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How Groups Learn: The Role of Communication Patterns, Cue Recognition, Context Facility, and Cultural Intelligence

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This article explores the role of group learning by focusing on how intragroup communication patterns (implicit and explicit) influence learning readiness dimensions (cue recognition, context facility, and cultural intelligence), which in turn influences the group's ability to learn and the type of learning that occurs. Groups with high levels of cue recognition, context facility, and cultural intelligence are more likely to discuss difficult issues and decide whether and how much the group needs to learn than groups with low levels. Communication patterns and learning readiness contribute to adaptive, generative, and transformative learning, fostering the type of learning that is most beneficial for the group at the time. Human resource development professionals can help groups improve their communication patterns and thus strengthen learning readiness and enhance their ability to effectively communicate, learn, and reach their goals.

Keywords: *Group learning, learning readiness, communication patterns, cues, cultural intelligence*

Group learning is both a *process*, in which members obtain feedback, reflect on their actions, and acquire knowledge, skills, and learning behaviors, and an *outcome* characterized by changes in knowledge, behavior, and group performance (Edmondson, 1999b). When groups learn, new knowledge is generated, combined, and evaluated (Argote, 1999). This occurs in a constantly changing and sometimes uncertain environment and in response to varying interpersonal, contextual, and organizational demands. Group learning is not just a

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result of directly communicating ideas and affect, nor is it limited to the conscious acquisition of knowledge and behavior. It is highly dependent on indirect messages and the subconscious awareness of interactions and events—the subtle, often unspoken and unacknowledged processes that shape group beliefs, behaviors, and outcomes. The integration of implicit communication patterns (indirect messages and subconscious interpersonal awareness) and explicit communication patterns (direct messages and conscious interpersonal awareness) enables group members to more fully communicate and progressively learn and creates conditions for functional, high-performing groups (Hackman & Wageman, 2005).

The ability to enhance group learning and outcomes in an increasingly diverse workforce is consistent with the complex, evolving, and increasingly influential role of human resource development (HRD) professionals as they facilitate change within organizations (Torraco, 2005). Given the importance of team performance in reaching organizational goals, HRD practitioners have been shifting their focus from individual behaviors to team-based behaviors (Athey & Orth, 1999), honing their skills as process facilitators (Ulrich, 1997), and working to understand and improve group processes and outcomes. HRD professionals can benefit from gaining insights into how groups learn. This need is especially timely, given the diverse and multicultural membership of groups. Identifying learning readiness, communication patterns, and the emergence of conditions that foster learning will enable HRD professionals to better recognize and address group needs and facilitate change. As a result, groups will be better able to build their knowledge base and meet customer needs and at the same time develop the capacity to respond to changes in the business environment (Amram & Kulatilaka, 1999; Hult, Nichols, Giunipero, & Hurley, 2000; Schilling, 2002).

We focus on how intragroup communication patterns (implicit and explicit) and learning readiness dimensions (cue recognition, context facility, and cultural intelligence) influence a group's ability to learn as well as the type of learning that occurs. Our article is intended to address the following questions: Why are implicit and explicit communication patterns critical to a group's learning? How do these communication patterns strengthen or weaken a group's readiness to learn? How do these factors contribute to the type of learning that occurs (adaptive, generative, and transformational)? What role can HRD professionals play in helping groups improve their communication patterns and thus strengthen the group's readiness to learn, thereby enhancing the group's ability to effectively learn and reach their goals?

We build on Wilson, Goodman, and Cronin's (2007) group learning framework, with its focus on the sharing, storage, and retrieval of information. Our model addresses the distribution of learning among group members through implicit and explicit communication patterns (sharing); the retention of group knowledge through informal mechanisms such as intragroup discussions, non-verbal and enacted behaviors, and routines (storage); and the issues inherent

in accessing information due to cue recognition, context facility, and differing cultural understandings (retrieval).

This article also extends London and Sessa's model of group learning. They hold that learning triggers in the environment and the group members' readiness to learn can result in adaptive, generative, and/or transformative learning (London & Sessa, 2006a, 2006b). We add to their model by introducing three group-level constructs reflecting readiness to learn (cue recognition, context facility, and cultural intelligence) and two types of communication patterns (implicit and explicit) and by theorizing about how these interact to influence group learning outcomes.

We believe that a deeper examination of a group's readiness to learn is needed. We propose that a group is ready to learn when it is capable of effectively responding to learning triggers through three learning readiness dimensions. These dimensions, which are derived from a group's readiness to learn, enhance a group's ability to become aware of certain stimuli and the concomitant need to respond (cue recognition); enable the group to adapt their interactions, group norms, and behavioral patterns as needed (context facility); and help the group minimize cross-cultural misunderstandings and maximize cultural adaptation (cultural intelligence). Furthermore, the stronger the learning readiness, the more potential a group has to learn. These learning readiness dimensions are made stronger through the effective use of implicit and explicit communication patterns.

