderating roles of the culture of autonomy and task complexity," Computers in Human Behavior, vol. 91, pp. 305-315, February 2019.
- [50] M. M. Montoya-Weiss, A. P. Massey, and M. Song, "Getting it together: temporal coordination and conflict management in global virtual teams," Academy of Management Journal, vol. 44, no. 6, pp. 1251-1262, 2001.
- [51] P. Vahtera, P. J. Buckley, M. Aliyev, J. Clegg, A. R. Cross, "Influence of Social Identity on Negative Perceptions in Global Virtual Teams," Journal of International Management, vol. 23, no. 4, pp. 367-381, December 2017.
- [52] T. Brahm, and F. Kunze, "The role of trust climate in virtual teams," Journal of Managerial Psychology, vol. 27, no. 6, pp. 595-614, 2012.
- [53] M. A. Drescher, M. A. Korsgaard, I. M. Welpe, A. Picot, and R. T. Wigand, "The dynamics of shared leadership: Building trust and enhancing performance," Journal of Applied Psychology, vol. 99, no. 5, pp. 771-783, September 2014.
- [54] R. L. Wakefield, D. E. Leidner, and G. Garrison, "Research Note A Model of Conflict, Leadership, and Performance in Virtual Teams, Information Systems Research, vol. 19, no. 4, pp. 434-455, June 2008.
- F. Chiocchio, and H. Essiembre, "Cohesion and Performance: A Meta-Analytic Review of Disparities between Project Teams, Production Teams, and Service Teams," Small Group Research, vol. 40, no. 4, pp. 382-420, 2009.
- [56] N. Drouin, M. Bourgault, and C. Gervais, "Effects of organizational support on components of virtual project teams," International Journal of Managing Projects in Business, vol. 3, no. 4, pp. 625-641, 2010.
- [57] R. Algesheimer, U. M. Dholakia and C. Gurau, "Virtual Team Performance in a Highly Competitive Environment," Group & *Organization Management*, vol. 36, no. 2, pp. 161–190, 2011.
- A. Powell, G. Piccoli, and B. Ives, "Virtual teams: a review of current literature and directions for future research," ACM SIGMIS Database: the DATABASE for Advances in Information Systems, vol. 35, no. 1, pp. 6-36, 2004.
- [59] N. Callow, M. J. Smith, L. Hardy, C. A. Arthur, and J. Hardy, "Measurement of Transformational Leadership and its Relationship with Team Cohesion and Performance Level," Journal of Applied Sport Psychology, vol. 21, no.4, pp. 395-412, 2009.
- [60] M. Mach, S. Dolan, and S. Tzafrir, "The differential effect of team members' trust on team performance: The mediation role of team cohesion," Journal of Occupational and Organizational Psychology,
- vol. 83, no. 3, pp. 771-794, September 2010.

 P. M. Beranek, "The Impacts of Relational and Trust Development Training on Virtual Teams: An Exploratory Investigation," Proceedings of the 33rd Hawaii International Conference on System
- [62] H. Lippert and V. Dulewicz, "A profile of high-performing global virtual teams," Team Performance Management, vol. 24, no. 3/4, pp. 169-185, 2018
- [63] U. Hasanah and S. Mujanah, "The Effect of Servant Leadership, Self-Awareness, and Competence on Organizational Commitment and Performance of Employees of Public Works in Bangkalan District," Ekspektra: Jurnal Bisnis dan Manajemen, vol. 4, no. 2, pp. 136-146, 2020.
- [64] C. F. Peralta, P. N. Lopes, L. L. Gilson, P. R. Lourenço, and L. Pais, "Innovation processes and team effectiveness: The role of goal clarity and commitment, and team affective tone," Journal of Occupational and Organizational Psychology, vol. 88, no. 1, pp. 80-107, March 2015.
- [65] G. Hertel, S. Geister, and U. Konradt, "Managing virtual teams: A review of current empirical research," Human Resource Management Review, vol. 15, no. 1, pp. 69-95, March 2005.
