

2007

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## Recommended Citation

Ma, Jing, "Group Collaboration Patterns in Scientific Laboratories" (2007). *SIGHCI 2007 Proceedings*. 3.  
<http://aisel.aisnet.org/sighci2007/3>

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# Group Collaboration Patterns in Scientific Laboratories

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## **ABSTRACT**

This study explores group collaborations in traditional hands-on labs and computer automated simulated and remote labs. The primary purpose is to discover group collaboration patterns based on four dimensions: group proximity, communication media, group coordination structure and time on task. A factorial experiment is designed to collect the data from more than 200 students. Cluster analysis is used to analyze the data. The results suggest that students have different patterns of collaboration, both between lab groups and between lab formats. There are three distinct patterns in remote labs, four patterns in simulated labs and two patterns in hands-on labs. These differences seem to be related to learning effectiveness. The key characteristics of these clusters need to be further investigated and evaluated. These findings, along with others yet to be analyzed, promise to be fruitful for understanding, analyzing, and managing virtual collaboration, remote education, and design of information systems.

## **Keywords**

virtual teams, group collaboration patterns, cluster analysis