Emerging Concepts in Interagency Coordination Training

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ABSTRACT

The working relationship between the military, U.S. government agencies, and non-government aid organizations can be a difficult one. The differing cultures of each organization have evolved out of contrasting missions and activities, resulting in different values, modes of interpersonal interaction, and approaches to work. Multi-cultural collectives have known coordination problems (e.g., Burke, Hess, Priest, Rosen, Salas, Paley, et al., 2005), but most efforts to enhance cross-cultural coordination do not take a comprehensive approach that develops individual and collective knowledge and behavior (Roberson, Kulik, & Pepper, 2003). Our team researched the requirements for developing interagency coordination at the field level during stability, security, transition, and reconstruction (SSTR) operations. This paper describes our findings and their implications for designing a computer-based interagency planning environment. We found that conceptualizing interagency collectives as multi-team systems (Mathieu, Marks, & Zaccaro, 2001) provided a theory-based method for identifying what must be developed in order to achieve successful interagency coordination. The multi-team transition (or planning) phase may be characterized as an interests-based, multi-party negotiation – a collaborative problem solving task in which innovative solutions are sought through consensus building. The success of multi-team planning or interagency consensus building, in turn, is mediated by general strategies for success, including interpersonal relationship building and cross-cultural communication. We determined that the capabilities of web-based knowledge management systems and latent semantic analysis, an automated text analysis technique, can be integrated into a comprehensive training system that addresses individual and collective knowledge and behavior.

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SSTR OPERATIONS AND MULTI-AGENCY COLLECTIVES

The past several decades have seen an increase in intrastate conflict and prolonged hostilities following the end of major combat operations (Abiew, 2003; Taw, Agmon, & Davis, 1997). The ability of fragile, emerging nations to provide security and basic services for their citizens in the aftermath of civil war is crucial for ensuring stability, democratic self-governance, and economic growth. Stability, security, transition, and reconstruction (SSTR) operations combine diplomatic, economic, and military lines of operation to increase the effectiveness and legitimacy of emerging governments. To achieve this difficult objective, the diverse expertise held by the military, U.S. government agencies, and non-government aid organizations (NGOs) must be sought and integrated into a unified effort.

Multi-agency collectives are assembled in response to a variety of emergencies, such as natural disasters, but SSTR operations uniquely feature a hostile, or non-permissive, environment in which to conduct aid activities. The symbiotic relationship between security and economic development in non-permissive environments creates an overlap in ordinarily separate agency roles and responsibilities when military forces engage in humanitarian activities in order to conduct successful security operations (e.g., Beauregard, 1998; Byman, Lesser, Pirnie, Benard, & Waxman, 2000).

Provincial Reconstruction Teams

Provincial reconstruction teams (PRTs) represent a modern form of multi-agency collective assembled to conduct SSTR operations. Reminiscent of the Vietnam era Civilian Operations and Revolutionary Development Support (CORDS) program, PRTs promote security, reconstruction, economic development, and transparent self-governance in Iraq and Afghanistan by advising provincial government officials on their prioritization, funding, and oversight of development efforts. Occasionally, PRTs play a more direct program management role, funding reconstruction and overseeing progress. Generally stated, the purpose of PRTs is to:

- Extend the reach and legitimacy of the host nation government;
- Improve security; and
- Promote reconstruction [Center for Army Lessons Learned (CALL), 2007]

The structure of PRTs varies depending on their location, purpose, and the nationality of their leadership. Even so, the common characteristic of PRTs is their multi-agency composition. PRT personnel include members of the military and employees and contractors of the Department of State, the U.S. Agency for International Development (USAID), and several other U.S. government agencies, including the Departments of Justice and Agriculture. Links with the military provide PRTs with some degree of self-protection such that civilian aid activities can continue even in a non-permissive environment. These multi-agency collectives must work closely with representatives of the host nation provincial government, local contractors, and international organizations and coordinate with (NGOs) in order to achieve a lasting effect on their area of operations.

Interagency Coordination Challenges

Although each PRT reflects a unique and adaptive response to the specific environmental conditions of hostile environments, PRTs are representative of multi-agency collectives in general, encountering similar difficulties conducting coordinated planning and

operations. Among these difficulties are vaguely defined missions and measures of effectiveness, differing (sometimes competing) agency objectives and chains of command, and differing organizational and national cultures. The differing cultures of each organization have evolved from contrasting missions and activities, resulting in different values, modes of interpersonal interaction, and approaches to work.