- [66] L. Monzani, P. Ripoll, J. M. Peiró, and R. V. Dick, "Loafing in the digital age: The role of computer mediated communication in the relation between perceived loafing and group affective outcomes,' Computers in Human Behavior, vol. 33, pp. 279-285, April 2014.
- [67] H. Daniel, C. Graham, and B. Doore, "Virtual Teamwork and Commitments Impact on Project Quality," International Journal of e-Collaboration, vol. 13, no. 4, pp. 42-58, 2017.
- A. Joshi, M. B. Lazarova, and H. Liao, "Getting everyone on board: The role of inspirational leadership in geographically dispersed teams," Organization Science, vol. 20, no. 1, pp. 240-252, January-February 2009.
- [69] S. Singh, "Role of leadership in knowledge management: A study," Journal of Knowledge Management, vol. 12, no. 4, pp. 3-15, July 2008.
- [70] M. Pourkiani, S. M. Seyedi, and H. S. Sarasia, "The effect of selfawareness and self-regulation on organizational commitment

- employees of islamic azad university of mashhad with mediating role of job satisfaction, Journal of Fundamental and Applied Sciences, vol. 8, no. 2, pp. 1886-1899, 2016.
- [71] S. Paul, P. Seetharaman, I. Samarah and P. Mykytyn, "Understanding Conflict in Virtual Teams: An Experimental Investigation using Content Analysis," Proceedings of the 38th Annual Hawaii International Conference on System Sciences, pp. 44a-44a, 2005.
- [72] K. A. Jehn and E. A. Mannix, "The dynamic nature of conflict: a longitudinal study of intragroup conflict and group performance,' Academy of Management Journal, vol. 44, no. 2, pp. 238-251, 2001.
- [73] P. J. Hinds, and D. E. Bailey, "Out of Sight, Out of Sync: Understanding Conflict in Distributed Teams," Organization Science, vol. 14, no. 6, pp. 615-632, November 2003.
- [74] C. P. R. Scott and J. L. Wilderman, "Culture, Communication, and Conflict: A Review of the Global Virtual Team Literature," in Leading Global Teams, J. Wildman and R. Griffith, Ed. New York: Springer, 2015, pp. 13-31.
- [75] T. L. Griffith and M. A. Neale, "Information processing in traditional, hybrid, and virtual teams: from nascent knowledge to transactive memory," Research in Organizational Behavior, vol. 23, no. 1, pp. 379-421, December 2001.
- [76] W. L. Chang and C. Y. Lee, "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, vol. 44, no. 6, pp. 986-999, November 2013.
- [77] E. F. Turesky, C. D. Smith, and T. K. Turesky, "A call to action for virtual team leaders: practitioner perspectives on trust, conflict and the need for organizational support," Organization Management Journal, vol. 17, no. 4/5, pp. 185-206, September 2020.
- [78] P. J. Hinds, and M. Mortensen, "Understanding Conflict in Geographically Distributed Teams: The Moderating Effects of Shared Identity, Shared Context, and Spontaneous Communication," Organization Science, vol. 16, no. 3, pp. 290-307, May 2005.
- [79] J. S. Lurey and M. S. Raisinghani, "An empirical study of best practices in virtual teams", Information & Management, vol. 38, no. 8, pp. 523-544, October 2001.
- [80] P. Pinjani, and P. Palvia "Trust and knowledge sharing in diverse global virtual teams," Information & Management, vol. 50, no. 4, pp. 144-153, June 2013.
- [81] R. J. Ocker, "Influences on creativity in asynchronous virtual teams: A qualitative analysis of experimental teams," *IEEE Transactions on* Professional Communication, vol. 48, no. 1, pp. 22-39, April 2005.
- [82] C. S. Iacono and S. Weisband, "Developing trust in virtual teams," Proceedings of the 30th Annual Hawaii International Conference on System Sciences, ed. R.H. Sprague, Los Alamitos, CA, 1997.