We begin by introducing explicit and implicit communication patterns and describe how direct and indirect messages and conscious and subconscious interpersonal awareness interact to affect group learning. Next, we introduce the three learning readiness dimensions (cue recognition, context facility, and cultural intelligence) that enable groups to respond to the demands of their environment and describe how the communication patterns strengthen or weaken these learning readiness dimensions. The proposed model is depicted in Figure 1. Explicit and implicit communication patterns directly influence the strength of the learning readiness dimensions, which in turn leads to group learning. We describe the antecedents of group learning and discuss how adaptive, generative, and transformative learning emerge. We conclude by exploring the role of HRD practitioners in helping groups strengthen their learning processes.

Explicit and Implicit Communication Patterns

Communication patterns originate at the individual level and are transmitted to group members and the group as a whole through group interactions and micro-enactments—the rapidly unfolding and often simultaneous micro-level interactions that occur between two or more individuals (Silberstang & Hazy, 2008; Stacey, 2001). Micro-enactments shape the subjective experience of

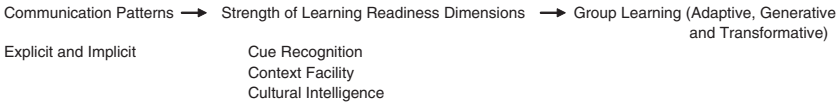


FIGURE 1: Contribution of Communication Patterns and Learning Readiness Dimensions to Group Learning

group members, providing meaning and influencing programs of action (Hazy & Silberstang, 2009).

Dynamic and changing, blatant, subtle, or barely perceptible, communication patterns form the gestalt of group learning and sense making. Depending on the circumstances, these co-occurring and overlapping patterns further the group's progress, or stall it. Whether direct and conscious (explicit), or indirect and subconscious (implicit), communication patterns enable groups to convey or conceal crucial cognitive and affective information, and keep groups on track by alerting group members to behaviors that are acceptable and those that are not.

Explicit communication patterns are intentionally used by group members to coordinate tasks, plans, and processes (Espinosa, Lerch, & Kraut, 2004); they are composed of direct messages and conscious interpersonal awareness. Direct messages are used by group members to express their thoughts, ideas, and affect through language and nonverbal behaviors. Conscious interpersonal awareness enables group members to be aware of these messages and of what is occurring around them. For knowledge to be conscious, it should have the potential to be communicated explicitly; there must be knowledge of the content, self-awareness that one possesses the knowledge, and readiness to share and use the knowledge. Whether spoken or merely understood, this "explicit representation of factuality" is akin to "knowing that I know X" (Dienes & Perner, 1999, p. 741).

Implicit communication patterns emerge when group members transmit information unintentionally or subconsciously (Espinosa et al., 2004). Implicit communication patterns are composed of indirect messages and subconscious interpersonal awareness. Indirect messages are conveyed implicitly by group members through the subtle use of language and nonverbal behaviors, often without conscious awareness (Gorman, 2002); the subconscious emotions that are communicated affect judgment and behavior, although the people experiencing them are unaware of these emotions (Winkielman & Berridge, 2004). Unspoken issues and indirect interactions lie beneath conscious awareness (Frensch & Runger, 2003). As a result, group members automatically react to events, and in turn influence the reactions of others, without realizing the implications of their behavior.

The following section will introduce cue recognition, context facility, and cultural intelligence and describe how the appropriate use of implicit and

explicit communication patterns influences group learning. For the group to learn, one or more group members must first recognize and respond to external stimuli that signal the need for change (cue recognition), have the ability to change in accordance with the group's changing norms and requirements (context facility), and understand others, especially individuals unlike themselves (cultural intelligence).

Conditions for Learning

To learn, there must be a need for change and the group must exhibit a readiness to learn or change (Sessa & London, 2006). A group's readiness to learn is a relatively broad concept that incorporates, for example, whether there is willingness to change and to learn, whether the group recognizes that change is required, whether group members can take on new roles or tasks, if they are open to novel ideas, if the group's boundary is permeable enough to absorb new information and ideas, and whether group members have worked together long enough to be familiar with each other's expertise and work habits (Sessa & London, 2008). Learning readiness dimensions, on the other hand, incorporate some of these ideas but have a much more specific focus, namely (a) whether stimuli are noticed and responded to, (b) whether there is an openness to new experiences and a concomitant ability to adapt to evolving norms over the group's life cycle, and (c) whether there is the ability, flexibility, and willingness to understand and communicate with people from dissimilar countries and cultures.

Table 1 summarizes the relationship between a group's implicit and explicit communication patterns and the members' response to the environment through cue recognition, context facility, and cultural intelligence. Implicit and explicit communication patterns influence learning readiness dimensions. Specifically, communication patterns play a large role in determining whether cues will be utilized or ignored; whether the group is able to adapt to environmental, task, and other demands; and whether communication facilitates or inhibits group functioning.