Multi-cultural and multi-agency collectives have known coordination problems, which stem from process loss, the use of inappropriate stereotypes, misinterpretations and loss of communication, and low levels of trust and cohesion (e.g., Abiew, 2003; Burke, Hess, Priest, Rosen, Salas, Paley, et al., 2005). However, most efforts to enhance cross-cultural coordination do not take a comprehensive approach that develops individual and collective knowledge and behavior (Roberson, Kulik, & Pepper, 2003). In a Phase I SBIR effort, our team researched the requirements for developing interagency coordination in PRTs during the planning of SSTR operations. The intent of this investigation was to identify the implications for designing and building computer-based training and operational support.

This paper describes our research findings and presents a proposed augmented performance environment for facilitating field-level interagency planning. First, we explain our analysis of SSTR planning, as conducted by PRTs, and then we present a theoretical explanation of the interagency planning process. We identify common planning deficits and present a theory-based technological solution for developing interagency coordination capability. We also describe future research and development priorities that must be addressed to advance the proposed solution.

SSTR PLANNING IN PRTs

Our analysis of SSTR planning comprised an analysis of military doctrine, interviews (both archived and conducted as part of our research), and a review of the professional literature as it related to civil-military coordination, PRTs, and U.S. foreign policy. One interesting finding was that military doctrinal procedures for operations planning did not play a significant role in structuring planning in PRTs. Although doctrine provided extensive information and guidance on the military planning process, it was silent with regard to techniques for collaborative planning with civilian counterparts. Yet, civilian PRT members generally are not versed in military planning doctrine, do not use the same language to talk about planning or operations, and arrive at PRTs with their own planning methods.

It appeared that military civil affairs doctrine (U.S. Department of the Army, 2006, 2007) could be applied to PRT functioning, but that it would have to be augmented to address the multi-party nature of PRT operations. For instance, civilian actors in an area of operations are depicted in these field manuals more as a useful resource for enabling successful military operations than as independent stakeholders (and gatekeepers) in a collective decision making process. The unified command and purpose assumed in doctrine could not be counted on to achieve unified PRT effort because multi-agency collectives have diverse interests and do not operate under a single chain of command.

More in line with civil management and planning processes, the interagency coordination that goes on in the field appeared to be much less structured and hierarchical in nature than are doctrinal military planning processes. We identified no standardized PRT planning products, no shared communications conventions (e.g., common terms and graphics), and no one person with ultimate decision making authority. We did not even identify a discrete planning event. Rather, we discovered that SSTR planning was conducted through a series of face-to-face meetings. These meetings were rarely mediated, but as much or more activity went on behind the scenes to build relationships and forge plans than went on publicly.

In sum, SSTR planning is a long-term process that occurs through a series of face-to-face meetings varying in size and purpose. Figure 1 below provides a high-level view of the inputs, processes, and outputs involved in interagency SSTR planning. As shown in the figure, the primary output of the planning process is a shared understanding and acceptance of what each agency is doing, where, when, and with what funding. In existing handbooks on PRT function (e.g., CALL, 2007) this output is called an implementation plan.

The implementation plan is the result of several processes intended to align vision, exchange information, foster acceptance of responsibility, and collaboratively determine solutions to commonly recognized problems. However, there is not a single SSTR planning process or output. Rather, planning is continually ongoing, with partial solutions and intermediate outputs. This depiction of interagency SSTR planning applies to PRTs, but may also apply to interagency planning in other contexts as well (e.g., military transition teams).

The diversity of inputs to SSTR planning makes collaboration difficult. The inputs shown in Figure 1 represent the diverse interests of the organizations and individuals involved in the planning process. Representatives of different organizations must adhere to the policies of their employers or funding agencies. These people also have their own personal priorities for what they wish to gain from working together and their own cultural sensitivities, which guide their expectations for how to proceed in a collaborative process.

