Developing the Group Mind
Through Functional Subgrouping:
Linking Systems-Centered Training (SCT) and Interpersonal Neurobiology

SUSAN P. GANTT, PH.D.
YVONNE M. AGAZARIAN, ED.D.

ABSTRACT

This article introduces the systems-centered concept of the “group mind” by linking systems-centered thinking and interpersonal neurobiology, building on Siegel’s definition of mind as the process of regulating the flow of energy and information. Functional subgrouping, the systems-centered group method for resolving conflicts, discriminates and integrates the flow of energy and information within and between group members, subgroups, and the group-as-a-whole, thus potentiating survival, development, and transformation. This article uses the interpersonal neurobiological framework to discuss functional subgrouping as a tool for developing the group mind: considering how functional subgrouping facilitates emotional regulation, creates a secure relational context, and potentiates neural integration.
In this article, we build a link between the emerging insights of interpersonal neurobiology and the systems-centered group method of functional subgrouping. Specifically, we discuss how functional subgrouping can be understood from the perspective of interpersonal neurobiology as a tool in developing the “group mind.” In this process, we propose a new definition of group mind markedly different from the original formulation by Le Bon (1896), with his emphasis on crowd psychology, or McDougall’s (1920) focus on the interaction of individuals thinking together, or even Durkheim’s (1966) emphasis on the collective aspects of a group or society as an organism. Instead we propose a definition of group mind that builds on interpersonal neurobiology and systems-centered theory and practice.

INTERPERSONAL NEUROBIOLOGY

The last 15 years have brought a new understanding of the brain and most especially of experience-dependent neuroplasticity. Neuroplasticity refers to the brain’s capacity to change its patterns of neural connectivity in response to experience (Badenoch, 2008). In fact, Kandel (2006) was awarded the Nobel Prize in 2000 for demonstrating that certain genetic potentials in the brain are experience-dependent for activation. Repeated neuron firings at synapses can increase the density of neural circuits and form new ones, similar to Hebb’s (1949) idea that repeated firings of one neuron followed by the firing of another strengthen this neuronal connection. There is growing empirical evidence in the literature that supports these ideas. For example, individuals who meditate have increased neural thickening in the middle prefrontal cortex and right insula areas of the brain, areas associated with attention, interoception, and sensory processing (Lazar et al., 2005). London cab drivers have larger hippocampal volume, an area of the brain related to spatial mapping (Terrazas & McNaughton, 2000), and musicians have thickening in auditory areas of the cortex (Menning, Roberts & Pantev, 2000). Song, Stevens and Gage (2002) have discovered new stem cells forming (neurogenesis) in the hippocampus, stimulated both by novel experience and exercise.
The extraordinary proliferation in research on neuroplasticity has accelerated the focus on the relationship between the brain, the mind, and interpersonal relationships. Notably, Siegel (1999, 2006, 2007), Cozolino (2002, 2006), Schore (2003a, 2003b), and Badenoch (2008) have linked brain functioning and interpersonal experience, an area of focus now called interpersonal neurobiology (IPNB).

Siegel (1999) proposed a definition of mind as an embodied and relational process that regulates the flow of energy and information, and which “develops at the interface of neurophysiological processes and interpersonal relationships” (Siegel, 1999, p. 21). He later added that “mind develops across the lifespan as the genetically programmed maturation of the nervous system is shaped by ongoing experience” (Siegel, 2006, p. 249). These ideas emphasize the role of interpersonal relationships in brain development and their involvement in the ongoing plasticity of the brain. Most importantly, Siegel has reviewed brain research in a way that makes it accessible to clinicians and educators (Siegel & Hartzell, 2003). He (1999, 2007) has highlighted the role of the middle prefrontal region (consisting of the anterior cingulate, orbitofrontal, medial, and ventral regions of the prefrontal cortex) in integrating information from the body, limbic region, and cortex and has emphasized how crucial this integrative processing is in interpersonal relationships and attachment patterns. In addition, he described how focusing attention activates neuronal firing which, with repetition, can lead to the development of new sustained patterns of neuronal activation. Applying this research to psychotherapy, he introduced the acronym SNAG (stimulating neural activation and growth), or “snagging the brain,” as an important conceptual and technical tool for psychotherapists. For example, activating the right-brain with sensory awareness exercises can be useful with avoidantly attached patients to stimulate neural connection between the right and left hemispheres (Siegel & Hartzell, 2003). Lastly, Siegel (2007) organized the research in terms of domains of neural integration, for example, cortical to subcortical (vertical integration), right to left (horizontal integration), and others that are important in mental health, proposing that effective psychotherapy can enhance these processes of neural integration.
Cozolino (2002, 2006) has also reviewed the brain research literature extensively and has identified aspects of psychotherapy that maximize neural integration. He highlights the role of the therapeutic relationship for making the attachment circuits in the brain more modifiable, the importance of moderate emotional arousal for creating the kind of new experience that promotes neural plasticity, and neural activation that enables a re-regulation between cognitive and emotional processing, including developing new narratives that guide new behavior (Cozolino, 2006).

Schore (2003a, 2003b) has focused on mechanisms by which the therapeutic relationship can alter the neurobiological processes related to affect regulation, building on his seminal work in understanding how affective regulation patterns originally developed in the context of early attachment relationships. From his understanding of the neurobiology of early development of affect regulation structures in the brain, he has linked neurobiological research to the remediation of affect regulation structures in psychotherapy, emphasizing the importance of micro-second right-brain to right-brain communications between therapist and patient.