Cue Recognition

Data that conflict with the desired outcome, approaches that do not work, recurring customer service issues, the reactions of a group member to a problem, malfunctioning equipment, uncoordinated emergency responses—all of these are cues (stimuli or attributes) that a process, service, or product is not operating as intended. Cues signal the need for learning and change. They provide clues as to which behaviors will lead to the desired outcome (Rakow, Newell, Fayers, & Hersby, 2005) and assist in the transfer of learning between one group member and another (Hollingshead, 1998). For groups to learn, they must be able to relate the cues to previously encoded information (Lewis,

TABLE 1: Relationship Between Learning Readiness Dimensions and Group Communication Patterns

<i>Learning Readiness Dimensions</i>	<i>Definition of Learning Readiness Dimensions</i>	<i>Group Communication Patterns</i>	
		<i>Implicit</i>	<i>Explicit</i>
Cue recognition	Group awareness that the cue (stimulus) signals the need for change or action.	Weak cue recognition. Discussion of cues is limited or does not occur. As a result, cues are marginalized.	Strong cue recognition. Cues are discussed. As a result, weak cues may be noticed, receive attention, and become stronger.
Context facility	Group ability to adapt to shifting group processes and internal demands.	Weak context facility. Communication about issues is discouraged. Adherence to inflexible or unproductive routines.	Strong context facility. Communication about issues is encouraged. Group works to change inflexible routines.
Cultural intelligence	Group ability to adapt to cultural norms and differences among group members.	Low levels of cultural intelligence. Communication leads to misunderstandings. Stilted interactions may alienate others.	High levels of cultural intelligence. Communication facilitates understanding. Rapport is enhanced; adaptation to cultural differences.

Lange, & Gillis, 2005), discern which are relevant, interpret their meaning, and develop strategies to utilize them.

Cue recognition is the degree to which the group is aware of the stimuli and the need to make modifications or changes based on these observations. As such, it is a function of how the group reacts to its environment (Mack & Rock, 1998; Most, Scholl, Clifford, & Simons, 2005). When cue recognition is strong, group members notice stimuli signaling the need for change, recognize that the stimuli require attention, and begin to formulate ideas or solutions. When cue recognition is weak, the stimuli signaling the need for change are barely noticed, and the discussion of cues is limited or does not occur because group members shift their attention away from the stimuli and therefore fail to generate ideas or solutions.

The type of communication patterns that groups use has the potential to strengthen or weaken cue recognition. When groups rely to a large extent on implicit communication patterns, cues tend to remain weak and may not be noticed, or if they are noticed, receive scant attention. Group norms and climate, which are conveyed through subconscious interpersonal awareness and indirect messages (known as ambient stimuli), effectively limit discussions of specific cues (Hackman, 1992). They may also be weakened when two inconsistent cues are present, as individuals tend to rely more on cues that contain negative information (e.g., falling stock prices) than on the cues that contain positive information (e.g., increased sales; Miyazaki, Grewal, & Goodstein, 2005). If this predilection is shared at the group level, cues containing the positive information are likely to be marginalized.

When groups rely to a large extent on explicit communication patterns, weak cues receive more attention; as a result their greater prominence tends to strengthen cue recognition. For example, group norms of approval that are directly conveyed and understood (known as discretionary stimuli) encourage group members to notice and discuss cues (Hackman, 1992). Group members are then able to articulate a compelling reason why the cue should be considered. It is in this manner that a potentially weak cue becomes stronger and subsequently more “visible” to the group.

The ability to discern and discuss appropriate responses to stimuli through explicit communication patterns strengthens cue recognition, whereas the subtle acknowledgment or subconscious avoidance of stimuli weakens cue recognition. In most cases, explicit communication is required to identify and analyze challenges posed by cues, especially when cues point to issues that are complex and challenging. Cue recognition positions the group to maximize learning and performance. Once a cue becomes salient, the group can decide what, if any, response is required. Whether cue recognition is weak or strong, the ultimate utility lies in whether the group recognizes a worthwhile cue and whether the response to the cue leads the group down the correct path. There is no guarantee that a specific cue will lead to a successful outcome. However, the failure to recognize and respond to certain cues can, in some cases, have disastrous consequences. Therefore, as cue recognition strengthens, the group is better positioned to respond to its environment, rather than merely react, thereby enhancing group learning.

Context Facility

The second learning readiness dimension, context facility, refers to the ability of the group to navigate social interactions; adapt to current, emerging, and evolving group norms and behavioral patterns; and adjust to subtle or seismic shifts that occur throughout a group’s life cycle. The context develops as a group first forms, and changes as the group devises and deploys strategies, monitors and responds to problems, works through communication and

coordination issues, mediates interpersonal conflict, and copes with challenges and opportunities (Gersick, 1988; Hackman & Wageman, 2005). The context can be relatively stable or subject to a state of flux, depending on the circumstances and the stage of group development (Gersick, 1989).

A group's context can be thought of as the "social system within which the group operates" (Hackman, 1999, p. 240)—the conditions and interactions that shape group norms and behavioral patterns. Many different contexts shape group processes, and the processes in turn shape the group context. These interconnected contexts in part form a nexus that helps elucidate group processes (Stohl & Putnam, 2003). Our focus is on how group communication processes influence the way group members respond to and shape the intragroup context, thereby facilitating or inhibiting the group's response to its environment.

