

## **UC Merced**

# **Proceedings of the Annual Meeting of the Cognitive Science Society**

### **Title**

Comparative Evaluation of Multivariate Coordination Methods to Assess Team Cognition in Multi-Modal Team Interactions.

### **Permalink**

<https://escholarship.org/uc/item/3303h2fs>

### **Journal**

Proceedings of the Annual Meeting of the Cognitive Science Society, 44(44)

### **Authors**

Halgas, Elwira A.

Gevers, Josette M.P.

van Eijndhoven, Kyana

et al.

### **Publication Date**

2022

### **Copyright Information**

This work is made available under the terms of a Creative Commons Attribution License, available at <https://creativecommons.org/licenses/by/4.0/>

Peer reviewed

# Comparative Evaluation of Multivariate Coordination Methods to Assess Team Cognition in Multi-Modal Team Interactions.

**Elwira Halgas**

Eindhoven University of Technology, Eindhoven, Netherlands

**Josette Gevers**

Eindhoven University of Technology, Eindhoven, Netherlands

**Kyana van Eijndhoven**

Tilburg University, TILBURG, Netherlands

**Travis Wiltshire**

Tilburg University, Tilburg, North Brabant, Netherlands

**Sonja Rispens**

Eindhoven University of Technology, Eindhoven, Netherlands

**Joyce Westerink**

Philips Research, Eindhoven, Netherlands

## Abstract

Team cognition is an essential component of team functioning. Although traditionally assessed through (retrospective) questionnaires or ratings, there is increasing interest in using real-time data (e.g., skin conductance, movement) to assess team cognition through team coordination dynamics (TCD). TCD involve two or more processes or elements of the team that covary across time and conditions (e.g. synchrony or alignment). Various methods and modalities have been used to calculate TCD that show connections with team outcomes and cognition. Yet, it is unclear which ones are the most functional. In our research, we use data from four-persons teams engaging in a collaborative game to calculate various TCD indices (entropy, MdRQA, coherence, synchrony coefficient) for several modalities (skin conductance, heart rate, movement) and compare them to metrics of team cognition obtained through questionnaires. We aim for our research to facilitate the use of (multimodal) TCD for monitoring and managing team functioning.