Badenoch (2008), who describes herself as “third generation” in the IPNB field, has provided a concise summary of the neurobiological research most relevant for psychotherapy. She suggests that psychotherapy is “a process of mutual engagement that . . . changes both function and structure in the brain in the direction of neural integration” (p. 11).

This interpersonal neurobiological perspective has utilized research on the brain to understand how psychotherapy helps change the brain in the direction of greater neural integration and more secure attachment. In addition, IPNB applies neuroscience research in excogitating how to deliberately enhance the impact of psychotherapeutic processes on neuroplasticity and neural integration.

Models of the Brain

Though summarizing the research bases of interpersonal neurobiology is beyond the scope of this paper (Badenoch, 2008;
Cozolino, 2006; Siegel, 1999), it is useful to describe basic models of brain function relevant for our discussion. One long-standing model divides the brain into three areas: brainstem, limbic, and cortex.

The oldest region in terms of phylogeny is the brainstem, which manages the physiological state of the body, for example, heart rate, breathing, arousal. Next is the limbic area, the emotional/motivational center in the brain which includes the amygdala, hippocampus, and hypothalamus, among other structures. In new situations, the amygdala makes a rapid judgment about safety. This judgment then motivates action—to stay present and engage if there is safety, or to defend or flee if there is danger. The amygdala encodes these experiences as implicit memories. For the first 12-18 months of life, this is the only kind of memory available. Implicit memories are encoded as behavioral impulses, bodily sensations, emotions, perceptions, and sometimes, fragmentary images. When activated, we experience these implicit memories as “the way it is” (Badenoch, 2009) in the present, rather than recalling it as a past experience. These implicit encodings form the basis of our “taken for granted” assumptions, perceptions, and beliefs about our selves, our relationships, and our sense of how trustworthy the world is. Understanding this is especially important in group therapy as implicit relational assumptions always influence members’ relating without explicit awareness of that influence. At about 12-18 months, the hippocampus matures and explicit memory gradually develops. The hippocampus integrates implicit memories into a coherent memory with a timeframe. I can then know, “I was frightened yesterday,” instead of feeling fearful with no context. Responding to the perception of safety or lack of safety, the hypothalamus and pituitary control the neuroendocrine system, which prepares our body to remain in connection if safe, or fight, flee, or freeze if not safe. The limbic region adjoins the middle prefrontal region of the cortex, which, when integrated with the limbic, provides for emotional and relational regulation. The cortex, the outer layer of the brain, receives sensory information (occipital, parietal, and temporal lobes) and integrates it with information from the body and limbic areas into a fully formed experience.
Another perspective highlights the right and left hemispheres. Each lobe is considered a specialized processing system, with the left biased toward linguistic processing and the right toward emotional and bodily experiences (Cozolino, 2006). The right brain dominates early development (the first two years) and is strongly involved in stimuli appraisal, holistic and emotional understandings, and mapping body awareness. The right brain has stronger limbic connectivity and is more inward-looking, and more oriented to withdrawal. The left brain is more linear, logical, literal, and language-dominated (Siegel & Hartzell, 2003), and more outward toward the world, with an approach orientation.

Other research has generated models that describe integrated neural networks like the fear system and social engagement system (both discussed later in this paper). IPNB has focused on the “social brain” (Cozolino, 2006) that includes both the limbic (amygdala, hippocampus, hypothalamus) and the middle prefrontal regions of the cortex, mostly in the right hemisphere (Badenoch, 2008) that work together in processing and integrating inner emotional and bodily experience and social information. The IPNB paradigm has also emphasized integration of right and left hemispheres as the linguistic left creates meaningful narrative from the input of the holistic right. Siegel (2007), building on Iacoboni’s (2007) mirror neuron research, framed a resonance circuitry, which includes the mirror neuron system, the insula, superior temporal cortex, amygdala, and the middle prefrontal areas. In addition, Siegel (2006, 2007) has synthesized the research on the middle prefrontal area and has identified nine functions that emerge as these circuits integrate with the limbic region: regulation of the body, attuned communications, regulation of emotion, response flexibility, empathy, insight, fear extinction, intuition, and morality. Most importantly, he has recognized that the first seven of these are also named as outcomes of secure attachment in attachment research, leading Siegel to suggest that fostering integration between the middle prefrontal cortex and the limbic regions has important implications for working with attachment issues in psychotherapy.
A THEORY OF LIVING HUMAN SYSTEMS AND SYSTEMS-CENTERED THERAPY

The idea of a “group mind” comes from thinking about a group as a living human system. Agazarian (1997) developed a theory of living human systems (TLHS) which defines a hierarchy of isomorphic systems that are energy-organizing, goal-directed, and system-correcting.

Hierarchy describes a living human system as a set of three systems, where each exists in the context of the system above it and simultaneously is the context for the system below it in the hierarchy. Living human systems always exist in context, never in isolation. This hierarchy of interdependent systems organizes the flow of energy and information toward the goals of survival, development, and transformation.

For example, a psychotherapy group can be conceptualized as a set of three systems, schematized as three concentric circles. The innermost circle is the person system, the source of energy for the hierarchy. In the middle circle, member systems, which emerge from the person system, organize to form transient subgroup systems. In turn, the group-as-a-whole, the outermost circle, emerges from the subgroup organizations of energy and information. Organizations of energy and information in each system impact the other systems in the hierarchy, and each system both influences the development of the system above it and below it, and is simultaneously influenced by them.

