# TEXT COMMUNICATION DURING ONLINE TACTICAL OPERATIONS CENTER TRAINING

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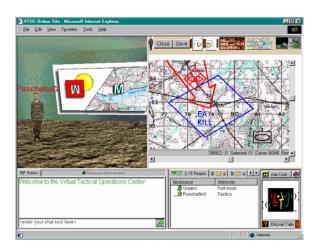
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To meet the needs of a responsive and versatile Objective Force, the US Army is increasingly looking for ways to improve distributed learning. The Army's goal to develop over 525 distributed learning courses and provide digital training facilities within 50 miles of 95 percent of Army duty stations shows a clear intent to exploit the benefits of distributed learning. The use of distributed learning and the decision-making skills that it fosters are aligned with the command, control, communications, computers, intelligence, surveillance, and reconnaissance (C4ISR) capabilities of a networked Objective Force.

The system-of-systems nature of the Objective Force will require distributed teams to collaborate. To adhere to the doctrine of "train as you fight," training should include exercises where the trainees are distributed. An example of that is use of virtual tactical operations center (VTOC) training in the Armor Officers' Advanced Course for Reserve Component Officers. An understanding of how a distributed team interacts over time and develops into a collaborative unit of action while using a VTOC sheds light on how the Objective Force will perform while planning and conducting exercises.

## Distributed Learning and the Armor VTOC

The U.S. Army Armor School (USAARMS) transformed the Armor Officers' Advanced Course for Reserve Component Officers to include a synchronous, online distributed learning phase where soldiers used a VTOC for their training. Soldiers from across the country interacted from their private residences over the Internet through a VTOC system to plan and conduct simulated field exercises. The VTOC system includes tools such as a map-edit program, electronic versions of field manuals, 3-D terrain images, avatars, and audio and text communication programs. The VTOC phase of the overall course was preceded by an asynchronous distributed learning phase where soldiers learned basic terms and concepts, and was followed by a two-week in-residence phase.
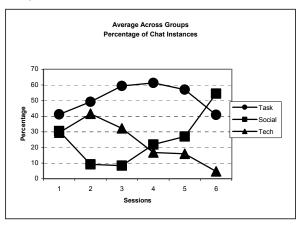
## Use of a Text Messaging System: "Chat"

Research focused on the use of a text messaging system during the VTOC phase where soldiers could "chat" by typing text messages that were displayed on the screens of other users during training sessions. The synchronous web-based training phase was conducted over 6 sessions. For 5 classes of 5-8 students each, the text chat content during training was recorded. The chat instances were coded into one of three interaction content categories (task, technology-related, or social) and analyzed for frequency and relative change over time. Task-related chat instances included discussion of tactical content, planning, and completing the training exercise. Technology-related chat instances included discussions of the "nuts-and-bolts" of how to use the VTOC system, comments on the VTOC not working properly, and other equipment/software topics that did not directly focus on the training task. Social chat instances included discussions that were not task or technology related and were more personal in nature. These included, asking people their name, personal interests, and making plans for meeting during the in-residence phase of the course, which followed the VTOC training phase.

## Analyses of Chat Instances

The likelihood of specific types of chat changed as a function of time (across sessions). Task-related chat instances ranged from slightly over 40 percent of totals during the first and last sessions to over 60 percent during the middle sessions. Social interactions, which occurred at a lower rate overall, peaked during the first and last sessions and were more moderate during the middle sessions. The complementary functions of task and social chat were due to initial efforts by team members to get to know one another, followed by a focus on the training task during the intermediate sessions, and then during the last session, preparing to meet one another at a face-to-face training phase after the distributed learning sessions. The level of technology-related chat instances steadily decreased over sessions from 30-40 percent during the first three sessions to less than 5 percent of instances during the last session. The decreased rate of technology-related chat seemed due to the increased proficiency with the system acquired by students across sessions.



Average Across Groups
Percentage of Chat Instances

## Conclusion

The Objective Force will involve distributed teams collaborating across a network of systems. VTOC training and the use of text chat features show promise to improve training by allowing more realistic collaboration among distributed soldiers. This realism includes the use of social interactions that would normally occur in a face-to-face training environment.

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