

# Computer–Mediated Learning Groups

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## INTRODUCTION

Online learning has seen tremendous growth over the past decade in both the corporate and higher education sectors of society. This has been facilitated by rapid increases in the availability of computer- and network-based technologies for communication and sharing of information. The U.S. National Center for Educational Statistics (2003) recently reported that for the 2000-01 academic year, 2- and 4-year institutions offered over 127,000 different distance education (DE) courses and had over three million enrollments. Of the institutions offering DE courses, 90% reported using the Internet and asynchronous communication as an instructional delivery mode (National Center for Educational Statistics, 2003). In the corporate sector, the American Society for Training & Development reported record levels technology-mediated training (or e-learning) accompanied by slight decreases in face-to-face classroom training (Thompson, Koon, Woodwell, & Beauvais, 2002). At the same time, there has been an increased awareness among distance educators and researchers regarding the importance of human interaction in the learning process. These two trends have driven the study of computer-mediated communication (CMC) and computer support for collaborative learning (CSCL). Groupwork has long been an important instructional strategy used in face-to-face learning environments and is now being explored in computer-mediated environments. This article will define critical aspects of computer-mediated groupwork and outline benefits and challenges to using computer-mediated groups as an instructional strategy. Additional details for the research presented in this article can be found in full-length publications by the authors (Graham, 2002a, 2002b, 2003; Graham & Misanchuk, 2003).

## BACKGROUND

The first step to understanding the challenges and benefits of using computer-mediated learning groups is understanding the term itself. There are three important

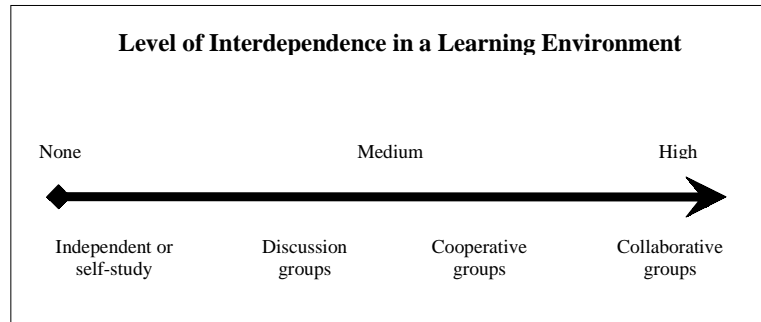
concepts embedded in the term *computer-mediated learning groups* that will be addressed in this section of the article. First is understanding what groups are and the role of interdependence in groupwork. Second is understanding the differences between *computer-mediated* groups and face-to-face groups. Lastly is the difference between *learning* groups and other types of groups such as *work* groups, an often overlooked distinction that has important implications for learning.

## Interdependence in Groups

In a learning environment, there is a wide range of instructional strategies that emphasize interaction between individuals involved in the learning process. Interdependence can be defined as *the level of dependence between group members required to accomplish the desired learning outcome*, and is one of the most important characteristics defining the nature of the group interaction. Figure 1 depicts the spectrum of interdependence and some examples of different groups across that spectrum. At the low end of the spectrum, there is independent learning, which involves little or no interaction or dependence on others in the learning process. At the high end of the spectrum, instructional activities are highly dependent on collaborative interactions between group members.

Discussion groups appear at the lower end of the spectrum because participants are usually assessed based on their individual contributions and insights rather than the ability of the group to negotiate and come to a consensus or a common understanding of the discussion topic. Cooperative groups also have a lower level of interdependence than collaborative groups because they tend to divide the work into chunks that can be accomplished independently. There may be a high level of interaction at the administrative level in chunking and assigning tasks, but the majority of the work is done individually and then pieced together at the end, which also leads to a sense of individual accountability. Groups working collaboratively are more interdependent than cooperative groups. Rather than assigning individual tasks in a “divide and conquer” approach, they work through each of the tasks together as a group. Each

Figure 1. Different levels of interdependence in learning environments



participant's learning success depends on all other group members' efforts. Paulus (2004) asserts that students often default to a cooperative framework unless explicitly instructed to employ collaborative ways of working (Hathorn & Ingram, 2002; Kitchen & McDougall, 1999). This default behavior is mirrored in learning groups versus work groups, as explained in the following section.

## Computer-Mediated vs. Face-to-Face Groups

The most common model of groupwork is in a face-to-face situation, whether it be in the workplace, classroom, committees, clubs, or other organizations. Indeed, many people have trouble envisioning successful interaction when group members are not co-located. However, the

use of computer-mediated communication (CMC) tools to facilitate work has become more and more common in global business ventures, and is gaining acceptance in educational settings as well. Table 1 lists several of the most common tools used by distributed groups for communicating.

Groups may not necessarily need the most “enriched” mode of communication: often, a telephone conversation can accomplish as much as an elaborate videoconference.

## Learning Groups vs. Work Groups

Much of the research literature related to computer-mediated groupwork looks at *work* groups as opposed to *learning* groups. There are important differences between the two that have an impact on how we understand

*Table 1. Communication tools used by groups working at a distance*

Synchronous	Asynchronous
<ul style="list-style-type: none"> <li>• telephone (including multi-party calls)</li> <li>• instant messaging or other computer-mediated text (or voice) chat</li> <li>• two-way videoconferencing</li> <li>• electronic white-board tools</li> </ul>	<ul style="list-style-type: none"> <li>• email or listservs</li> <li>• voice mail messages</li> <li>• electronic bulletin boards/ discussion forums</li> <li>• commenting on documents using word processor tracking features</li> <li>• WebLogs (Blogs)</li> </ul>

*Table 2. Differences between typical work and learning groups*

Work Group Characteristics	Learning Group Characteristics
<ul style="list-style-type: none"> <li>• Hierarchical leadership structure</li> <li>• Clear role definitions</li> <li>• Cooperation maximizes productivity</li> <li>• Goals are product-oriented</li> <li>• Team members take on tasks that reflect skills and strengths already acquired</li> <li>• Focus is on the product or outcome</li> </ul>	<ul style="list-style-type: none"> <li>• Flat leadership structure</li> <li>• No role definitions</li> <li>• Collaboration maximizes learning</li> <li>• Goals are learning-oriented</li> <li>• Team members may accept tasks to gain skills they have not already acquired in order to learn</li> <li>• Focus is on the process or learning</li> </ul>

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