Groups with high context facility are open to new experiences. Sudden and dramatic shifts in a group's context, such as the introduction of a new team leader, new technologies, or even financial constraints provide the conditions under which change is most likely to occur (Hackman, 1999). Psychological safety is crucial for group learning and change and enables groups to possess the flexibility and willingness to adapt to new experiences (Edmondson, 2004). This emergent group-level construct fosters the tacit belief that group members operate in an environment of mutual respect and interpersonal trust (Edmondson, 1999a). When the group environment is perceived as psychologically safe, groups are able to engage in explicit communication patterns where they share sensitive information (Mayer, Davis, & Schoorman, 1995), discuss mistakes without punitive repercussions, and engage in constructive dialogue. As a result, a climate of proactive learning emerges where learning behaviors are emphasized. This learning orientation serves as a "holistic gauge of a team's overall learning propensity" (Bunderson & Sutcliffe, 2003, p. 553). Explicit communication patterns, which make use of direct messages and conscious interpersonal awareness, enable groups to openly and directly discuss issues, further enhancing context facility.

Routines can also strengthen context facility. These context-specific recurrent patterns of interaction coordinate the behavior and activities of group members. "Adaptive" or "pervasive routines" that are peripheral to the group's work are the most susceptible to change (Howard-Grenville, 2005). As routines are repeated, they reinforce patterns of interaction (London & Sessa, 2007). Routines can be stable or flexible; they develop and incrementally change but can sometimes result in inertia (see Becker's 2004 literature review). When routines outlive their usefulness and unnecessarily constrain group actions and interactions, one or more members can disrupt or change the routine by engaging in behaviors that differ from the established pattern (Weick, 1990). This is an example of how explicit communication patterns, in the form of conscious interpersonal awareness and nonverbal behaviors, can influence the context facility of group members, thereby enhancing group

performance and learning. Doing so may be especially important in situations characterized as uncertain, as a group tends to revert to established routines rather than engage in new modes of thinking and behaving (Arrow, McGrath, & Berdahl, 2000).

Groups with low context facility tend to be closed to new experiences and recurring events. They learn from the context which events are to be ignored and which events warrant attention (Elfenbein, 2007). The learning orientation of such groups tends to be weak as group members lack a shared perception of the importance of acquiring new competencies and subsequently put less of an emphasis on group problem solving and decision making (Bunderson & Sutcliffe, 2003). The group's context is largely perceived as subconscious; this is where information is framed and perception and action are influenced (Von Hecker, 2004). "Sticky routines" that are critical to the group's work are extremely resistant to change because of the problematic consequences posed by firmly established procedures, expectations, and understandings (Howard-Grenville, 2005). In this case, routines weaken context facility because they are embedded in group behaviors and norms, which rely on indirect messages and subconscious interpersonal awareness.

The group context also affects the choice of information group members are likely to share or withhold (Wittenbaum, Hollingshead, & Botero, 2004). Group members may be reluctant to share uniquely held information because of the social cost of sharing such information, especially among members perceived as having lower status (Stasser & Titus, 2003). This can be exacerbated by a climate that is not psychologically safe and therefore inhibits the expression of ideas (Edmondson, 2004). Likewise, the sharing of pluralistic views may be thwarted because of subconscious systemic organizational dynamics manifested within the group as indirect messages and subconscious interpersonal awareness. This collective-level phenomenon, known as "organizational silence," effectively suppresses discussions about the inability to discuss workplace issues and thereby inhibits group learning (Morrison & Milliken, 2000). The ability to freely discuss issues, share information, constructively approach problems, and try out new approaches to the work through explicit communication patterns sets the stage for high context facility, whereas closed communication, truncated discussions, the avoidance of problem solving, and sticky inflexible routines engenders low context facility. Explicit communication is needed to articulate and agree on a shared need for change and to identify and alter a group's social system and interactions. Changes to a group's context are never easy; they require deliberate planning and direction if they are to succeed, and must be articulated to ensure alignment with the group's mission and the organization's strategic goals. It is possible for a group's context to shift without explicitly discussing the direction or even being aware of what is happening. However, this shift may be akin to continental drift. Although the group is changing direction, the destination may be unknown, and the journey itself may take the group off course.

Cultural Intelligence

The third learning readiness dimension, cultural intelligence, is the ability of the group to understand and communicate with people from other countries and cultures (Earley & Ang, 2003). Cultural intelligence is a critical component of learning when there is diversity within a group. Interactions with diverse group members are characterized by the ability to learn from each other (horizontal diversity) rather than stereotyping others or insisting on assimilation (vertical diversity; Awbrey, 2007). This requires openness to experience (Ang, Van Dyne, & Koh, 2006), the flexibility to adapt self-concepts (Earley & Ang, 2003), the cultivation of new strategies for dealing with others, and the development of a behavioral repertoire to do so (Earley & Peterson, 2004).

Consider three facets of cultural intelligence: The first facet is the capability to rethink how one thinks about other cultures and involves the capacity to change preexisting ideas about one's own self-concept as well as preexisting ideas about people from other countries and cultures (metacognitive and cognitive). The second facet is the motivation to adapt one's behavior (motivation). Doing so requires a high level of self-efficacy. The third facet is the ability to produce culturally appropriate responses and to correctly interpret the behavior and motives of others (behavioral; Earley & Gardner, 2005). Thus, at the group level, cultural intelligence is manifested through high group-efficacy, along with new ways of thinking and acting. As such, cultural intelligence plays a key role in facilitating understanding and enabling effective communication among diverse group members. Conversely, a low level of cultural intelligence within diverse work groups has the potential to create unnecessary divisions and exacerbate miscommunication.