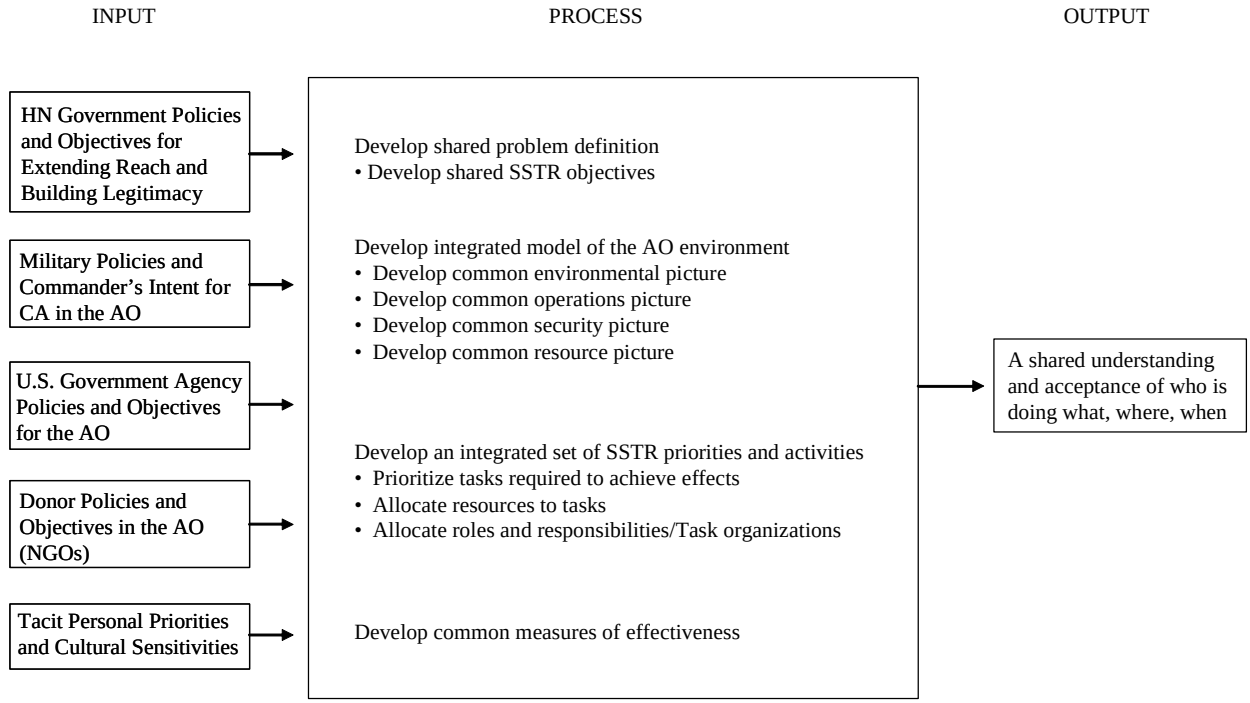

Figure 1. High-Level Depiction of SSTR Planning

Theoretically Explaining SSTR Planning

A theoretical explanation of SSTR planning makes it possible to design a training and operational support system that has general utility. If the theoretical explanation is accurate, then the developmental objectives addressed by the system should facilitate SSTR planning regardless of the structure of multi-agency collective involved or where that collective is conducting operations.

Moreover, a theoretical explanation identifies targets for diagnostic performance assessment (Cianciolo & Sanders, 2005). If SSTR planning outcomes are not achieved, interagency coordination processes identified by theory may shed light on the causes of performance deficits. Because we wanted our research to produce a generalizable framework for enhancing interagency coordination, we reviewed the psychological research literature in order to explain what exactly we sought to enhance.

Can Multi-Agency Collectives Be Called Teams?

Research psychologists define teams as "a distinguishable set of two or more people who interact dynamically, interdependently, and adaptively toward a common and valued goal/objective/mission, who have been assigned specific roles or functions to perform, and who have a limited life-span of membership" (Salas, Dickenson, Converse, & Tannenbaum, 1992, p. 4). The key characteristics of teams, therefore, are interdependent functions, shared, valued goals, clear delineation (and presumably acceptance) of roles and responsibilities, and temporary identity.

Two of these characteristics—interdependent functions and temporary identity—reflect PRTs well. By definition, SSTR operations arise out of national emergencies and ideally are maintained only until a region is secured and stabilized. The activities of agency members during SSTR operations are highly interdependent, in large part due to the dangerous security situation that characterizes SSTR and due to the critical importance of maintaining simultaneous military, economic, and diplomatic lines of operation.