- [83] S.-W. Joe, Y.-H. Tsai, C.-P. Lin, and W.-T. Liu, "Modeling team performance and its determinants in high-tech industries: Future trends of virtual teaming," Technological Forecasting and Social Change, vol. 88, pp. 16-25, October 2014.
- [84] C. E. Connelly and O. Turel, "Effects of Team Emotional Authenticity on Virtual Team Performance," Frontiers in Psychology, vol. 7, pp. 1336, 2016.
- [85] K. Holtz, V. O. Castella, A. Z. Abad, and B. González-Anta, "Virtual team functioning: Modeling the affective and cognitive effects of an emotional management intervention" Group Dynamics: Theory, Research, and Practice, vol. 24, no. 3, pp. 153-167, 2020.
- [86] V. Cathro, "An odyssey of virtual global team activity in the experiential learning environment of the Global Enterprise Experience (GEE)," Computers in Human Behavior, vol. 107, pp. 105760, June 2020.
- [87] B. van den Hooff, and J. A. de Ridder, "Knowledge sharing in context: the influence of organizational commitment, communication climate and CMC use on knowledge sharing," Journal of Knowledge Management, vol. 8, no. 6, pp. 117-130, December 2004.
- [88] H. Lee, "The role of competence-based trust and organizational identification in continuous improvement," Journal of Managerial Psychology, vol. 19, no. 6, pp. 623-639, 2004.
- [89] C. M. MacNeil, "Line managers: facilitators of knowledge sharing in teams", Employee Relations, vol. 25, no. 3, pp. 294-307, 2003.
- [90] F. Pangil, and J. M. Chan, "The mediating effect of knowledge sharing on the relationship between trust and virtual team effectiveness," Journal of Knowledge Management, vol. 18, no. 1, pp. 92-106, February 2014.
- [91] D. S. Staples and J. Webster, "Exploring the Effects of Trust, Task Interdependence and Virtualness on Knowledge Sharing in Teams,' Information Systems Journal, vol. 18, no. 6, pp. 617-640, November 2008.
- [92] N. Kock and G. S. Lynn, "Electronic media variety and virtual team performance: the mediating role of task complexity coping

- mechanisms," IEEE Transactions on Professional Communication, vol. 55, no. 4, pp. 325-344, December 2012.
- [93] R. Cross, and L. Prusak, "The people who make organizations go-or stop," Harvard Business Review, vol. 80, no. 6, pp. 104-112, 2002.
- [94] V. Davidavičienė, K. A. Majzoub, and I. Meidute-Kavaliauskiene, Knowledge Sharing "Factors Affecting Teams," Sustainability, vol. 12, no. 17, pp. 6917, 2020.
- [95] S. Geister, U. Konradt, and G. Hertel, "Effects of process feedback on motivation, satisfaction, and performance in virtual teams," Small Group Research, vol. 37, no. 5, pp. 459-489, October 2006.
- V. Peñarroja, V. Orengo, A. Zornoza, J. Sánchez and P. Ripoll, "How team feedback and team trust influence information processing and learning in virtual teams: A moderated mediation model," Computers in Human Behavior, vol. 48, pp. 9-16, 2015.
- [97] L. Handke, F. E. Klonek, S. K. Parker, S. Kauffeld, "Interactive Effects of Team Virtuality and Work Design on Team Functioning," Small Group Research, vol. 51, no. 1, pp. 3-47, 2020.
- S. L. Jarvenpaa and D. F. Leidner, "Communication and Trust in Journal of Global Virtual Teams," Computer Mediated Communication, vol. 3, no. 4, June 1998.
- [99] S. Sarker, J. S. Valacich, and S. Sarker, "Virtual team trust: Instrument development and validation in an IS educational environment," Information Resources Management Journal, vol. 16, no. 2, pp. 35-55, April-June 2003.
- [100]R. Gardner, A. Kil, N. van Dam, "Research opportunities for determining the elements of early trust in virtual teams," Management Research Review, vol. 43, no. 3, pp. 350-366, 2020.
