

Review Article Summary

Citation:

Kim, Y. J., Engel, D., Woolley, A. W., Lin, J. Y., McArthur, N., & Malone, T. W. (2017). *What Makes a Strong Team? Using Collective Intelligence to Predict Team Performance in League of Legends*. CSCW '17: Proceedings of the 2017 ACM Conference on Computer Supported Cooperative Work and Social Computing, 2316–2327. <https://doi.org/10.1145/2998181.2998185>

What are the key issues and problems in this area?

This review addresses the foundational problem of how to conceptualize and measure collective intelligence (CI) in teams, especially in non-traditional, digitally mediated environments. A central issue is whether CI can predict performance in real-world, fast-paced collaborative settings where typical team communication cues—such as nonverbal signals or face-to-face interactions—are absent. The article also interrogates whether predictors of CI identified in controlled laboratory settings, such as conversational turn-taking and social sensitivity, hold in highly structured digital teamwork environments like multiplayer online games. A key concern raised is how coordination occurs in the absence of explicit communication, and whether such tacit coordination forms a separate pathway to CI.

What is known and not known?

Prior studies have demonstrated that CI is strongly associated with social perceptiveness, equal participation, and gender diversity. These findings are mostly based on face-to-face groups. What remains less understood is whether these variables still predict CI and group success in online environments where communication is minimal or anonymous. The article provides evidence that, even in fast-paced virtual teams, CI remains a useful construct: higher CI scores correlate with greater win rates in League of Legends. However, contrary to earlier lab findings, conversational equality is not a primary predictor in this context; instead, success appears more linked to efficient role distribution and coordination through gameplay. It remains uncertain how these patterns apply outside of game-based environments or in culturally diverse teams.

What ideas for future research were presented? Do any of these intersect with current research directions?

The article suggests extending CI research to other types of digital environments, including those with partial anonymity, diverse team compositions, or cross-cultural structures. It emphasizes the need to explore how different mechanisms—such as tacit coordination, implicit hierarchy, or shared strategic understanding—contribute to CI when verbal communication is limited. These propositions align closely with ongoing research into the role of cultural orientation (e.g., collectivism vs. individualism) in shaping decision-making and collaboration in teams. In particular, the recommendation to test CI in culturally heterogeneous groups provides a direct connection to studies that examine how different cultural logics influence the emergence and sustainability of collective performance in collaborative tasks.

Article / Author	Cultural Orientation / Values	Communication / Decision-Making Patterns	Leadership Structure	Relevance to Team Performance / CI
Baldwin et al. (2023)	Distinguishes collectivist cultures as relying on implicit, relational norms and individualist ones as preferring direct, explicit norms.	In collectivist groups, communication is less verbal and more context-dependent, which enhances coordination within familiar networks but can obscure clarity in heterogeneous teams.		Implicit communication in collectivist groups can enhance cohesion but risks misinterpretation without shared cultural knowledge; explicit norms in individualist groups foster clarity.
Basabe & Ros (2005)	Shows that collectivism is associated with stronger group cohesion and hierarchical tendencies, while individualism fosters autonomy.	Consensus-driven dialogue in collectivist settings supports group harmony but may discourage dissenting opinions.	Teams in collectivist cultures often defer to clear authority figures, while individualist teams rotate leadership or distribute responsibility more evenly.	Group cohesion and harmony in collectivist teams create psychological safety but may reduce critical debate during problem-solving.
Bernstein et al. (2018)				Develops a quantifiable framework for evaluating team performance through accuracy, speed, and communication quality.
Engel et al. (2015)	Suggests that social sensitivity and participatory behaviors are expressed differently across cultures in collaborative settings.	Finds that cultures with high-context communication rely more on nonverbal cues, which impacts how effectively teams share information.		Finds that team dynamics differ across national cultures, suggesting the need to experimentally vary team compositions in CI studies.
Hofstede (2001)	Defines key cultural dimensions (e.g. individualism, power distance) that influence behavioral expectations across nations.		Proposes that leadership hierarchies vary by national norms of power distance, influencing coordination styles.	
Jünger et al. (1995)				Provides a cognitively demanding task (TSP) that serves as a rigorous method to test team-based coordination and optimization strategies.
Khatri (2009)	Highlights how cultural values like hierarchy shape decision-making authority and information-sharing norms.	High-power cultures centralize decision-making and reduce horizontal discussion, potentially limiting bottom-up innovation.	Argues that efficient top-down structures may expedite decisions but often suppress ideas from lower-status members.	Top-down leadership streamlines decision-making but narrows the diversity of perspectives during group reasoning.
Oyserman (2006)	Frames cultural structures around power and equality as determinants of how group roles are negotiated.			
Saad et al. (2015)	Demonstrates that cultural orientation influences how ideas are generated or refined in group settings.			Illustrates that idea generation and refinement styles diverge across cultures, which could influence team creativity and solution quality depending on the task goal.
Torelli et al. (2020)	Explains how cultural verticality or horizontality influences expectations around leadership and status.		Vertical individualist societies legitimize authority through competition, whereas horizontal collectivist groups promote egalitarian leadership.	Presents a theoretical lens on how leadership legitimacy differs cross-culturally, relevant for team design in global projects.
Triandis & Gelfand (1998)	Provides a scale that allows for individual-level cultural alignment, enabling nuanced participant classification.			Offers a validated metric to classify participants' cultural orientation, allowing better alignment in team composition studies.