Even so, we discovered that SSTR planning could not be considered a team task in the strict sense. Teams comprise members who share goals and have clearly assigned roles and responsibilities, but neither of these characteristics applies to the multi-agency collectives involved in SSTR operations, including PRTs. Although interdependent in function, PRT members do not have the same goals for the area in which they work. Coming from different organizations that have different charters and different funding sources, agency members have different interests and may in fact have competing goals. Roles and responsibilities are assigned by the parent organization, rather than by a political body nominally in charge of the area of operations. Agency members define the problems that must be solved in an area in different ways, and differing perspectives can lead to adversarial relationships. In addition, there are differing levels of expertise or knowledge about the area's problems.

Multi-Team Systems

We determined that multi-agency collectives may be better defined as multi-team systems (MTS; Mathieu, Marks, & Zaccaro, 2001). Multi-team systems are defined as "teams of teams" or, specifically, "two or more teams that interface directly and interdependently in response to environmental contingencies toward the accomplishment of collective goals. MTS boundaries are defined by virtue of the fact that all teams within the system, while pursuing different proximal goals, share at least one common distal goal; and … exhibit input, process, and outcome interdependence with at least one other team…" (Mathieu et al., 2001, p. 290).

In the context of PRTs, the members of each functional unit (e.g., economics, governance, etc.) would constitute a component team with functionally-related proximal goals. However, each PRT member also is cross-categorized into organization-based groupings whose proximal goals are driven by the interests and priorities of their superiors. PRT members also may be cross-categorized into groups according to nationality, political stance, or religion. The common distal goal shared by each component team is stable, democratic, and self-sufficient governance on the part of the host nation served.

MTS functioning occurs in two interrelated phases: transition and action (Marks, DeChurch, Mathieu, & Panzer, 2005). The action phase involves task execution directly related to achieving the common goal. Team processes that support action include coordination of activities and mutual monitoring. The transition phase, of special interest to our research, involves mission analysis, planning, goal-setting, and evaluation.

An important tenet of multi-team theory is that the whole of MTS performance is greater than the sum of its parts (Marks et al., 2005). System-level transition processes guide component team-level planning and execution (e.g., though assignment of component team roles and responsibilities in the larger effort), which facilitates system-level action (e.g., non-redundant, coordinated component team activity). System-level action, in turn, is partially determined by component team performance, but also by system-level execution processes (e.g., cross-team information management).

Multi-team theory has begun to articulate the requirements for successful multi-team leadership during the transition phase (DeChurch & Marks, 2006). However, current definitions of multi-team leadership appear to assume that the multi-team leader has the authority to independently determine courses of action and allocate component team roles and responsibilities. These multi-team leadership definitions do not address the activities required when the MTS is co-led, individuals have multiple team identities, and plans must be collectively developed in the context of diverse interests and multiple chains of command.

Transition Processes as Consensus Building

In order to develop or facilitate interagency, multi-team planning, such as PRT SSTR planning, transition processes must account for the cross-cultural relationship building, negotiation, and communication necessary to align vision and achieve collaborative solutions. Our research has suggested that consensus-building may be a multi-team activity that is demanded by the PRT planning context and that contributes to effective SSTR planning above and beyond the expertise of each agency member. Consensus-building ensures achievement of the system-level transition processes required for effective multi-team functioning or, in other words, unified effort toward a common distal goal.

Consensus building is defined generally as a process of collaborative problem solving, negotiation, decision making, or dispute resolution in which all parties involved must agree to the solution (Susskind, McKearnan, & Thomas-Larmer, 1999). Consensus building differs from other forms of planning or decision making in that decision making authority is vested in the collective rather than in a ranking individual. Successful consensus building requires negotiators to specify their interests (e.g., "I need a

reasonable level of security to conduct aid missions.") as opposed to stating positions ("The military should inform me of their combat operations plans for the area.") in order to reach innovative, adaptive, and collaborative solutions. Although the prospect of reaching unanimous agreement may seem daunting, using consensus building increases the likelihood that a decision will be implemented as planned without obstruction (Innes & Booher, 1999). The parallels between the consensus building process and SSTR planning are immediate and numerous.

