Agent Based Modeling and Meta-Modeling

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Computer simulation in general and agent based modeling in particular is increasingly used to help understand and explain complex socio-technical systems. Such models allow the user to create hypotheses from existing theories, develop new theories, and generate realistic data for testing new metrics. As the field of simulation matures, models are increasingly used together or at least compared. In this tutorial the basics of agent based modeling, meta-modeling and docking are described. Examples drawn from a number of fields are used to illustrate the core issues.

Description: Attendees will learn about agent-based modeling, dynamic-network agent-based modeling, meta-modeling and docking. Attention will be focused on the value of simulation, approaches to validation, and to model comparison and meta-modeling. Case studies using simulations at the small group, organizational and country level will be discussed.

This session begins with an overview of simulation and its uses. Construct, ACT-R and Soar examples will be shown. Virtual experiments will be defined and the approach for generating and sharing the design will be described. Types of meta-modeling and their pros and cons will be addressed. Examples of how to dock models, one of the types of meta-modeling will be shown. The difference between non cognitive architectures, cognitive architectures and social cognitive architectures will be presented. In one case study the value of social cognition when added to an agent-based simulation will be discussed.

Who Should Attend? Those who are interested in developing, using or assessing simulation models. The material and its delivery is suitable for researchers and practitioners, alike.

Topics Include:

- Simulation
- Agent-based Modeling
- Agent-based Dynamic-Network Modeling
- Cognitive Architectures
- Social Cognition
- Virtual experiments
- Meta-Modeling
- Docking

Computer Equipment:
None

Maximum Number of Attendees: Unlimited