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# **The Impact of Information Technology on Roles and Role Processes in Small Groups**

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## **INTRODUCTION**

In both corporate and academic organizations, collaborative work is frequently accomplished and managed in small work groups. These can take either the form of formal work groups or ad hoc task groups. The formal work group has relatively permanent membership, ongoing tasks, and routinized reporting relationships within the organization. Over time, skills and information of group members become more group-specific and norms more implicit. There is less communication on how to work together and more on the work itself (Finholt, Sproull, and Kiesler, 1990). Some types of work are, however, best performed in ad hoc or quickly formed task groups. According to Finholt, Sproull, and Kiesler (1990), such groups are convened for a particular purpose, consist of members who otherwise would not work together, and disband after completing their assigned task. These task groups permit an organization to respond rapidly to changes in the environment and to non-routine problems by calling on expertise regardless of where it resides in the organization.

In higher education, a particular form of ad hoc task group is familiar to many instructors—the student project team. Such teams are commonly formed to allow students to tackle projects that are too big to handle individually, to allow students to teach and learn from one another, and to create opportunities for practicing the intricate dynamics of collaborative work. Given the benefits claimed for ad hoc task groups, it is presumed to be a good thing for students to gain hands-on experience in their function.

Advances in information and communication technology today help many corporate task groups confront problems such as physically dispersed members, lack of information-sharing routines, and short-term deadlines. After almost two decades, the use of computer-mediated collaboration technologies has become common. These technologies range from

basic email systems to sophisticated computer and telecommunication systems capable of providing various functions, allowing groups to communicate, collaborate, and coordinate beyond the limitation of time and space.

At a somewhat slower pace, higher education has similarly embraced these technologies, and is now using them to create and promote a wide variety of distance education offerings. It is arguably more important than ever to continue the tradition of assigning students to collaborative project teams. However, little is known about how technology can best be used to promote successful collaborative learning. The ability to use collaboration technology effectively is an important issue when students are all on the same campus and have the opportunity to meet their instructors and each other in the classroom. It becomes critical in distance education. In order to gain any of the benefits of collaborative learning in distance education, the conditions that lead to successful use of collaboration technology must be understood.

This case study reports the experience of a single group of four geographically distributed graduate students who collaborated with great success on a number of projects over a period of two years. During the period reported, they were enrolled in the Master's of Science in Information Management program at The School of Information Studies, Syracuse University. They participated in this program under the Independent Study Distance Program (ISDP), which at the time of this writing has been offered for three years. Their story is worthy of study because, in technology-mediated collaborative learning, they represent the far positive end of the outcome continuum. Unknown to each other before enrollment, they quickly learned and embraced a broad array of communication technologies and became adroit in using different technologies to accomplish different objectives. They formed a strong group identity, and went out of their way to work together on every group project possible, including their final degree exit requirement. They received a grade of "A" on every project they worked on together. They had fun. They became friends. Because they had infrequent opportunities to meet face-to-face, they accomplished these things predominantly through the use of a technology-mediated communication environment.

By choosing to work together on several projects, this group began to take on some of the characteristics of a formal work group. Skills became understood, norms became implicit, and the group was able to spend its communication energy on the work itself rather than on how to work together. However, since the group was re-formed at the beginning of each semester and disbanded after its end, had no ongoing formal standing, and disbanded for good after its final project together, it lacks the defining features of a formal work group. In many ways, this group is a better exemplar of a "hot group," a label coined by Leavitt and Lipman-Blumen (1995). A hot group is defined by a distinctive philosophy, attitude, and pattern of behavior. It is intense, sharply focused, and task obsessed. It has high standards for both thinking and doing. Like an ad hoc task group, it generally disbands when its task is complete. Hot groups are capable of achieving unexpectedly high levels of performance. The goal in studying this group is to learn something about the conditions that cause, or at least allow, such high performance learning teams to form in technology-mediated educational environments.

In this two-year longitudinal case study, group members' written reflections provide the primary data for the narrative and analysis reported below. The analysis focuses on the impact of information technology on the roles and role processes that characterized this group. Finally, the chapter concludes with a discussion of what this story tells about the prerequisite conditions necessary for success in technology-mediated learning teams.

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