Research Note

Shared Leadership Research from Traditional Teams to Virtual Collaborative Environments

FUKUNAGA Sumiko

Japan Advanced Institute of Science and Technology / Graduate of Digital Hollywood University Graduate School

Shared leadership research has primarily focused on face-to-face teams, with limited exploration of virtual environments. This research note examines virtual teams and MMOGs as contexts for collaborative leadership research, reviewing developments through 2024.with emphasis on post-pandemic research. By bridging conventional management research with emerging virtual environment studies, this study presents future research agendas for understanding distributed leadership in digital-age collaborative contexts. The review revealed that shared leadership dynamics in virtual corporate teams and gaming environments offer unique insights into leadership emergence patterns and organizational effectiveness beyond traditional settings. Post-pandemic research particularly demonstrates the increased importance of shared leadership in online environments.

1. Introduction

1.1 Background and Problem Statement

Shared leadership, defined as a dynamic process whereby leadership roles are distributed among team members rather than concentrated in a single individual, has gained attention as an important organizational phenomenon. According to Pearce & Conger (2003), traditional research has primarily focused on co-located teams in conventional organizational settings[1]. However, rapid digitalization and the proliferation of virtual collaborative platforms have created new contexts for understanding distributed leadership phenomena.

Remote work and online communities present unique challenges and opportunities for shared leadership theory. As Avolio et al. (2014) point out, two distinct virtual environments deserve attention: corporate virtual teams and Massively Multiplayer Online Games (MMOGs), both demonstrating complex collaborative dynamics worthy of systematic investigation[2].

1.2 Research Objectives

This research note reviews shared leadership development and its application to virtual environments. High-quality literature was collected primarily from tier 1 and tier 2 peer-reviewed academic journals, supplemented by relevant conference proceedings from major databases. The review encompassed foundational theoretical research through the most recent studies (up to 2024), with particular emphasis on post-pandemic research since 2020.

The examination targeted literature from leading journals including Leadership Quarterly, Journal of Applied Psychology, Academy of Management Journal, Group & Organization Management, Human Resource Management Review, European Journal of Work and Organizational Psychology, Harvard Business Review, and Heliyon, complemented by proceedings from SIGCHI Conference on Human Factors in Computing Systems and Association of Industrial/Organizational Psychology conferences.

The scope of investigation included theoretical developments in shared leadership, empirical studies in corporate virtual teams and MMOG environments, and implications for future research. The analysis adopted an interdisciplinary perspective spanning organizational psychology, management science, and information systems to deepen understanding of leadership phenomena in virtual collaborative environments.

The central research question guiding this review is: How can insights from virtual collaborative environments—both corporate virtual teams and MMOGs—inform the development of shared leadership theory and practice in post-pandemic digital workplaces? This question is addressed through three specific objectives: (1) synthesizing theoretical developments in shared leadership with emphasis on virtual contexts, (2) comparing leadership dynamics across corporate and gaming environments to identify transferable insights, and (3) proposing an integrated research agenda for future investigations.

2. Literature Review of Shared Leadership Development

2.1 Traditional Shared Leadership Theory

The conceptual foundation of shared leadership was established through pioneering research challenging traditional hierarchical leadership models. Pearce & Conger (2003) provided an initial theoretical framework emphasizing shared leadership as an emergent and collective process, particularly in knowledge-intensive teams[3]. Empirical research by Pearce & Sims (2002) demonstrated the superior predictive validity of shared leadership compared to vertical leadership in organizational change contexts[4].

Carson, Tesluk, & Marrone (2007) significantly advanced shared leadership research by introducing a social network theory-based measurement approach using "density" to better capture the distribution of leadership influence among team members. Their partial cross-sectional study identified two key antecedent conditions for shared leadership emergence: an internal team environment (comprising shared purpose, social support, and voice) and external coaching. The study also revealed that external coaching is particularly crucial for shared leadership development when the internal team environment is unsupportive[5].

2.2 Digital Environment Transition and Post-Pandemic Developments

Meta-analytical evidence consistently supports shared leadership effectiveness across diverse organizational contexts. Wang, Waldman, & Zhang (2014) demonstrated an overall correlation of $\rho = .34$ between shared leadership and team effectiveness[6].