The systems in a defined hierarchy are viewed as isomorphic (defined as similar in structure and function). Structure is defined as boundaries that open or close to the flow of energy/information. Living human systems function to discriminate and integrate information (finding differences in the apparently similar and similarities in the apparently different) in the service of survival, development, and transformation. Thus, whatever one understands about the flow of energy/information in one system in the defined hierarchy of three will be useful in understanding all other systems. For example, with a psychotherapy group, understanding something about how the subgroups in a group are discriminating and integrating information informs us about both the individual members and the group-as-a-whole.
THE GROUP MIND

Building on the SCT understanding of isomorphy, we propose that the mind as Siegel defines it (an embodied and relational process that regulates the flow of energy and information) is a characteristic of every living human system (Gantt, 2007). In this paper, we apply this idea to a psychotherapy group. Thus, we conceptualize the group mind as the interdependent process between the members, subgroups, and group-as-a-whole that regulates the flow of energy and information within the system of the psychotherapy group.

This version of group mind provides a schema for building links between interpersonal neurobiology and group therapy. We start by proposing that one function of group psychotherapy is to develop a group mind that serves as an experiential context that regulates the flow of energy and information in which the minds and brains of its group members can develop. As members develop their minds (by discriminating and integrating information in the direction of increasing neural integration), this releases more and more potential energy/information for the group mind. In turn, as people contribute more energy/information as members, this adds more resources for developing the group mind that then again changes the brains and minds of its members. We see this recursive process as a primary goal of every psychotherapy group.

In making this proposition, we are not excluding the potential for developing groups that are mind-numbing rather than mind-developing. For example, the work on “group think” (Janis, 1972) demonstrated how easily groups can become closed-minded as group norms dominate the individual. Similarly, Asch’s (1951) study on social conformity, Zimbardo’s Stanford prison study (Haney, Banks & Zimbardo, 1973), and Milgram’s (1963, 1965, 1974; Burger, 2009) experiments on obedience all point to a similar understanding. Berns (Berns et al., 2005) has replicated Asch’s study using functional magnetic resonance imaging of the brain and identified the “distortion” from social pressure as activating the parietal and occipital regions, suggesting that the social context actually impacted perceptions. All of this research supports the idea that the emerging dynamics of the system have a greater
influence on the behavior of individuals in the system than the individual’s own dynamics.

This then underscores the charge to us as group therapists: to work explicitly to develop a group mind that not only potentiates problem-solving but also creates experiences that develop the minds and brains of the group members. From an IPNB view, this means considering how our groups do or do not create environments that increase the potential for neural integration. Using the work that Siegel, Schore and Cozolino have done on how psychotherapy can impact the brain and the mind, we posit that maximizing neuroplasticity requires creating an experiential group environment that provides a secure relational context, where moderate levels of emotion can be experienced with the containment that enables modulation and integration. This facilitates the integration and reintegration of cognitive and emotional elements of human experience that, in turn, increases access to the range of human experience and capacity for regulating one’s experience with one’s self and with others.

Using this IPNB framework, we next consider whether functional subgrouping, a core method in systems-centered groups, contributes to developing a group mind with the kinds of experiences that enhance neural integration. Is functional subgrouping useful in containing emotional arousal and facilitating emotional modulation in the flow of energy and information? Second, how is functional subgrouping relevant in creating a secure relational context? Third, how does functional subgrouping foster a group mind that potentiates the integrative systems in brain function toward greater integration capability? The remainder of this article describes both the process of functional subgrouping and the neurobiological models that help us address these questions.

WHAT IS FUNCTIONAL SUBGROUPING?

Functional subgrouping is a conflict resolution method (Agazarian, 1997), implementing the theoretical idea that living human systems survive, develop, and transform through the process of discriminating and integrating differences, both the differences in the apparently similar and the similarities in the apparently different. Information is the energy of living human systems. Un-
fortunately, as human beings, we react to differences in information as though they are dangerous (sympathetic nervous system arousal), so we often close our mind to differences that are too different from what we know.

By organizing communications so that the reactions to differences can be modulated and contained, functional subgrouping enables the energy/information in differences to be used in the service of the group’s development. Functional subgrouping interrupts typical group phase communication patterns (Agazarian & Gantt, 2003) that fixate the flow of information by avoiding differences (flight phase) or attacking them (fight phase). In the flight phase, members often try to advise or help others, frequently creating the roles of an “identified patient” and “helpers” in the process, as when a member talks about being anxious while other group members speak up to reassure or sympathize or ask questions about the member’s anxiety. In this communication pattern, the flow of energy/information is from the “helpers” to the “identified patient.” This kind of communication pattern fixates group development (Agazarian & Gantt, 2003). Neither the information contained in the “helpers” nor the “identified patient” subsystems will be explored. Introducing functional subgrouping, in contrast, changes the communication pattern so that all those “wanting to help” explore this impulse together and those “wanting to be helped” explore together in two separate subgroups.

In the fight phase, group members typically refute differences with “yes, but’s” and elect a scapegoat to contain the differences the group has not yet explored (Agazarian, 1997; Cohen & Schermer, 2002; Gemmill, 1989; Horwitz, 1983; Moreno, 2007). Moreno (2007) provided an example of a group starting to scapegoat a member who was angry. Using functional subgrouping enabled the group to explore their different relationships to anger, with one subgroup joining the angry member to explore being angry and another subgroup exploring the pull to withdraw and avoid the anger.