Groups with high levels of cultural intelligence are aware of and sensitive to the commonalities and differences that exist between group members. They take action to minimize misunderstandings and maximize cultural adaptation. They learn to cross cultural boundaries and display newly acquired verbal and nonverbal behaviors (Earley & Ang, 2003). When operating in high-context cultures, for example, groups with high levels of cultural intelligence adapt by sending explicit messages that are culturally appropriate, and learn to communicate subtly through implicit messages. They utilize conscious interpersonal awareness to become aware of acceptable practices. Their behaviors and micro-enactments, over time, may reflect a subconscious interpersonal awareness that exhibits sensitivity to culturally appropriate group norms.

Conversely, groups with low levels of cultural intelligence lack an awareness of commonalities and differences and may inadvertently alienate others through their words and actions. Differences between group members tend to exacerbate communication issues and facilitate misunderstandings (Campion, Medsker, & Higgs, 1993). To facilitate performance in multinational and multicultural corporations, groups must be able to adapt to cultural norms within

the group and between groups from different regions, religions, cultures, and countries; within the organization itself (Silberstang, 2006); and between occupational subcultures (Trice & Morand, 1991). Although implicit communication patterns are an important component of cross-cultural interactions, and play an especially critical role in high-context cultures, explicit communication patterns provide the tools that facilitate understanding. Because cross-cultural nonverbal behaviors are easily misunderstood and misinterpreted, directly asking about the behavior helps elucidate meaning (Patton, 2002). Groups must also try to become aware of culturally embedded subconscious interpersonal interactions and indirect messages that are representative of those they work with, and understand and incorporate these communication patterns into their personal repertoire, as best they can. This type of double-layered acculturation, where individuals are challenged to work with an organizational culture and country culture that differ from their own is an increasingly critical skill in the global business environment as firms merge, are bought out, work with international partners, or interact with their own foreign subsidiaries (Barkema, Bell, & Pennings, 1996).

The ability to ask about, discuss, and consciously adapt one's behavior is critical to the acquisition of cultural intelligence. Although some adaptation takes place on a subconscious level, by mirroring the behavior of others, it is incumbent on group members to engage in metacognitive and cognitive, motivational, and behavioral responses to become more culturally intelligent. Once that occurs, high levels of cultural intelligence will be reflected through explicit and implicit communication patterns.

Implicit and explicit communication patterns directly influence the strength of the learning readiness dimensions. Group members are more likely to discuss cues when explicit communication patterns predominate, whereas the same cues may be ignored when implicit communications are most prevalent. Likewise, there is a greater likelihood that a high context facility will be created and sustained when the group uses explicit communication patterns to address changes to a group's social system and interactions than when these issues remain implicit and are not directly addressed. Finally, explicit communication patterns enable groups to acquire cultural intelligence competencies that might not be obtained if communication was implicit.

Overall, groups with high cue recognition, context facility, and cultural intelligence are able to discuss situations explicitly, decide whether the group needs to learn, and determine how much the group needs to learn. The effects of high and low levels of the learning readiness dimensions on adaptive, generative, and transformative group learning is discussed in the next section.

The Group Learning Process

Communication patterns and group learning readiness have a key role in determining how and whether groups learn and the types of learning that

occur. This section examines how adaptive, generative, and transformative group learning processes emerge and how each of these learning processes are affected by communication patterns and learning readiness.

Antecedents of Group Learning

Group learning processes range from slight behavioral modifications (adaptive learning), to more proactive and innovative approaches (generative learning), to fundamental changes to the group and its approach to the work (transformative learning) (London & Sessa, 2006a). The emergence of adaptive, generative, and transformative learning depends on the group's readiness to learn, the external and internal triggers in the environment that propel the learning process (Sessa & London, 2006), and the group's communication patterns, which in turn influence the strength of the learning readiness dimensions.

Adaptive, generative, and transformative learning vary in the degree to which groups are able to engage in learning that is appropriate given the circumstances and that is in concordance with the group's mission, timelines, resources, and life cycle. For instance, will the group gain insight regarding how they operate as a team, thereby enhancing their transportable competencies (Canon-Bowers, Tannenbaum, Salas, & Volpe, 1995; Stevens & Campion, 1999)? Will the group members acquire or improve knowledge, skills, and abilities specific to their group and task, thereby improving their context-driven competencies (Chen et al., 2002)? Will the members be able to identify learning opportunities and conduct their own learning interventions thereby developing the capacity to assess and improve the efforts and outcomes of their group and subsequent groups they may join (Silberstang & Diamante, 2008)? Will the group be able to explicitly discuss the situation, decide whether the group needs to learn, how, and how much?