However, these foundational studies primarily focused on co-located teams. Since 2020, research on leadership in virtual environments has accelerated due to pandemic-driven workplace transformations. Tang et al. (2024) conducted research on 107 knowledge-based teams, revealing that shared leadership positively influences team innovation through team member exchange (TMX) and team resilience[7].

3. Virtual Collaborative Environments as Research Contexts

3.1 Corporate Virtual Teams

The conceptualization of e-leadership by Avolio, Kahai, & Dodge (2001), defined as leadership influence exercised through advanced information technology, represented significant theoretical progress[8]. This framework emphasized unique challenges in virtual team contexts, including trust building, communication effectiveness, and cultural integration.

Empirical research has demonstrated that shared leadership principles can be effectively applied to virtual corporate settings. Powell, Piccoli, & Ives (2004) found that shared leadership combined with robust structural support better predicts virtual team performance than traditional hierarchical approaches[9]. Purvanova & Bono (2009) established that transformational e-leadership behaviors enhance virtual team cohesion across national boundaries[10].

Post-pandemic research has further clarified the importance of leadership in virtual environments. Hertel (2024) revealed predominantly positive correlations between task-oriented, relational-oriented, and transformational leadership and follower responses in highly virtual contexts[11].

3.2 Online Gaming Environments

Online gaming environments, particularly MMOGs, represent unique laboratories for studying emergent leadership processes. Unlike traditional organizational settings with formal hierarchies, MMOGs provide spontaneous contexts where leadership emerges organically based on competence and contribution to collective goals.

Reeves et al. (2008) analyzed leadership emergence in EverQuest guilds, demonstrating that leadership surfaces through social influence and reputation dynamics parallel to shared leadership processes in organizational teams[12]. Gaming contexts offer advantages for leadership research: behaviors can be objectively observed through digital traces, high-stakes activities reveal authentic leadership behaviors, and voluntary participation ensures that influence is based on genuine effectiveness.

Driskell, Radtke, & Salas (2003) found that rotating leadership roles and shared decision-making improved coordination in complex collaborative tasks within virtual team environments[13]. Williams, Ducheneaut, & Xiong (2006) documented emergent directive leadership at critical moments complemented by collaborative strategic sessions in online gaming contexts[14].

Recent research by Mysirlaki & Paraskeva (2020) surveyed 500 MMOG players to examine the impact of leader emotional intelligence and transformational leadership on virtual team effectiveness[15]. Their findings revealed that emotional intelligence affects team effectiveness through transformational leadership behaviors.

3.3 Comparative Analysis

Virtual corporate teams and MMOGs share fundamental characteristics: distributed member locations, technology-mediated communication, task interdependence, and performance accountability. However, they differ significantly in formal structure, member motivation, and outcome consequences.

Corporate virtual teams operate within established organizational frameworks with external performance pressures, while MMOG