Functional subgrouping interrupts stereotyped group patterns by introducing an alternative communication pattern: this process is implemented by training group members to ask, “anyone else?” when they are finished with what they are saying. For example,
Doris begins by saying, “I’m anxious, anyone else?” The phrase “anyone else?” lets others know Doris is finished and wants to be joined. Members then learn to join and build with their similarity and resonance. Donna joins by saying she is anxious too and then builds by adding, “I am all fluttery, not knowing how this is going to go. Anyone else?” In this way, functional subgrouping builds resonant subsystems as members join together. In these subsystems of relative similarity, energy/information can be more easily discriminated and integrated in contrast to the closed subsystems or stereotyped roles like “identified patient” or “scapegoat.” As each subgroup works in turn, within the subgroup environment of comfortable similarity, members begin to notice and accept “just noticeable differences.” This is the step of noticing differences in what was apparently similar. When a member voices a difference that is “too” different from the subgroup that is working, the leader first validates the importance of this difference, and then asks the member to start a new subgroup when the current subgroup has finished its exploration. This enables group exploration to take place in the context of subgroups of similarity and resonance, and ultimately enables the exploration of any human experience. For example, as mentioned earlier, a therapy group working in the flight phase would often have one subgroup exploring the impulse to help and “make things right” and the other exploring the wish to be helped and “taken care of.” These subgroups contain and explore the human experiences of anxiety and dependency that are inevitable in early group life.

When a subgroup pauses and is ready for a difference, a member starts a “different” subgroup and members who resonate join together and build this subgroup. And again, in the new subgroup, members begin to discover the just tolerable differences with each other. Over time, group members discover the similarities between what were initially two different subgroups, and integration takes place in the group-as-a-whole.

At the beginning of a therapy group, it is not uncommon for subgroups of “anxious” and “excited” to emerge. This is illustrated in the following example:

Tom: I feel like on the edge of my seat and ready to go, like a horse at the gate. Anyone else?
Dick: Yea, I am excited to be here and eager for what is going to happen. Anyone else?

Harry: I am full of energy and love it that you are, too. In fact, I feel more relaxed with my energy as I hear you have it too.

The members in this subgroup are resonating and enjoying discovering others are with them. As they explore together, their experience deepens and they relax more, as the excitement gets contained in the shared resonance. This illustrates how mirror neurons and resonance circuits can create a social environment supportive of neural integration. As this subgroup pauses, another forms, one that voices anxiety:

Steve: I feel a little uncomfortable here.
Leader: Remember to ask, “anyone else?”
Steve: Anyone else?
Sally: Me.
Leader: Be sure and look at Steve and talk to him as you are joining him.
Sally: OK, me too. I am anxious that this group might not be a good place for me to be. Anyone else?
Tripp: Me too. And I am so glad you feel that way, too. Anyone else?
Steve: YES, I am very relieved, in fact, that you both are more like how I feel. Anyone else?

Because resonating with others creates an experience of being seen and felt, discussing one’s anxiety with others in a subgroup who feel similarly is invariably calming, so this subgroup’s joining on the experience of anxiety actually contains and lowers the anxiety. This then supports the integration across the differences:

Tom: I am relieved too, that others are excited with me and that you guys are not so anxious anymore. Anyone else?
Is Functional Subgrouping Useful in Containing Emotional Arousal and Facilitating Emotional Modulation in the Flow of Energy and Information?

Autonomic nervous system circuits. Porges (1995, 1998, 2007) has identified three levels of autonomic nervous system circuits that operate hierarchically. These circuits activate differentially depending on “neuroception” of the level of safety or danger in a situation. The myelinated ventral vagal branch activates to neuroception of safety and is the highest and the only uniquely mammalian level of the three. This circuitry links the heart to the striated muscles in the face and inhibits sympathetic activation of the heart. Porges calls this ventral vagal circuit the social engagement system, in that its activation orients to facial expressions, vocalizations, and listening, which allows for interpersonal regulation and experiences of calm, relaxation, and openness. The middle level of autonomic activation involves the sympathetic branch and activates with perceived threat. Sympathetic activation prepares us for fight or flight and diminishes social engagement. The lowest level system, the unmyelinated dorsal vagal, takes over with severe threat and initiates a death-feigning, dissociating freeze response.

Creating groups that foster interpersonal neural integration then requires developing group contexts that are experienced as “safe-enough” to activate the social engagement circuits that support “brain to brain” neural modulation. Complexity theory introduced the idea of near-to- or far-from-equilibrium as descriptors of “systems function.” To the extent that a system functions near-to-equilibrium, it approximates a closed system and approaches entropy. To the extent a system is functioning far-from-equilibrium, it approaches chaos (Kossmann & Bullrich, 1997). Functional subgrouping creates what we suggest is a “mid-from-equilibrium” condition (Gantt & Agazarian, 2004), activating the brain’s social engagement system. “Mid-from-equilibrium” creates a stable-enough context for system containment while simultaneously introducing the conditions for system change through discriminating and integrating differences and its ongoing process of system correction.
**Right-brain processing.** Right-brain processing is specialized towards bodily and emotional experience. Research has also confirmed the hypotheses that the left hemisphere is biased toward positive or approach emotions, and the right toward the negative or avoidance emotions (Canli et al., 1998; Cozolino, 2006). Further, Cozolino (2006) summarized the research demonstrating a right-brain bias in anxiety disorders.

