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COVER SHEET

**Inducing Adaptation in Organizations: Concept and Experiment
Design**

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TOPIC: C2 Experimentation

Inducing Adaptation in Human Organizations: Concept and Experiment Design

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Abstract

Mission performance is likely to be high when organizational structures are “congruent” (aligned with) with the mission tasks to be performed (Diedrich et al., 2003). Moreover, there is empirical evidence that high performing organizations can discern when environmental forces have changed the state of congruence, thus driving changes in the *strategies* (e.g., communication patterns, back-up behaviors) that they employ (Entin & Serfaty, 1999). Rarely, however, do organizations make changes to their organizational *structures* in order to facilitate congruence (Hollenbeck et al., 1999). There may be several reasons for this reluctance: First, organizations may not feel that they have been empowered to make alterations to their organizational structures. Second, nothing in their training would indicate otherwise. Third, organizations may sense that structure and mission are becoming incongruent, but they may have no way to gauge the nature or severity of the mismatch. Lastly, organizations may feel uncomfortable switching from known structures to those that are less well known and unproven. Consequently, the primary purpose of the experiment reported in this paper is to evaluate the processes of structural adaptation and to explore methods that can induce and facilitate such change.

This work builds on previous efforts that studied the behavior of organizations operating under conditions of incongruence (misalignment between structure and mission). For instance, Entin et al. (2003) sought to identify the conditions that might be salient enough to cause organizations to alter not only their strategies, but also their structures. This work employed model-based organizational design techniques to create mission scenarios that were either congruent or incongruent with two organizational structures (Kleinman, et al., 2003). The two organization structures we utilized were “divisional” and “functional.” In the divisional organization each participant controlled a multifunctional platform that was able to process a variety of tasks (e.g., air, surface, strike, etc.) in a limited geographical area. In the functional organization each participant specialized in one aspect of the mission, e.g., strike, using assets that were distributed across multiple platforms over the entire battle space. Two mission scenarios were designed by manipulating between-player coordination requirements such that one mission provided a good fit to the divisional organization but was misfit to the functional structure; the other mission scenario provided a good fit to the functional structure but not to the divisional structure. Results showed that performance was significantly worse in the incongruent conditions as compared to the congruent conditions. Additionally, self-reported workload was higher in the incongruent conditions as was overall communication rate. Importantly, these data pointed towards a set of indicators that have the potential to yield diagnostic information regarding congruence early in a mission scenario. These include performance measures (composite variables such as mission tasks processed, latency, and accuracy), team coordination processes (e.g., communication patterns), and workload levels (e.g., subjective assessments).

Given these data, and building on our previous experimental effort, the primary goals for the experiment reported here are to: 1) Observe and assess structural adaptation; 2) Evaluate the ability to induce and support structural adaptation through training and salient cues (diagnostic indicators); and 3) Evaluate the use of models to measure and predict change. Our approach is to facilitate structural change through training regarding change, and via providing feedback regarding the current status of congruence.

More specifically, in this experiment we study structural adaptation using the scenarios and structures employed by Diedrich et al. (2003). Organizations will be trained in both the divisional and functional structures and they will be trained in the use of diagnostic indicators regarding congruence that have the potential to be collected in real time. Following this initial training period, the organizations will then play in congruent conditions followed by incongruent conditions. Participants will then be given a chance to plan and adapt their structures. They may be given a choice of staying where they are, going to the “opposite” structure (functional vs. divisional), or adopting one of several intermediate structures. As an alternative to fixed choices, participants may be allowed to freely form novel organizational structures through adjustment of their assets, roles, and responsibilities. This adjustment process will be repeated several times during a trial until either the organization becomes “satisfied” or time runs out. Thus, this process will allow us to observe the structural “morphing” process.

Critical data emerging from this experiment will include insights regarding change, how it occurs, and how best to support it. For instance, what morphing paths were followed with what degree of success and failure? How could these successes and failures have been anticipated, etc? These data will be discussed in terms of implications for structural adaptation and its influence on mission effectiveness.

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