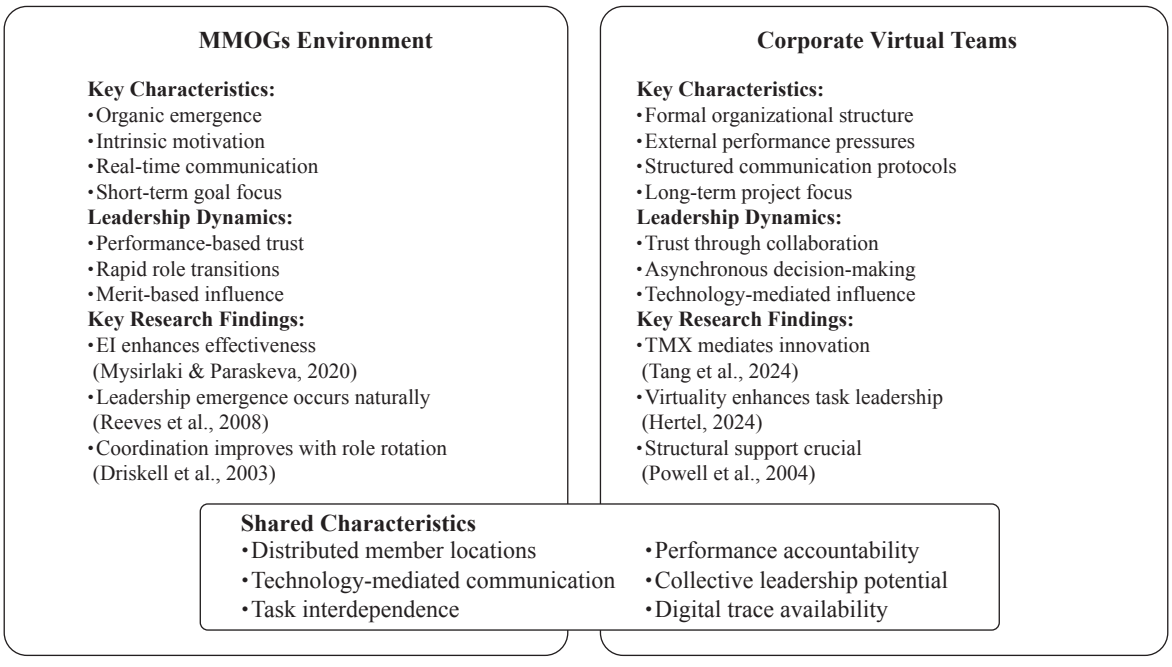

Figure1: Virtual Collaborative Environments for Shared Leadership Research

Table1: Integrated Future Research Agenda for Shared Leadership in Virtual Environments

Research Domain	Current Gaps	Proposed Research Directions	Key Methodological Approaches	Expected Outcomes
Theoretical Framework Development				
Post-pandemic hybrid work models	Limited integration of formal hierarchy and emergent leadership	- Develop hybrid leadership emergence models	- Longitudinal case studies	- Integrated theoretical frameworks
		- Investigate technology-mediated authority dynamics	- Mixed-methods designs	- Boundary condition specifications
		- Examine temporal leadership transitions	- Cross-cultural comparative analysis	- Cultural adaptation models
Mediation mechanisms	Incomplete understanding of TMX and resilience pathways	- Chain mediation model validation	- Structural equation modeling	- Process models refinement
		- Alternative mediating variables identification	- Multi-level analysis	- Moderator identification
		- Cultural moderator investigation	- Meta-analytic synthesis	- Cross-context validation
Methodological Innovations				
Digital trace analysis	Under-utilized rich behavioral data	- Natural language processing of team communications	- Big data analytics	- Behavioral prediction models
		- Network analysis of influence patterns	- AI-powered content analysis	- Objective leadership measures
		- Machine learning pattern recognition	- Real-time monitoring systems	- Intervention timing optimization
Real-time assessment	Lack of continuous measurement tools	- Pulse survey technologies development	- Mobile sensing technologies	- Just-in-time interventions
		- Digital dashboard systems	- Wearable device integration	- Performance optimization
		- AI-powered coaching systems	- Automated feedback systems	- Early warning systems
Practical Applications				
Organizational design	Misalignment with virtual leadership needs	- Flexible structure frameworks	- Design science research	- Organizational design guidelines
		- Communication protocol optimization	- Action research approaches	- Implementation roadmaps
		- Performance evaluation system redesign	- Pilot program evaluations	- ROI measurement tools
Leadership development	Traditional programs inadequate for virtual contexts	- Gamification strategy integration	- Experimental training designs	- Virtual leadership curricula
		- Cross-cultural competency programs	- Skill transfer assessment	- Training effectiveness metrics
		- Digital communication skill training	- Long-term impact evaluation	- Skill certification frameworks
Technology enhancement	Limited shared leadership support features	- Gaming-inspired platform features	- User experience research	- Enhanced collaboration tools
		- AI-powered role distribution systems	- Technology acceptance studies	- Feature implementation guides
		- VR/AR collaboration environments	- Platform effectiveness testing	- User adoption strategies
Research Priorities				
1. High Priority: Post-pandemic hybrid models, digital trace analysis, organizational design **2. Medium Priority**: Mediation mechanisms, real-time assessment, technology enhancement **3. Long-term Focus**: Cultural adaptation, VR/AR integration, AI-powered systems				
Cross-cutting Considerations				
Ethical Framework: Privacy protection, informed consent, data security **Industry Variation**: Technology, healthcare, finance, education sectors **Team Diversity**: Cultural, generational, skill-based differences **Technology Evolution**: Emerging platforms, AI advancement, connectivity improvements				

teams emerge organically around intrinsic motivation and voluntary participation[16]. These contextual differences provide opportunities for understanding boundary conditions of shared leadership effectiveness across varied virtual collaborative settings.