**Revisiting the example of the “anxious subgroup.”** Applying these perspectives, the “anxiety subgroup’s” experience is more typical of right-brain processing (Cozolino, 2006), with sympathetic activation in response to neuroception of danger (often referred to as flight/fight). Because the left hemisphere orients to making meaning of the right-brain input, this activation is then “explained” by left-brain analysis (“this group will not work out for me and is not the right context for me”), with the explanation itself creating additional anxiety. SCT discriminates “explaining” from “exploring.” “Explaining” is similar to what Siegel (2007) calls “top-down” thinking that maintains a usual view that often generates feelings and preempts attention to new or current experiences.

**Functional subgrouping supports exploration.** We are also suggesting that members’ joining on resonance and similarities activates the social engagement system. Functional subgrouping emphasizes looking at, talking to, and making eye contact with the members of one’s subgroup. In the example above, as the anxious subgroup worked together, members felt relieved as they discovered others who felt anxious, too. This relief supports the hypothesis that the social engagement system was activated in the subgrouping process, lowering the sympathetic mobilization to the “threat” of the new, or the “unknown” as SCT terms it, that is inevitable in every new group. As Porges demonstrated, neuroception of safety activates the social engagement system, which deactivates the sympathetic mobilization to threat.

**Fearsystem.** The considerable research on anxiety and the brain’s “fear system” is also relevant here (cf. LeDoux, 1996). The brain subsystems most relevant for anxiety and fear are the amygdala, the orbital prefrontal cortex, and the sensory thalamus. The amygdala is located in the limbic system, the middle part of the
brain involved in emotional processing. The amygdala is closely connected by neuronal pathways to both the vagal and sympathetic nervous systems, and potentially has strong connections to the prefrontal cortices. In many ways, our brains are primed to be alert for threat (Cozolino, 2006), in that a sensory “alarm” is relayed through the sensory thalamus that sends signals to both the amygdala and the cortex. The amygdala processes the sensory input and serves as the fast-track alarm system (Goleman, 1995). The cortex receives signals from the thalamus as well, but is a slower and more precise response system that discriminates details of the stimulus, makes a more accurate assessment of danger, and can then modulate the amygdala response (LeDoux, 1996). LeDoux gives an example of seeing a coiled object in the woods. The amygdala reaction is to run from the “snake,” the cortex “collects” more data, recognizes a coiled vine, and then sends signals to the amygdala to relax. Depending on the integration in that moment between the prefrontal cortex and limbic regions, the amygdala’s activation of an immediate fear response may or may not be inhibited by the slower cortical assessments. Research with post-traumatic stress disorder (PTSD) patients (Shin et al., 2004; Shin et al., 2005) pointed to the interplay in the fear circuitry between an under-functioning orbital medial prefrontal cortex and an overactive firing in the amygdala. When the fast-track amygdala is highly sensitized by previous fearful experiences without enough cortical modulation, the result is the kind of chronic anxiety and fear seen in PTSD and generalized anxiety disorder (GAD) patients.

In addition, the amygdala with its fearful associations (including out-of-awareness implicit memories) can send ascendant alarm signals, which the left hemisphere organizes into fearful narratives at the expense of the cortex collecting data and modulating amygdala arousal.

*Functional subgrouping and deactivating fear responses.* In groups, differences that are “too” different are often responded to as threats. By teaching group members to deliberately first join on similarities, members learn to shift their attention away from their fast-track responses to differences. In this process, functional subgrouping not only activates the social engagement system
in the brain, but also supports the cortical assessment and modulation.

Once functional subgrouping is established, the “anxious” subgroup’s task is to check the reality of their fears in the here-and-now context. This next step in systems-centered groups is implemented by asking the subgroup members to talk together to identify the source of their anxiety: “Find out if your anxiety is coming from a thought, a feeling, or the edge of the unknown” (Agazarian, 1997). This kind of request stimulates cortical activity in the brain, and group members learn to shift their attention away from the limbic/amygdala firing (middle brain), which further modulates their anxieties. Learning to shift one’s attention de-escalates habitual fear priming. Often in beginning groups, as in this example, members identify their anxiety as coming from a thought, often a negative prediction about the future. As Sally put it: “This group might not be a good place for me to be,” a common negative prediction in new groups.

Having identified the specific thoughts that are making them each anxious, subgroup members are asked to “turn on their researcher” to find out if they believe they can tell the future. This further engages cortical processes and continues restoration of the neural balance in the fear system in the context of the subgroup, which maintains the vagal social engagement system, fostering the possibility of ongoing mutual regulation of emotion. Typically, group members answer “no,” when asked if they believe they can tell the future and feel calmer still. Systems-centered therapy thinks of this as restoring reality testing. The next step is finding out how each person feels about having been caught up in thoughts that created anxiety. This is often answered with “I feel compassion” or “sad for me,” linking an emotional experience to anchor the cognitive work, an important neural integration, and activating the highly integrative middle prefrontal region. Thus, the security in the subgroup, with its activation of the social engagement system, lowers the mobilization to threat, deactivates the fast-track amygdala responses to difference, and facilitates integration, activating the prefrontal cortex to check reality and modulate the amygdala.
How Does Functional Subgrouping Relate to the Issue of Creating a Secure Relational Context?