Generally, a high-context environment supports a strong group learning orientation so that group members feel free to question and reexamine group assumptions, norms, and approaches and identify and resolve problems (Baker & Sinkula, 1999). Consensus-driven groups exhibit a great deal of intensity during their discussions by exchanging more information and spending more time discussing issues and options (Schulz-Hardt, Brodbeck, Mojzisch, Kerschreiter, & Frey, 2006). Thus, the flow of communication within the group, especially among members with diverse intraorganizational and cultural backgrounds, ideas, and values, reflects high levels of cultural intelligence. It is in this manner that the context facility and cultural intelligence of group members interact to create conditions conducive to group learning. With the exception of adaptive learning, where responses to cues are somewhat automatic and subconscious, cue recognition is strong. Overall, when learning is appropriate to the circumstances there is a "healthy" mix of implicit and explicit communication patterns. However, learning that takes

place at an inopportune time can interfere with goal attainment (Ford & Sullivan, 2004). Even debriefings to capture lessons learned can backfire when cue recognition is weak because issues may not be recognized, when context facility is low because the group's norms may be so rigid as to prevent open discussions, and when cultural intelligence is low because misunderstandings are not rectified.

Groups operate within a system of contextual dynamics in which the environment and their response to the environment are constantly shifting and in which "different levels of group dynamics take place simultaneously and inter-dependently" (Arrow et al., 2000, p. 9). Thus, groups may exhibit one kind of learning regarding one issue and respond to another potentially more controversial or critical issue in an entirely different manner. Although the focus in this article is on group-level learning (both the process and the outcome), appropriate and inappropriate kinds of learning also occur at the individual and organizational levels. Just as it is unrealistic to expect that all individuals will learn in a learning organization, not all group members are expected to learn when a group learns (although that would be the ideal situation). We focus on an aggregate, that is, how the group operates overall, and the outcome of the group's performance. As groups operate in multiple embedded contexts, learning can have repercussions within the group, between groups, and outside the group (to include organizational and extra-organizational effects; Arrow et al., 2000). The inability of a group to engage in appropriate learning behaviors can ultimately affect the entire organization, as it can negatively affect organizational learning, organizational change efforts, and the firm's competitive advantage.

Adaptive Group Learning

Adaptation is the basic building block of learning. For groups to be effective, they must adapt (Burke, Stagl, Salas, Pierce, & Kendall, 2006). Adaptation is an almost automatic reaction to an event or issue that is usually unspoken and unplanned. When adapting, group members make small, incremental changes to their work to maintain the status quo (LePine, 2005; Pulakos, Arad, Donovan, & Plamondon, 2000). Groups use a single-loop process to make their present strategy more effective through the detection and correction of an error (Argyris & Schön, 1996). As adaptation focuses on behavioral, rather than cognitive changes, group learning per se does not actually take place (Wilson et al., 2007), and therefore groups ostensibly fail to learn. Yet adaptation is a useful construct to depict changes and improvements that groups make, as they learn how to cope with contextual and task demands.

Adaptive learning is triggered by a cue that signals the need for change or improvement. These cues originate from within the group (e.g., a disrupted work process or intragroup conflict) or outside the group (e.g., pressure to increase productivity, changing customer needs, or the introduction of a new technology). When the problem is resolved through a minor adjustment,

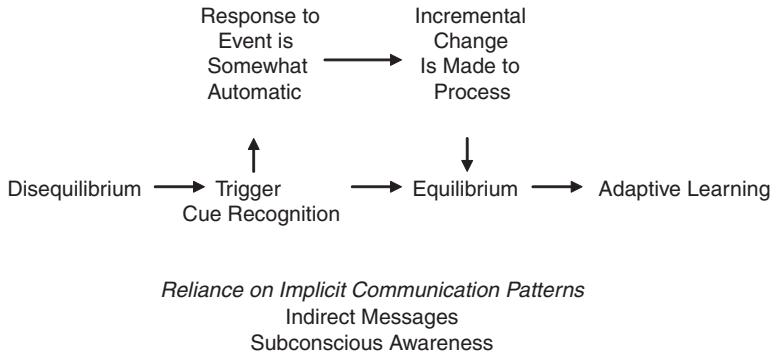


FIGURE 2: The Adaptive Group Learning Process

adaptive learning ends and the system reverts to a relative state of equilibrium. Adaptive learning is ongoing as groups and group members make minor adjustments in the course of their work. Figure 2 depicts such a process, whereby a group member reacts to a relatively minor issue. As illustrated, disequilibrium (the issue) triggers cue recognition. As cue recognition is weak, the group member makes a minor adjustment, without discussing the temporary fix. In this situation, context facility and cultural intelligence have little or no effect on the learning process.

During adaptive learning, groups rely primarily on implicit communication patterns so that indirect messages and subconscious interpersonal awareness prevail. Procedural knowledge, which is implicitly held, enables this type of response to remain relatively automatic (Dienes & Perner, 1999). As such, adaptive learning does not always help the group learn per se, as communication about the issue usually remains unshared among group members. The group context and cultural intelligence levels do not often come into play, as the issues that arise are relatively minor. Whether groups engage in the right kind of adaptive learning is dependent on the adequacy of the response, whether the group as a whole needs to learn, and whether a reoccurrence would be relatively benign, problematic, or catastrophic.