First, consensus building has multiple intangible outcomes that facilitate long-term cooperation through the development of common interests. These outcomes include the development of intellectual capital (i.e., knowledge and expertise) and social capital (networks of interested, supportive parties), enhanced trust and lower frequency of obstruction to negotiated agreements (due to collective participation in decision making), and intermediate solutions to difficult long-term problems (Innes & Booher, 1999).

Second, consensus building has been used successfully in areas highly related to SSTR planning, including: regulatory negotiation, water resource management, labor disputes, growth management, international relations and ethnic conflict, and urban planning.

Third, and finally, based on our research, successful PRT personnel in Iraq and Afghanistan appear to have taken (implicitly) a consensus building approach to planning with other agencies.

SSTR PLANNING DEFICITS

Through a combination of scholarly and professional literature review and interviews (both archived and conducted as part of our research), we investigated the common deficits that occur during SSTR planning. Such deficits would serve as targets for individual and collective performance assessment in the planned computer-based training and operational support solution. Our literature review included research in the areas of cross-cultural psychology, negotiation, consensus building, and civil-military coordination and illuminated the manner in which collaborative problem solving proceeds in general and on the patterns of interagency coordinative behavior in SSTR operations planning in particular. Interviews were necessary to understand the "boots on the ground" perspective, which provided a more granular view of interpersonal interaction than that presented in the literature.

We found that performance deficits occurring during consensus building in general and SSTR planning in particular appear to have the same general signature, including disengagement (physical or intellectual) from the collaborative process, information hoarding, endless discussion on particulars, recalcitrant stakeholders who withhold agreement, misattribution of motivation, and heated argument (see, e.g., Kiffin-Petersen & Cordery, 2003; Maner, Kenrick, Becker, Robertson, Hofer, Neuberg, et al., 2005).

Cultural Contributors to SSTR Planning Deficits

Identified in Table 1 are several cultural identities and dimensions present in multi-agency collectives that contribute to these performance deficits when contrasting values, modes of interpersonal interaction, and approaches to work clash. The list shown is not exhaustive, but our selection of cultural identities and dimensions was driven by practical concerns. It is possible for the characterization of interagency cultural differences to be explosively complex, however it is probable that only a small subset of possible cultural differences accounts for the majority of difficulties in interagency coordination (see e.g., Cohen, 1997). We selected those cultural identities and dimensions of greatest relation to PRT effectiveness in Iraq and Afghanistan. Each cultural dimension is briefly explained below.

Pacifism
We defined pacifism as disagreement with the use of force to solve disputes, with greater incidence of pacifist beliefs found in NGOs relative to the military.

Power Distance
Power distance (Hofstede, 1980) characterizes the level of comfort people have with the unequal distribution of power. High power distance is associated with respect for hierarchy and great discomfort speaking directly with, disagreeing with, collaborating with, or challenging people of superior rank. Low power distance is associated with more horizontal and democratic relations among people; rank does not play a particularly strong role in mediating one's interactions with others.

Tightness
Tightness (Triandis, 2000) refers to the degree to which a culture values and maintains rules and norms about correct behavior. Tight cultures are characterized by complex rules and norms, high levels of conformity, and social sanction against even minor behavioral or social deviations. Loose cultures, in contrast, do not

have complex rules for behavior, so variety is not only tolerated but also expected.

Table 1. Cultural Identities in Multi-agency Collectives and Their Associated Dimensions

Cultural Identity	Cultural Dimension
Organization (military, U.S. government agency, non-government aid organization, international organization)	High-Low Pacifism
	High-Low Power Distance
	High-Low Tightness
	High-Low Neutrality
	Long- vs. Short-Term Orientation
Nationality (American, European, Arab, Afghan)	High-Low Anti-American
	Laconic-Fluent Narrative Style
	High-Low Context
	Individualism-Collectivism
	Instrumental-Expressive
	Long- vs. Short-Term Orientation
	High-Low Power Distance
Religion (Muslim, non-Muslim)	Active-Passive
	High-Low Tightness

Neutrality
Neutrality reflects the degree to which a culture values using altruistic means to reach political ends. Cultures characterized by high neutrality reject outright the use of altruistic means to reach political ends, whereas low neutrality cultures see instrumental altruism as justified in the service of national security. SSTR operations bring neutrality differences between the military, U.S. government agencies, and NGOs to the fore because humanitarian assistance and reconstruction are being conducted in the context of hostilities and the military is actively involved in human relief to achieve U.S. political objectives.