Building on similarities to create a resonant communication system. The heart of functional subgrouping is members learning to build on similarities and resonance with each other. The earlier example illustrated a beginning group in the flight phase, learning to explore instead of explain. Below is a summary of a subgroup in a group in transition from flight to fight:

John started a subgroup by reporting his anger, and saying he felt full of hot energy. Doreen joined, saying she was angry, too, and felt big and energized. Sam came in to join with his experience of feeling like an angry bull and wanting to ram into things. Jeri joined next, building on Sam’s feeling of being a bull: “I can actually feel wanting to paw and charge, as you were saying it. I feel more like a ram actually, and I want to snort, too! I’ve never felt like a ram before.” As Doreen and then others joined, John reported feeling relieved and freer with his experience of anger. Jeri chimed in saying she had never felt so strong, that usually she feels like hiding when others are angry. As the subgroup members continued to join and build on each other, the subgroup discovered an increasing sense of power, solidness, and freedom.

Building on similarities and resonance creates a context of attuned communication within the subgroup, while simultaneously building a group-as-a-whole that organizes its emerging differences in resonant subsystems. This enables all members to increase their attunement to others and develop the ability to accommodate a wider range of different experiences in themselves. This resonant attunement is the process Siegel (1999) calls “contingent communication,” in which there is an initial alignment of “states of mind.” Each person’s experience shapes and is shaped by the experience of others within the subgroup as they feel “felt” by one another. The subgroup is emergent, and in this emergent system, new experiences unfold as members build on resonance, amplifying the subgroup’s capacity to hold these emotions. In fact, subgroup members discover that each person will explore places in the process of subgrouping that he or she is unlikely to explore alone.
A secure attachment environment. In joining around resonant similarities, there is an emotional communication, or an exchange of emotional energy/information. In this here-and-now experience, the subgroup provides a secure emotional and relational context. Members learn to hold their differences and direct them to another subgroup. This supports developing the environment within the subgroup of cohesive alignment in similarities, and the environment within the group of making room for all differences. Tronick (Cohn & Tronick, 1989; Tronick, 2007) demonstrated that in interactions between adults and infants, moving from matching to mismatching affective states with infants generated stress in the infant that was “resolved by the reparation back to matching states” (Tronick, 2007, p. 389). In effect, the emphasis in functional subgrouping on joining on similarities ameliorates distressful mismatching that comes from differences that are too different. There is little reason to suppose the distress is any less for adult/adult interactions since responses to differences in groups often precipitate “fight” communication patterns replete with blame and attack.

Functional subgrouping develops a secure context in which the typical human reaction to difference is regulated both by the sense of feeling understood and the sense of security that develops in the subgroup system. McCluskey (2002) has suggested that functional subgrouping increases the potential for attunement and creates an environment in which early attachment failures can be explored and remediated as internal models are modified at the intuitive, nonverbal, and sensory level. Building on McCluskey’s work, SCT suggests that the secure-enough environment of the subgroup system provides the context for activation of the exploratory drive, so essential to human development (Heard & Lake, 1986, 1997). It is the exploratory drive, or “curiosity” as SCT names it, that enables the essential process of discriminating and integrating differences, the very heart of the process that functional subgrouping implements in the service of development. In effect, a functional subgroup approximates a secure-enough attachment system in the here-and-now experience.

Resonance, the autonomic nervous system, and mirror neurons. The act of joining in functional subgrouping and finding that someone else understands generates a positive emotional state. As the
subgrouping continues, members discover small differences in their experience (which may lead to mild sympathetic activation). In the subgroup environment of similarity and resonance, small differences are more easily accepted without distress or fear activation. In this way, the subgroup development creates a secure system that contains the aligned and slightly different communications, the matches, and the increasingly tolerable mismatches. In this way, functional subgrouping may increase the “window of tolerance” that balances the autonomic activation in an integrative pattern (Siegel, 1999, p. 182), both within a subgroup and between subgroups for the group-as-a-whole. Schore (1994), in fact, described a secure attachment as a balance between sympathetic and parasympathetic activations.

The roving eye contact emphasized in functional subgrouping also facilitates mirror neuron firing. Observing others’ emotions, especially the facial expressions of those emotions, activates mirror neurons firing just the same as if we were making the facial expression ourselves (Iacoboni, 2008). Iacoboni (2008) detailed this automatic process of mirror neuron firing in response to others’ facial expressions: as the mirror neurons fire, they send signals via the insula to the limbic system, particularly the amygdala, and on to the prefrontal cortex. This process allows us to “feel” the feelings and experience the intentions of others.

As the group develops, the subgroups that emerge reflect the conflicts in each phase of group development and the members’ challenges related to these human conflicts (Agazarian & Gantt, 2003). In the early phases of flight and fight in a group, the main challenges are commonly related either to anxiety, fear activation, or emotional arousal. Attachment issues are also reflected early in a group in the tendencies to join subgroups quickly or slowly. For example, someone with an avoidant-attachment style will tend to see every subgroup as “too different” to join, while someone with an ambivalent-attachment may lose his or her own experience by “subgroup hopping.” The in-depth exploration of attachment issues is not sustainable until the group develops to the intimacy phase. In the intimacy phase, the subgrouping centers on the exploration of the attachment roles that influence how members subgroup and join in resonant communications with others, often linked to implicit memories. The early attach-
ment issues are then explored in the security of the functional subgrouping process with its “good-enough” attachment. In fact, once members have learned the basics of functional subgrouping, they then learn a more nuanced process of subgrouping, where the first step is to attune to the last person who has spoken and either join in emotional resonance or paraphrase in attunement, reminiscent of the imitation that Iacoboni (2008) sees as essential to the development of mirror neuron functioning. The second step is to separate and then individuate by adding one’s own build to the group which will introduce some difference. The third step is to look around to the whole group to be joined by asking, “anyone else?,” furthering the individuation and fostering the attunement with the larger group. Schore’s (2003a, 2003b) work suggests that the micro-attunements that occur in such a secure environment directly rewire early implicit attunement patterns in the direction of greater security. Since implicit memories are not easily accessible through the usual process of remembering, but instead show themselves in automatic, out-of-conscious-awareness relational patterns, the possibility of rewiring through the experiences of connecting and being understood represents an important aspect of the group process.

