Subgroup Biases in Partially-Distributed Collaboration

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ABSTRACT

Modern organizations often bring together groups in which some people are collocated and some remote. These groups often take the form of loosely-organized networks rather than hierarchies. Partially distributed groups may have characteristics that are different from fully collocated or fully distributed groups, such as being particularly vulnerable to subgroup formation. A ten-person simulation game called Shape Factory was used to model partially-distributed collaboration networks. We found that biases in trade patterns did occur among both collocated and remote (isolated) players. Collocated players formed a strong subgroup, with a bias toward ingroup trading, which almost immediately led remote players to form their own subgroup. These groups strengthened over time. Despite being at a technological disadvantage, the remote group performed as collocated workers.

Keywords: Collaboration; Distributed Teams; Partly Distributed Teams; Subgroup; Virtual Teams

INTRODUCTION

Simulations with human subjects are a critical research tool for understanding the dynamics of organizations facing modern challenges, such as long-distance work.
Today, much work that used to be done within a single, collocated corporation is often done by flexible, geographically distributed collaboration networks of people. The majority of large organizations in the world today—be they corporations, institutions of higher education, nonprofits or government entities—have the problem of coordinating work across distances. Research suggests that companies are struggling with problems arising from the use of long-distance teams (Olson and Olson, 2000), even though the number of organizations using such teams is growing enormously (McDonough, Kahn, and Barczak, 2001). Large investments in communications technology are being made in order to make it possible to collaborate at a distance via web conferencing suites, distributed supply chain systems, e-learning platforms, etc. However, despite the money and attention being paid this problem of effective distant collaboration is far from being solved.

Our work focuses on one common situation in distributed work called partially distributed work. Partially distributed groups are those that have some individuals who are collocated, and some proportion joining in at a distance. This configuration is probably at least as common as configurations with completely collocated or completely distributed (virtual) groups. Yet, this partially distributed format has received little research attention (O’Leary and Cummings, 2002).

**Work Across Distance**

To understand the challenges of long-distance work, one must first understand the considerable benefits of collocated work. In a study by Teasley, Covi, Krishnan and Olson (2002), ‘radically collocated’ software development teams, those where all team members were collocated in one large room for the duration of the project, were in one study found to have doubled their productivity compared to teams working out of separate offices. These teams benefited from easy access to each other, which lowered the communication cost. They also benefited from shared artifacts and shared context, which created common ground for communication (Clark and Wilks-Gibbs, 1986; Veinott, Olson, Olson and Fu, 1999).

Collocated groups also benefit greatly from ‘workplace awareness’ (Gutwin and Greenberg, 2004). They can “bump into” each other, which serves as a reminder of things promised but not delivered. They can see when others are available. Peripheral observation of each other helped people know when their co-workers were busy and when they were interruptible (Dabbish and Kraut, 2004). Kraut, Egido and Galegher (1988) found that researchers in a private research lab were more likely to co-author papers with each other when their offices were closer together. Researchers whose offices were within 30 meters of each other were significantly more likely to collaborate with each other, and the effect
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