Figure 1 illustrates the commonalities and differences between corporate virtual teams and MMOG environments. Both environments share characteristics such as distributed member locations, technology-mediated communication, and task interdependence, but differ significantly in organizational structure and motivational factors. Corporate environments are characterized by formal organizational structure and external performance pressures, while MMOG environments feature organic emergence and intrinsic motivation that shape leadership dynamics. The central arrows represent the potential for mutual learning between the two environments, showing possibilities for rapid decision-making and crisis management skills developed in gaming contexts to transfer to corporate settings, and for structural support methods from corporate environments to contribute to the long-term sustainability of gaming communities.

Building on Fukunaga's (2024) initial research identifying key gaming leadership behaviors such as concise communication, broad perspective, and immediate feedback, this research extends these findings by examining the mediating mechanisms and contextual factors that influence their effectiveness[17]. While Fukunaga's research primarily focused on identifying effective behaviors through interviews, this study provides deeper analysis of how these behaviors operate differently in gaming versus corporate contexts, particularly regarding trust-building processes and temporal dynamics.

Chamberlin et al. (2024) identified that shared leadership manifests in collective configurations (where members share all leadership roles) and distributed configurations (where members assume specific roles)[18]. Collective configurations demonstrate higher team effectiveness through improved teamwork processes, particularly under high temporal dispersion conditions

3.4 Critical Gaps and Theoretical Tensions

Despite growing research interest, significant theoretical tensions remain unresolved. A critical gap exists in understanding

the temporal dynamics of shared leadership emergence: while Chamberlin et al. (2024) identified collective and distributed configurations[18], the mechanisms driving transitions between these configurations remain unclear. This is particularly problematic in virtual environments where leadership patterns may shift more rapidly than in traditional settings.

Another unresolved tension concerns the relationship between formal authority and emergent influence in virtual teams. Tang et al. (2024) demonstrated positive effects of shared leadership on innovation[7], yet their research, like most existing studies, does not adequately address how formal hierarchies should be structured to optimize rather than constrain emergent leadership. The gaming literature suggests that minimal formal structure facilitates organic leadership emergence[12][14], while corporate research emphasizes the need for structural support[9]. These contradictory findings suggest that boundary conditions—such as task complexity, team maturity, or cultural context—may moderate the effectiveness of different structural approaches, yet systematic investigation of these moderators is lacking.

These unresolved tensions suggest several priority research questions: (1) What triggers transitions between collective and distributed leadership configurations in virtual teams? (2) How do formal authority structures interact with emergent influence patterns across different task types? (3) What cultural and organizational factors moderate the effectiveness of minimal versus structured approaches to shared leadership development?

4. Future Research Agenda

4.1 Theoretical Framework Development

Current shared leadership theory requires expansion to address post-pandemic hybrid work environment characteristics. Future research should develop integrated theoretical frameworks that account for technology-mediated effects, asynchronous communication patterns, and distributed cognitive processes unique to virtual collaboration.

Development should draw from multiple theoretical traditions: media richness theory to understand how communication technologies enable or constrain shared leadership behaviors, social network theory for insights into influence flows through virtual team networks, and complexity theory to explain how shared leadership emerges as a collective property of virtual systems.

Particularly needed is theoretical research addressing the interaction between formal organizational hierarchies and emergent shared leadership in hybrid virtual-physical work environments. Tang et al. (2024) demonstrated that team member exchange and psychological resilience function as important mediating factors, suggesting that theoretical models must account for both relationship quality and collective capacity for adaptation[7].

4.2 Methodological Considerations

Virtual environments present opportunities for methodological innovation in shared leadership research. Digital communication platforms generate rich behavioral data that enable novel measurement approaches through network analysis, communication pattern recognition, and longitudinal tracking of leadership role transitions.

Network analysis techniques can reveal the structure and dynamics of influence relationships in virtual teams. Natural language processing can analyze team communication content and sentiment to identify leadership behaviors and their effects. Machine learning approaches can identify patterns in large datasets, potentially revealing leadership effectiveness factors undetectable through traditional methods.