Developing the Group-as-a-Whole and Neural Integration

Previously, SCT has emphasized using functional subgrouping to integrate the conflicts inherent in each phase to facilitate the group through its phases of development (Agazarian, 1997). Adding an IPNB perspective enables the additional view of functional subgrouping in the service of developing the group mind. From a group mind perspective, functional subgroups are differentiated emergent subsystems that influence group functioning and maturation by regulating the flow of energy and information within and between members, subgroups, and the group-as-a-whole. Within the group, functional subgroups contain differentiated functions for the group-as-a-whole in its development as a complex adaptive system. As the subgroups develop functionally by discriminating and integrating information, integration occurs in the group-as-a-whole and the dynamic subgroups then dissolve. Functional subgrouping can then adaptively contain any
number of splits in human experience that reflect current neural integration at the member level, and current integration in the group mind. We next consider how functional subgrouping facilitates integration of various neural information-processing systems in a way that increases the capacities of its members and the group-as-a-whole.

Cortical and sub-cortical integration through functional subgrouping. The integration of cortical and sub-cortical structures is easily illustrated by looking at the fear-activation system. As discussed, the right-brain role in fear-activation via the amygdala is moderated by the orbital frontal cortex. It is useful to revisit the earlier example of the “angry” subgroup to consider how functional subgrouping supported neural integration in the group-as-a-whole. As the angry subgroup worked, the “anxious” subgroup emerged in the group. From the group dynamics perspective, the two subgroups contained the two dimensions of the group’s phase of development, fight and flight. From an IPNB view, both subgroups reflect sympathetic mobilization. Functional subgrouping contains each experience by activating the ventral vagal circuitry that modulates the sympathetic mobilization. This then enables cortical involvement with the potential for greater integration and restoration of neural balance between the cortical and limbic responses.

In addition, within each subgroup, the exploration of novelty increases, and novelty is a condition for neurogenesis (Badenoch, 2008). This is particularly important for “memories” or emotional responses that originally occurred under conditions of stress or trauma that were encoded in the amygdala (implicit memories), but not organized by the hippocampus into explicit memories, common in trauma. These implicit “stress” responses are often triggered by a here-and-now group event. In fact, it is common for fear-related implicit memories to be triggered in response to anger, and for group members to be frightened without knowing why. Functional subgrouping provides the containment and contingent communication in which these implicit responses can be explored and links built to higher level cortical processing.

Functional subgrouping and right-brain activation. Right-brain subgrouping can also promote horizontal integration across modalities of experience. Functional subgrouping, with its empha-
sis on exploring instead of explaining, creates a “right-brain-rich” environment that develops the capacity of members for images, right-brain to right-brain communications, polysemantic understandings, analogic communications, and an increased awareness of sensation and bodily experience. The “fight” subgroup, with its experience of “feeling like a ram or bull,” provides a good example of how functional subgrouping supports exploration of bodily experience and analogic knowing. In the secure context of a subgroup, members are more open to the totality of human experience.

Directing attention to the “fork-in-the-road” between “exploring” one’s experience instead of “explaining” it (Agazarian, 1997) develops the subgrouping capacity for focusing one’s attention through intention. Recent research (Lazar et al., 2005) has demonstrated that consciously focusing the mind (as in meditation) increases cortical thickness, supporting development of neural connections between the middle prefrontal and limbic regions. Deliberately attending to the energy and information coming from the body strengthens vertical integration—drawing body, limbic, and cortex together. Identifying and describing the experience in one’s limbs and facial muscles changes/fires the somatosensory cortex, while attending to visceral shifts in the body fires the orbital frontal cortex and anterior cingulate, predominantly on the right side (Siegel, 1999). Exploring these body experiences in attunement with subgroup members who are observing similar experiences builds neural capacity for a coherent experience of body knowledge. The attuned resonance in the subgrouping allows members to feel “felt” (Siegel, 1999, 2007) and to feel others in the process of exploring bodily experience.

Functional subgrouping to support left-brain functioning. “Left-brain subgrouping” provides a context for exploring left-hemisphere constructions and verbal communications that may be misattuned or out of date with right-brain input. This process supports members detecting and assessing previously invisible and habitual “top-down” influences, like negative predictions, that are sometimes rooted in implicit memory. For example, functional subgrouping can be used to explore the ambiguities, redundancies (Shannon & Weaver, 1964), and contradictions (Simon & Agazarian, 2000) that represent a left-brain adaptation
to right-hemisphere dysregulation. For example, Sally joins the “worrying” subgroup, saying, “Something bad may happen.” This negative prediction is high on ambiguity, which makes it impossible for Sally’s subgroup to test it in the here-and-now reality of the group. It is also not the kind of communication that will help the subgroup use its left-brain function to analyze relevant information from their right brains to discriminate whether the right-brain “felt” sense is in response to a current sensory input or an activation of an implicit past neural network.

The subgroup exploration follows this pattern: first, identify the thoughts that are generating the worry; second, say aloud to each other the specifics of the thought; and third, test and compare the thoughts to the actual observable external reality (Agazarian, 1997). All of this happens in the resonant attunement with others in the subgroup who are having similar thoughts.