Generative and Transformative Learning

Generative learning is intentional, proactive learning that occurs in response to outside pressures or for the sake of self- or group improvement. Group members use a double-loop process, and by doing so, modify the present strategy. They question and potentially alter the group's and organization's objectives, policies, and norms (Argyris & Schön, 1996). As a result, group members acquire new knowledge, skills, behaviors, and patterns of interaction. Groups

in the midst of generative learning draw on explicit and implicit communication patterns (direct and indirect messages and conscious and subconscious interpersonal awareness) to enhance learning and performance.

Transformative learning, which can be considered an offshoot of generative learning, is the most radically reactive of all the learning processes. Group members dramatically change their view of what they should work on and how they should carry out their work (Howard, 1995). The present strategy is abandoned as the group goes outside the loop and reinvents itself, its purpose, and its goals. A prerequisite for bringing about this type of change is the recognition that change is required (Hannan, 2003). During transformative learning, implicit and explicit communication patterns are used by the group to redesign their approach to the work and mode of operating. These communication patterns ideally strengthen cue recognition, build a flexible group context, and encourage high levels of cultural intelligence, thereby maximizing group communication, coordination, and learning.

Learning Progression

Group learning has the possibility of becoming increasingly progressive, moving from adaptive to generative as issues arise, and to transformative as the group's approach to its work and process matures, and outside demands require creative solutions. However, it does not necessarily follow a progression, as readiness to learn and internal and external forces shape the learning process (Sessa & London, 2006).

Group learning, whereby group members share, store, and retrieve knowledge (including behavioral and group routines), involves "a change in the group's repertoire of potential behavior" over time (Wilson et al., 2007, p. 1043). Learning occurs as these shared cognitive group-level changes occur, whether or not an action is taken. Even when groups do take action, there is no guarantee that their efforts will be successful. Group learning is iterative, and false starts are to be expected. Furthermore, rapidly changing, high-stakes environments place unexpected and unpredictable stresses and demands that contribute to a group's inability to reach desired outcomes. In complex and high-stress environments, effective, up-to-date communication is essential for group learning (Sims & Salas, 2007).

Inappropriate Learning

The interaction between the demands of the environment (for learning and change) and the group's pattern of communication give rise to their ability to deal with recurrent and emerging group processes, work-related tasks, and other issues. Sometimes groups are able to respond by routinely fixing a problem (adaptive learning). They may acquire new knowledge and skills that are needed to perform the work, reflect on their performance, and learn from their

actions within a suitable time frame (generative and transformative learning). Such groups are generally better able to deal with recurrent and emerging group processes, work-related tasks, and other issues and make progress in carrying out their mission and goals.

On the other hand, when groups engage in learning that is inappropriate given the circumstances, they may continue ineffective routines. They use their knowledge and skills inappropriately, do not obtain new insights about their performance or from the outcomes of their efforts, and depending on the situation, repeat ineffective responses and behaviors in a different context, get stuck in counterproductive routines, or tend to blame others for their shortcomings. Thus, groups that engage in these behaviors are not adequately equipped to understand and overcome group process issues, the work itself, and other problems that may occur and are less likely to reach their goals in a timely manner.

Weak cue recognition, context facility, and cultural intelligence can all contribute to a group's inappropriate learning behavior. The group as a whole may experience learned helplessness, feel disempowered, and subsequently lose the motivation to persevere (Petersen & Steen, 2002; Simkin, Lederer, & Seligman, 1983). Although competing explanations for this phenomenon exist (Brockner, 1992), group members tend to attribute a failed outcome to the group rather than take personal responsibility (Zander, 2006). Groups feel less personal responsibility and make fewer attempts than individuals acting alone to try and overcome a failed situation (Hogg, Martin, & Weeden, 2003; Whyte, 1991).

Conversely, groups may persevere in the face of failure. The tendency for groups to escalate commitment to a failing course of action has been well documented (Jones & Roelofsma, 2000). Rather than giving up, group members may become even more set in their ways and justify their maladaptive actions. Although group members may sense that something is amiss, the communication patterns may be so entrenched that group members fail to voice their opinions and rely instead on indirect messages and subconscious interpersonal awareness. This overreliance on implicit communication patterns in response to emerging group and organizational needs illustrates how communication patterns can interfere with effective group learning and functioning. It is the antithesis of how groups should ideally function. Ultimately, if the group does not learn new approaches, the organization fails to learn (Senge, 1990).

HRD Practitioners Role

HRD professionals can help groups transform their learning patterns through their role as process facilitators, consultants, and change agents. There are many opportunities within a group's life cycle in which HRD practitioners can address communication patterns and intervene to help strengthen the

group's cue recognition, cultural intelligence, and context facility. Some of these opportunities are described below.

When working with newly formed groups, HRD practitioners can design and assign task-related exercises that enable members to coalesce as a group, establish a collective identity, and develop a climate characterized by openness and trust. This will enable group members to become more attuned to one another's interests, background, experience, and communication styles and sets the stage for constructive group dialogues. As groups become more mature, HRD practitioners can observe group behavior over time and gain insights from group members as events unfold, or as temporally close to these events as possible (O'Connor, Rice, Peters, & Veryzer, 2003). Based on their analysis of the situation, they can intervene to assist groups by focusing on group communication patterns.