The digital nature of virtual collaboration enables real-time assessment of team dynamics and leadership effectiveness. Future research should develop continuous monitoring methods for shared leadership behaviors, creating opportunities for timely intervention and support.

4.3 Practical Implications and Applications

Understanding shared leadership in virtual environments has immediate practical relevance for modern organizations undergoing digital transformation. Organizations should consider how their formal structures enable or constrain the emergence of shared leadership in virtual environments, including examination of reporting relationships, decision-making authority, and communication protocols.

Leadership development programs must evolve to address virtual and hybrid work environments. These programs should focus on developing digital communication skills, intercultural competencies, technological fluency, and the ability to build trust and relationships in virtual environments. Gamification strategies offer promising approaches that can make leadership development more engaging and effective through elements such as progressive skill building, immediate feedback, and collaborative challenges.

The gaming research stream offers particular potential for identifying technological features that enhance shared leadership emergence in organizational virtual teams. Empirical evidence supports this transfer: Reeves et al. (2008) demonstrated that guild leadership patterns in EverQuest parallel effective organizational team behaviors, particularly in rapid decision-making contexts[12]. Furthermore, Mysirlaki & Paraskeva (2020) found that emotional intelligence development through gaming leadership experiences transfers to transformational leadership effectiveness in professional settings[15]. Features such as real-time performance dashboards, collaborative decision-making tools, and reputation systems from gaming environments have shown promise when adapted for organizational use, as evidenced by the increasing adoption of gamification in corporate learning platforms.

Table 1 comprehensively presents the future agenda for shared leadership research in virtual environments. It systematically organizes three major domains—theoretical framework development, methodological innovations, and practical applications—from current gaps through specific research directions, methodological approaches, to expected outcomes. Particularly, theoretical development in post-pandemic hybrid work models, new measurement methods utilizing digital traces, and practical applications to organizational design and leadership development are positioned as high priorities. This research agenda integrates insights from both corporate virtual teams and MMOGs research, providing research directions for the next decade.

Future technology development should focus on creating platforms that actively support shared leadership behaviors rather than merely providing communication channels. This might include features such as automatic rotation of meeting leadership roles, AI-assisted identification of expertise needs and expert

availability, and collaborative project management systems that distribute leadership responsibilities based on task requirements and individual capabilities.

5. Conclusion

This literature review has demonstrated the remarkable development of shared leadership research from its origins in traditional co-located team research to its current expansion into diverse virtual collaborative environments. The acceleration of this research trajectory since the 2020 pandemic has revealed both theoretical insights and practical applications that far exceed what was previously available in the literature.

The comparative analysis of corporate virtual teams and MMOGs has proven particularly valuable, revealing that these seemingly different contexts share fundamental characteristics while providing unique insights into leadership emergence and effectiveness. Corporate contexts illuminate how shared leadership can be systematically supported through organizational design and technological infrastructure, while gaming environments demonstrate the power of intrinsic motivation and organic emergence in facilitating effective collaborative leadership.

The integration of traditional organizational research with virtual environment studies has revealed significant theoretical and practical opportunities worthy of continued investigation. As organizations increasingly standardize online and hybrid work models as permanent features of operation, understanding shared leadership in these contexts becomes essential for optimizing organizational effectiveness and team performance in the digital age.

This review has several limitations that should be acknowledged. First, the analysis primarily focused on English-language publications, which may have excluded valuable insights from non-English research traditions. Second, the comparative framework concentrated on two specific virtual environments (corporate teams and MMOGs), potentially overlooking other emerging collaborative contexts such as virtual reality platforms or blockchain-based organizations. Third, the current literature provides limited longitudinal data on the long-term effectiveness of shared leadership interventions in virtual settings, highlighting the need for extended follow-up studies to validate the sustained impact of identified practices and theoretical frameworks. Fourth, while this review synthesized literature from multiple disciplines, the relatively limited number of empirical studies specifically examining shared leadership in virtual environments (particularly in gaming contexts) constrains the generalizability of conclusions. Future research would benefit from expanding the evidence base through targeted empirical investigations across diverse virtual collaborative settings.

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