Time Orientation
Time-orientation (Hofstede, 2001) characterizes the degree to which cultures value future goals and the behaviors associated with obtaining them, such as perseverance and thrift. Cultures with a long-term orientation place a high value on achieving future goals, even at the cost of short-term gains. In contrast, cultures with a short-term orientation place a higher value on using immediate or near-term activities to preserve face and social standing.

Instrumental-Expressive
The degree to which a culture is considered instrumental versus expressive reflects the prioritization that people in that culture assign to completing tasks versus developing or maintaining social relationships (Triandis, 2000).

Anti-American Sentiment
This dimension reflects contrasting values and expectations for national-level behavior. We defined anti-American sentiment as distrust and rejection of U.S. foreign policy objectives and methods. It has differing political values at its core, rather than differing social mores.

Narrative Style
Narrative style characterizes a culture's use of language, its value of fluency, eloquence, and direct speech (Rubinstein, 2003). Laconic cultures are conservative with regard to both fluency and emphasis, placing value on short, direct speech to convey meaning. In contrast, fluent cultures liberally use language as a mode of self-expression with special emphasis on sentiment.

Context
Fluent narrative styles are enabled by high-context cultures, which place great emphasis on non-verbal behavior and other contextual cues to convey meaning in social situations (Cohen, 1997). Speech in high-context cultures is somewhat relieved of the role of conveying intent and meaning because situational characteristics carry important information. Low-context cultures, in contrast, value speech as the fundamental means for communicating intent and meaning (Rubinstein, 2003).

Individualism-Collectivism
Individualism-collectivism (Hofstede, 1980) refers to what a culture conceives as a fundamental social unit—the individual or the family or some other collective (e.g., tribe). People from individualistic cultures resist placing constraints on individual activity in order to serve the interests of a larger group. In contrast, collectivist cultures place the interests of family, tribe, or other social units ahead of individual interests. Note that organizational culture can override broader cultural patterns such that U.S. organizations may show varying degrees of collectivist tendencies.

DEVELOPING INTERAGENCY COORDINATION

Strategies for Success

There are extensive guidelines and resources to support successful consensus building (e.g., Innes & Booher, 1999; Susskind et al., 1999) and cross-cultural

relations (Coleman & Lim, 2001; Salas, Burke, & Wilson-Donnelly, 2004) in general. These strategies for success serve both as developmental objectives for interagency coordination training and as assessment targets for collective planning process (as opposed to planning outcomes).

Many of these strategies focus on setting the right conditions, such as ensuring the identification of appropriate stakeholder representatives, clearly defining roles and responsibilities, distinguishing between values and interests, separating interests and positions, and assessing one's own readiness to collaborate. Given that the multi-party nature of consensus building may be seen as a special case of cross-cultural negotiation, it is expected that the strategies we identified facilitate SSTR planning in a variety of multi-cultural contexts (i.e., the strategies generalize across different group compositions of cultural identities dimensions).

To identify methods for successful interagency coordination, it was most useful to integrate guidelines from the civil-military coordination literature (e.g., Byman et al., 2001; Rubinstein, 2003) with documented and verbally reported observations about what does *not* work (e.g., Taw et al., 1997; Beauregard, 1998). The interviews conducted in our research shed some light on effective techniques to facilitate interagency relations, but the stories shared by interviewees largely reflected the difficulty that interagency players had working together. The combination of "what right looks like" and of "what wrong looks like" based on the study of civil-military coordination roughly corresponded to the general recommendations of the consensus-building and cross-cultural communications literature.

The following list summarizes the strategies for success we identified:

- Identify the appropriate stakeholder (i.e., component team) representatives who should be involved in collaborative planning
- Build interpersonal relationships prior to collaborative planning
- Clearly define non-overlapping and interdependent roles and responsibilities for each stakeholder
- Distinguish between values, interests, and positions when setting proximal (i.e., component team) goals
- Establish own readiness to participate in collaborative problem solving
- Enhance real-time communications by emphasizing shared problems and goals, avoiding attributions, identifying implicit interests, and knowing when temporary separation is appropriate to handle conflict

A PROPOSED TRAINING AND OPERATIONAL SUPPORT SOLUTION

It has been argued that information technology will advance interagency planning, cooperative execution of SSTR tasks, and feedback on the effectiveness of interagency coordination (Dziedzic & Wood, 2000). Online knowledge-management sites are commonly used to enhance team and multi-team performance in commercial organizations, and such sites are being developed to facilitate interagency information sharing in Iraq and Afghanistan (e.g., Office of the Special Inspector General for Iraq Reconstruction, 2006).