Functional subgrouping to contain and integrate left- and right-brain experience. It is not unusual in a group for one subgroup to contain the left-brain exploration and a second to contain the right-brain experience. Going back to the earlier example with the angry subgroup, as it finished exploring and paused, another subgroup formed.

Dawn reports being frightened and anxious. The therapist encourages her to ask, “Anyone else?” Three other members join and begin exploring the source of their fear. The therapist then leads this subgroup through the systems-centered protocol for undoing anxiety (Agazarian, 1997), first finding out the source of their anxiety. The members identify that the anxiety and fright is coming from their negative predictions that the angry subgroup will lose control. The therapist asks the subgroup to find out if they actually believe they can tell the future. The subgroup members respond, “No,” and report an immediate relief and decrease in anxiety. As the anxiety is reduced, the subgroup is in effect assuming a reality-testing function for the group-as-a-whole, checking to see if there is any danger in the here-and-now reality.

Functionally, the first subgroup expressing the anger has voiced more of the right-brain experience for the group-as-a-whole (e.g., the somatosensory experience, images, and metaphors). This subgroup’s work strengthened access to the right-brain process-
The second subgroup, activated by others’ anger, explored the left-brain worries related to fears generated by the past or speculations about the future. These thoughts translate the anxieties of the right-brain fear arousal in response to the anger into thoughts or explanations that generate and maintain fear arousal. The group’s challenge is to contain both human propensities, providing sufficient safety to regulate the response to the differences. When there is good-enough containment, the exploration of both the anger and anxiety can occur with sufficient left- and right-brain processing that an integration of the two can occur, and a different neural integration can be established between the left- and right-brain processing systems.

As the work continued, each subgroup recognized their similarities with the other subgroup and group insights emerged. For example, after listening to the work of the “anxiety” subgroup, John, who was initially in the “fight” subgroup, acknowledged that he, too, had often been stopped from exploring his angry feelings by his fears. Further, as he listened to the “anxiety” subgroup work, he felt more confident that his typical fears were not founded in current realities. Others joined in recognizing how their thoughts interfere with getting to know their feelings. They also realized how useful it was to separate their thinking from their feelings, and redirect their thinking to clarify reality. In effect, functional subgrouping facilitated a group mind that was stimulating vertical integration so the middle prefrontal could better regulate the limbic circuits and horizontal integration so that the left hemisphere could provide a new narrative based on here-and-now reality.

Describing one’s experience to other subgroup members also promotes horizontal integration of left and right hemisphere functioning. Verbalizing and describing one’s emotions enhances emotional regulation by creating more of a balance between left and right hemisphere activation (Badenoch, 2008).

Functional subgrouping contains unintegrated splits that reflect a lack of neural integration. Exploring each side in the containing context of similarity enables each component of brain processing to do the work necessary for the group mind to develop, and to integrate the two systems and modes of processing. As each subgroup develops by discriminating differences
in what was initially a similar experience, each begins to notice the similarities in what was initially different (Agazarian, 1997). This fosters integration in the group mind of the splits in the group-as-a-whole and isomorphically in its members. Splitting is evidence of lack of integration in a system at all system levels; functional subgrouping organizes splits in a way that promotes neural integration.

**SUMMARY AND CONCLUSIONS**

We have discussed how functional subgrouping can lead to “feeling felt” as members resonate with experiences shared by other members. This creates a secure context and strengthens our social engagement circuitry, allowing for deepening self-awareness. Functional subgrouping is typically introduced in a group whenever there is a conflict or difference that is too different to be easily integrated. Conflict almost always results in some kind of neurophysiological arousal that is then contained in the subgrouping process, lowering the reactivity that, when unmodulated, leads to personal and interpersonal distress at the expense of neural integration. Thus, using functional subgrouping to resolve group conflicts and integrate differences constitutes the very combination of moderate arousal and the experience of closeness and understanding with one’s subgroup that is similar to the conditions that promote neural plasticity (Badenoch, 2008; Cozolino, 2006; Siegel, 1999).

In systems-centered groups, functional subgrouping is often focused on the experience in the present moment. Paying attention to the present moment stimulates neural firing of here-and-now sensory input, enabling a shift away from the “known explanations” or “invariant cortical representations” that have been encoded by repeated experience (Hawkins & Blakeslee, 2004). This increases the capacity for exploring the “unknown” in one’s experience (Agazarian, 1997). Building with others in exploring experience creates a heightened sense in the present moment with the containment and attunement of the subgroup. Within the experiential process of functional subgrouping, each person’s mind is shaped by and shapes others in the direction of bodily and emotional regulation. This has a strong potential to create
new neural activation patterns that support exploring “novelty” (the unknown) without activating the fear system. Novelty, that is, differences, is essential to the development and transformation of living human systems.

This paper is a first step in offering hypotheses that link functional subgrouping to neurobiological research. We have hypothesized, first, that functional subgrouping develops the group mind, and second, that it is the group mind that regulates the flow of information and energy. In effect, functional subgrouping regulates affect at all levels of the group system: within the subgroup through attuned communications, within members who are contained within subgroups, and within the group-as-a-whole which integrates the subgroups. This process of regulation meets the definition that Siegel has proposed for mind: an embodied and relational process that regulates the flow of energy and information. The next step will be to test these hypotheses further in research and clinical practice.

REFERENCES


Tronick, E. (2007). The stress of normal development and interaction leads to the development of resilience and variation. In B. Lester, A.