- [101] W. R. Clark, L. A. Clark, and K. Crossley, "Developing multidimensional trust without touch in virtual teams," Marketing Management Journal, vol. 20, no. 1, pp. 177-193, January 2010.
- [102] H. H. Chang, C. J. Hung, and H. W. Hsieh, "Virtual teams: Cultural adaptation, communication quality, and interpersonal trust," Total Quality Management & Business Excellence, vol. 25, no. 11-12, pp. 1318-1335, 2014.
- [103]C. Kimble, "Building Effective Virtual Teams: How to Overcome the Problems of Trust and Identity in Virtual Teams," Global Business and Organizational Excellence, vol. 30, no. 2, pp. 6-15, January-February 2011.
- [104] W. Zhu, A. Newman, Q. Miao, and A. Hooke, "Revisiting the mediating role of trust in transformational leadership effects: Do different types of trust make a difference?" The Leadership Quarterly, vol. 24, no. 1, pp. 94-105, February 2013.
- [105] V. Garro-Abarca, P. Palos-Sanchez and M. Aguayo-Camacho, "Virtual Teams in Times of Pandemic: Factors That Influence Performance," Frontiers in Psychology, vol. 12, pp. 232, 2021.
- [106]T. van der Smagt, "Enhancing virtual teams: social relations v. communication technology," Industrial Management & Data Systems, vol. 100, no. 4, pp. 148-156, June 2000.
- [107]K. Dirks, and D. L. Ferrin, "The role of trust in organizational settings," Organization Science, vol. 12, no. 4, pp. 450-467, July 2001
- [108]P. Hwang and W. P. Burgers, "Properties of trust: An analytical view," Organizational Behavior and Human Decision Processes, vol. 69, no. 1, pp. 67-73, 1997.
- [109]E. V. Hobman, P. Bodia, and C. Gallois, "Perceived dissimilarity and work group involvement: The moderating effects of group openness to diversity," Group and Organization Management, vol. 29, no. 5, pp. 560-587, October 2004.
- [110]R. E. Levasseur, "People skills: Leading virtual teams A change management perspective," Interfaces, vol. 42, no. 2, pp. 213-216, 2012.
- [111]S. Swartz, B. Barbosa, and I. Crawford, "Building Intercultural Competence Through Virtual Team Collaboration Across Global Classrooms," Business and Professional Communication Quarterly, vol. 83, no. 1, pp. 57-79, October 2020.
- [112]A. Presbitero, "Foreign language skill, anxiety, cultural intelligence and individual task performance," Journal of International Management, vol. 26, no. 2, pp. 100729, June 2020.
- [113] J. Eisenberg, E. Glikson and A. Lisak, "Multicultural Virtual Team Performance: The Impact of Media Choice and Language Diversity," Small Group Research, February 2021.
- [114]S. J. Han and M. Beyerlein, "Framing the Effects of Multinational Cultural Diversity on Virtual Team Processes," Small Group Research, vol. 47, no. 4, pp. 351-383, June 2016.
- [115]D. S. Staples, and L. Zhao, "The Effects of Cultural Diversity in Virtual Teams versus Face-to-Face Teams," Group Decision and Negotiation, vol. 15, no. 4, pp. 389-406, November 2006.
- [116]G. Garrison, R. L. Wakefield, X. Xu, and S. H. Kim, "Globally distributed teams: the effect of diversity on trust, cohesion and

- individual performance," ACM SIGMIS Database, vol. 41, no. 3, pp.
- [117] H. H. Chang, S. S. Chuang, and S. H. Chao, "Determinants of cultural adaptation, communication quality, and trust in virtual teams' performance," Total Quality Management, vol. 22, no. 3, pp. 305-329,
- [118] A. Presbitero and L. S. Toledano, "Global team members' performance and the roles of cross-cultural training, cultural intelligence, and contact intensity: the case of global teams in IT offshoring sector," The International Journal of Human Resource Management, vol. 29, no. 14, pp. 2188-2208, 2018.