Developing SSTR planning capability using an online meeting space therefore presents a naturalistic environment in which to prepare PRT personnel for collaborative problem solving. Our proposed solution, called the Interagency Consensus Forum (ICF) represents an integration of knowledge management tools, computer-based instruction, and artificial intelligence such that the adoption of strategies for success and consequent reduction in culture clashes are supported by individual and collective performance opportunities, assessment, and feedback.

System Overview

The ICF is currently under development as part of the second phase of our research and development program. The general concept is depicted in Figure 2. In essence, the ICF is a collaborative work environment that allows learners to self-assess their readiness for participating in consensus building, to develop their individual collaboration skills using scenario-based training, and to rehearse interagency planning with others. The collaborative work environment also features elements typically found in knowledge management portals, such as a reference library (that includes archived discussions) and a member directory, in order to facilitate individual knowledge development and social networking skill.

Importantly, the collaborative work environment will be tightly integrated with Latent Semantic Analysis (LSA), an automated text analysis technique, which ties each ICF component together via performance assessment, feedback, and referrals. For instance individual responses during readiness self-assessment,

once analyzed by LSA, will trigger automated recommendations for individual collaboration knowledge and skill development through scenarios or reference materials. Discussions in a planning rehearsal may trigger LSA referrals to other ICF members who are not included in the conversation, but should be. Using LSA, assessment may occur at all stages of consensus building: determinants, processes, and outcomes. LSA also will be used to provide virtual agents during planning rehearsals such that learners can engage in collective skill development even when some interagency stakeholders are absent.

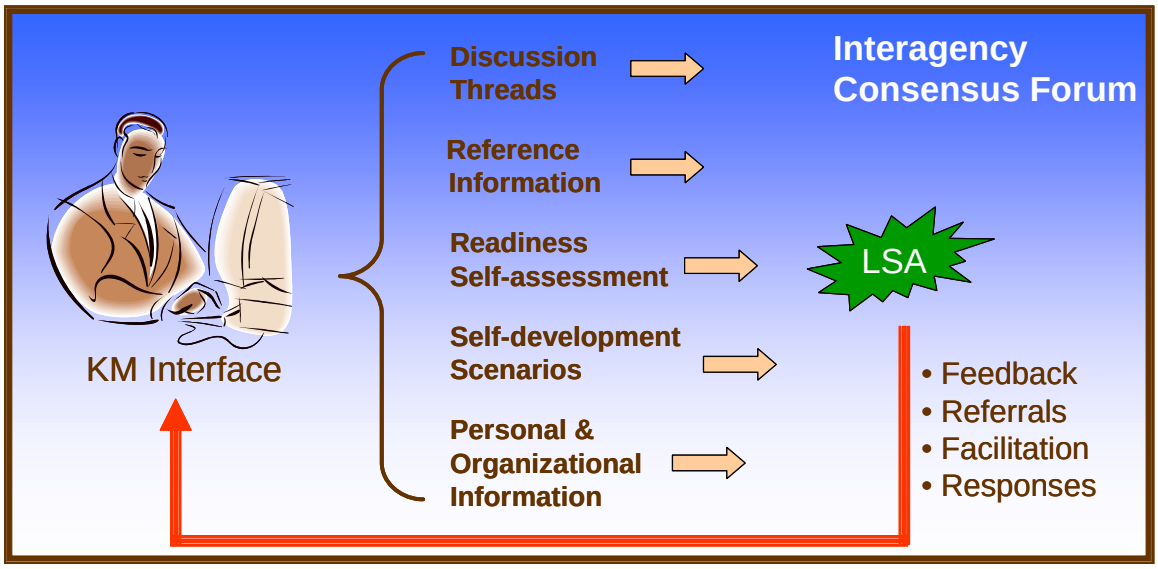

Figure 2. Overview of the Interagency Consensus Forum

It is envisioned that the ICF will provide "crawl phase" training for live exercises involving interagency coordination (or preparation for actual interagency coordination). Because the ICF will support distributed collaboration with virtual agents, it also could enable interagency coordination training via professional self-development portals. This section briefly describes the basic components of the ICF and the research, development, and evaluation hurdles that must be leapt in order to conclude that the ICF is useful for enhancing SSTR planning.