HRD professionals can conduct "micro-interventions" that would enable a group to surface, verbalize, and question implicit, unspoken assumptions. They can intervene by drawing the group's attention to indirect messages and subconscious interpersonal awareness, thereby providing groups with a unique opportunity to make implicit knowledge explicit. This very act of "recursively drawing our attention to how we draw each other's attention to things" (Tsoukas, 2003, p. 410) helps groups integrate implicit and explicit communication patterns. For example, groups often miss or misread cues and therefore repeat ineffective behaviors. HRD practitioners can point out cues that groups may have missed or avoided as well as the behaviors that ensued.

When a group is experiencing discord and fails to discuss or adequately respond to an issue, HRD practitioners, serving as facilitators, can conduct a micro-intervention to help the group become aware of and directly address the problems. Facilitators can, for example, lead group discussions so that assumptions are reexamined, alternative solutions generated, and a new plan is developed and implemented. Or depending on the needs of the group, the facilitator can conduct conflict negotiation sessions so that task-related issues are discussed more freely. Once the group begins to focus more on explicit communication patterns, the resulting shift from low levels of cue recognition, context facility, and cultural intelligence to high levels enables the group to move to a learning process that is more appropriate to meeting their goals. This generative group learning process is illustrated in Figure 3. Once the intervention has been undertaken, ideally the group will move toward a better balance of implicit and explicit communication patterns.

Providing verbal feedback helps groups focus on performance so they can make progress toward their goals (Dickinson & McIntyre, 1997). It can also help groups develop the skills to monitor the behavior of other group members and to provide their own verbal feedback as the work is being carried out. When group members learn to provide this type of feedback, group performance is enhanced (Marks & Panzer, 2004). As groups learn to become more explicit, cultural intelligence levels would be strengthened and a more flexible

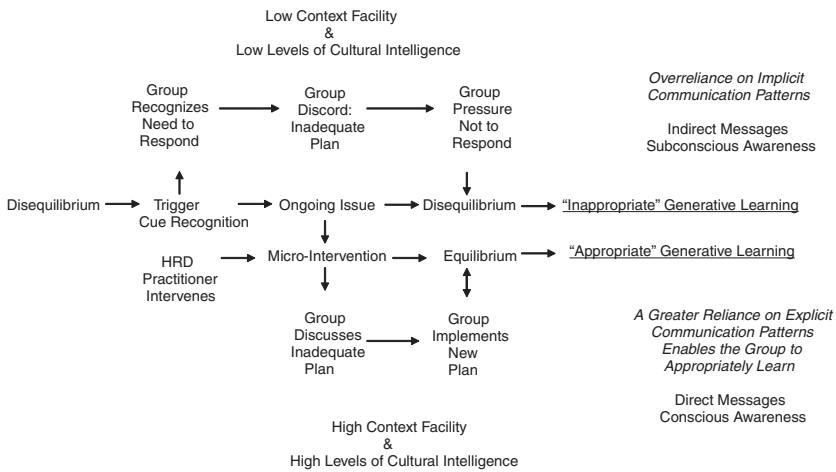


FIGURE 3: HRD Practitioner Intervention: Generative Group Learning

group context would support changes to behaviors and routines. It is in this manner that groups would strengthen their ability to engage in the right kinds of learning patterns.

Groups that use and explore a wide range of implicit (i.e., indirect, subconscious) and explicit (i.e., direct, conscious) communication patterns at appropriate points in the group’s life cycle, thereby strengthening cue recognition, context facility, and cultural intelligence, have the potential to more fully understand and manage group dynamics and processes (Silberstang & Diamante, 2008).

Conclusion

This article extended the literature on group learning, to provide a fuller description of how groups learn, both intentionally through explicit communication patterns (direct messages and conscious interpersonal awareness) and unintentionally through implicit communication patterns (indirect messages and subconscious interpersonal awareness). We introduced three learning readiness dimensions, namely cue recognition, context facility, and cultural intelligence, and described how the communication patterns directly influence the strength of the learning readiness dimensions. We described how the intragroup communication patterns (implicit and explicit) and the learning readiness dimensions (cue recognition, context facility, and cultural intelligence) influence a group’s ability to learn as well as the type of adaptive, generative, and transformative group learning that occurs. We discussed how groups can enhance group learning by shifting, when appropriate, to a greater reliance on explicit

communication patterns. We also proposed that high levels of cue recognition, context facility, and cultural intelligence contributes to learning that is ultimately beneficial to the group, whereas low levels of these learning readiness dimensions are likely to suboptimize group learning and performance.

Finally, we encourage HRD professionals to take the lead in helping groups become better able to engage in explicit communication patterns; this need is especially strong in culturally diverse groups. When HRD professionals facilitate the learning process and guide the learning outcome, they can help strengthen cue recognition so that issues requiring correction are noticed and addressed, enhance context facility so that group norms and routines create a learning climate, and increase cultural intelligence levels so that group members openly discuss and debate how to best address and correct performance deficiencies. As a result, groups will be better positioned to help their organizations facilitate change and compete in an increasingly global and multicultural environment.

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