- [119] J. P. Brun and N. Dugas, "An analysis of employee recognition: Perspectives on human resources practices," The International Journal of Human Resource Management, vol. 19, no. 4, pp. 716-730, 2008
- [120]S. I. Dugguh, and A. Dennis, "Job satisfaction theories: Traceability to employee performance in organizations," IOSR Journal of Business and Management, vol. 16, no. 5, pp. 11–18, January 2014.
- [121]R. Saunderson, "Survey Findings of the Effectiveness of Employee Recognition in the Public Sector," Public Personnel Management, vol. 33, no. 3, pp. 255-275, September 2004.
- [122]O. I. Dobre, "Employee motivation and organizational performance," Review of Applied Socio-Economic Research, vol. 5, no. 1, pp. 53-60,
- [123] M. D. Merino and J. Privado, "Does Employee Recognition Affect Positive Psychological Functioning and Well-Being?" The Spanish Journal of Psychology, vol. 18, E64, 2015.
- [124]S. Khan, "Abusive Supervision and Negative Employee outcomes: The Moderating Effects of Intimidation and Recognition," Journal of General Management, vol. 41, no. 1, pp. 61-81, September 2015.
- [125] M. J. Grawitch, S. Trares, and J. M. Kohler, "Healthy workplace practices and employee outcomes," International Journal of Stress Management," vol. 14, no. 3, pp. 275-293, August 2007.
- [126]S. Y. Choi, Y. S. Kang, and H. Lee, "The effects of socio-technical enablers on knowledge sharing: an exploratory examination," Journal of Information Science, vol. 35, no. 5, pp. 742-754, 2008.
- [127] C. Lin, C. Standing, and Y. C. Liu, "A model to develop effective virtual teams," Decision Support Systems, vol. 45, no. 4, pp. 1031-1045. November 2008.
- [128]R. Haines, "Activity awareness, social presence, and motivation in distributed virtual teams," Information and Management, vol. 58, no. 2, pp. 103425, March 2021.
- [129]N. Page and C. E. Czuba, "Empowerment: What is it?" Journal of Extension, vol. 37, no. 5, pp. 24-32, October 1999.
- [130]S. Seibert, G. Wang, and S. H. Courtright, "Antecedents and consequences of psychological and team empowerment in organizations: A meta-analytic review," Journal of Applied Psychology, vol. 96, no. 5, pp. 981-1003, March 2011.
- [131] A. M. Gondal, and A. Khan, "Impact of team empowerment on team performance: case of the telecommunications industry in Islamabad," International Review of Business Research Papers, vol. 4, no. 5, pp. 138-146, October-November 2008.
- [132]B. L. Kirkman, B. Rosen, P. E. Tesluk, and C. B. Gibson, "The impact of team empowerment on virtual team performance: the moderating role of face-to-face interaction," Academy of Management Journal, vol. 47, no. 2, pp. 175-192, 2004.
- [133] X. Jiang, H. Flores, R. Leelawong, and C. C. Manz, "The effect of team empowerment on team performance," International Journal of Conflict Management, vol. 27, no. 1, pp. 62-87, 2016.
- [134]P. S. Hempel, Z. X. Zhang, and Y. Han, "Team Empowerment and the Organizational Context: Decentralization and the Contrasting Effects of Formalization," Journal of Management, vol. 38, no. 2, pp. 475-501, March 2012.



Murat Topaloglu is an instructor at Tokat Gaziosmanpasa University. His research area includes management, organization and internationalization.



Dr. Ahmet Serhat Anac is an instructor at Tokat Gaziosmanpasa University. He has a bachelor degree in Econometrics from Dokuz Eylül University, master's degree in Business Administration from Tokat Gaziosmanpasa University and PhD degree in Business Administration from the same university. His research area includes organizational behavior, HR management, and strategic management.