Readiness Self-Assessment

Readiness self-assessment in the ICF will focus on four aspects of readiness: (1) ability to distinguish positions from interests; (2) ability to recognize one's attributions regarding the behavior of people from the other organizations or cultures involved; (3) understanding of the difficulties and benefits associated with collaborative problem solving; and (4) ability to identify one's own willingness to participate in a challenging collaborative process versus going it alone. These four aspects of readiness were chosen because they have been identified as important determinants of successful cross-cultural relations and consensus building.

A learner conducting readiness self-assessment will first view interactive multimedia instruction on the readiness concept selected. Then they will conduct an interactive "interview" with the ICF. This interview will provide standardized readiness questions to which the learner types a response that is then analyzed by LSA. Based on learner responses, the LSA will refer the learner to other elements of the ICF that will facilitate individual development.

In our Phase II research and development, we will use performance metrics derived from the multimedia instruction and from LSA to explore the relation between individual differences in readiness and individual skill. We anticipate that ICF users who are more ready to collaborate also will have higher levels of individual skill as demonstrated during individual self-development and during planning rehearsals. If readiness is unrelated to individual skill, then other determinants must be identified and assessed by the ICF.

Individual Self-Development

Individual self-development will focus on building the individual skills necessary to adopt the general

strategies of success identified in our research. ICF users will be presented with brief, text-based scenarios featuring a critical incident and must provide a short typed response to indicate how they would handle the situation. Scenario topics will focus on (1) identifying key stakeholders; (2) developing personalized relationships; and (3) managing defensive reactions and maintaining a cooperative stance. Performance metrics derived from LSA will be used to score users' responses and provide feedback and referrals for continued development.

These same metrics will be used to investigate the relation between individual skill and consensus building in the ICF. Consistent with multi-team theory, it is expected that interagency collectives comprising individuals with greater individual skill will be more successful at consensus building, but that additional, system-level processes will contribute to effectiveness above and beyond individual skill (Marks et al., 2005).

Moderated Planning Rehearsal

Moderated planning rehearsals will be distributed collaborative, scenario-based problem solving exercises that can be carried out synchronously or asynchronously in the ICF. A "base" Iraq and a "base" Afghanistan scenario will be provided, along with additional modules that can be attached to the base scenario to increase complexity. The scenario (plus modules) will require learners to collaboratively build or revise a PRT implementation plan by developing innovative interests-based solutions. Discussion threads will be analyzed by LSA, which will return automated discussion facilitation comments when interagency coordination falters.

The ICF will be tested to determine whether LSA metrics relate to other, independent metrics of interagency planning process and outcomes, such as social networking activities and the level of integration achieved in the planning product. Planning process quality assessed by all types of metric (LSA or otherwise) should be greater for ICF users who have assessed their readiness and self-developed their individual collaborative skill. System-level processes as measured by LSA should contribute to planning outcome measures above and beyond individual skill (Marks et al., 2005).

Virtual Planning Rehearsal

Virtual planning rehearsals will function exactly like moderated planning rehearsals except that some participants will be virtual, enabled by LSA. These agents will be capable of playing a variety of roles, and will react to the comments posted by the human participants. For example, they will respond positively in discussions in which their input is requested and they are made a part of the consensus building process. It is anticipated that the effectiveness of collaborative planning will be the same regardless of whether all participants are real, but this remains to be assessed. Learner acceptance of LSA-enabled agents also must be assessed as part of the ICF evaluation.

CONCLUSIONS

This paper reflects in-depth research into what constitutes effective interagency coordination at the field level and presents some emerging concepts for developing effective multi-agency collectives. The theoretical foundation of this research provides guidance for identifying developmental objectives, designing a learning environment, and conducting performance assessment and program evaluation of a comprehensive training and operational support solution. Much research and development remains to determine whether the emerging concepts presented here are fully representative of interagency coordination processes and whether they can be implemented in a system that shows demonstrable improvement in SSTR planning.

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