BIOFEEDBACK FROM AN OTHER PERSPECTIVE

You Cannot Have One Without the Other

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We are happy to write a regular column for the Biofeedback journal where we will present a somewhat different perspective on our field. We chose the name Biofeedback from An Other Perspective to denote a significant process that might enhance our field.

Biofeedback (BF) treatment is never done in solitude. There is always the presence of the “other.” By the side of the patient sits the practitioner. He or she is there, guiding, monitoring, reassuring, and reinforcing success. This is where the practitioner’s influence over the client is obvious. In this column and others to follow, we will reflect on the “other” perspective. As the column title suggests, the focus will be on the therapist and various others, such as spouse, child, and parent.

The term other yields a handful of meanings and connotations in the field of psychodynamic psychotherapy. The other bears meaning for the patient. Therefore, the patient’s acknowledgement of the other presence and thereafter its meaning and influence on the patient is the driving mechanism of the therapeutic relationship. We will try to follow this line of thought and reflect on the “other” perspective. As the column title suggests, the focus will be on the therapist and various others, such as spouse, child, and parent.

The term self, as in self-control and later in self-regulation, has been central to the biofeedback literature since its inception. In the last decade, however, researchers have been moving from one-person psychology toward two-person psychology, which emphasizes the significance of the interplay between two subjects and the importance of an interpersonal approach. This is augmented by scientific studies that are beginning to elucidate the regulatory role of interpersonal interactions.

The title may imply our otherness as well. As residents of a different continent, we will adopt the outsider perspective on the field of biofeedback. Our otherness will come to aid while reflecting on well-known assumptions and truisms, bearing in mind the different climate in which we practice biofeedback.

Interpersonal Neurobiology and Biofeedback

Interpersonal neurobiology (IPNB), termed by Dan Siegel, is a practical model aiding in understanding and forming mutual relationships. IPNB is based on neurobiological findings concerning the effect of interpersonal relationship on brain functioning. Cozolino (2013), Schore (2003), Siegel (1999), and various others demonstrated the neuroplastic effect of therapeutic techniques and practices on the patient’s brain. Based on the concept of neuroplasticity, the ability of outside information (e.g., life experiences, human communication) to shape brain function, contemplative techniques, empathy, and compassion are used to reformulate mind and body operation.

The rationale of IPNB is rooted in the consilience principle. The brain is designed to identify common patterns. We are searching for patterns and regularities in daily life, in relationships, industry, and science, among others. Similar patterns exist in different knowledge realms. For instance, observing a child-parent interaction pattern while measuring the dyad heart rhythms may reveal the same interaction pattern on the biological level and on social-emotional level. Such evidence was reported in Ruth Feldman’s work (2012). By converging evidence of similar patterns, IPNB has evolved into interdisciplinary theory of psychotherapy, which lays its impact on other fields, such as education (Cozolino, 2013) and diplomacy (Holmes, 2018).

The concept of engaging the soma to heal the mind is not new for BF therapists. BF therapists began using concepts derived from the Porges’ 2007 polyvagal theory (PVT) for supporting their therapeutic reliance on heart rate variability biofeedback (HRV BF) in relieving anxiety symptoms. Closely related theory is used to conceptualize the working mechanism of the affect-regulation model developed by Alan Schore (2003). PVT and Schore’s affect-regulation model uses the same behavioral building blocks of human connectedness, using gaze and vocal tone for (co-)regulation. Porges (2007) posits these behaviors to be neurologically governed and influenced by ventral diverticulum of
the vagal nerve, while Schore (2003) directs attention to the right hemisphere’s role in analyzing their emotional meaning.

Adding interpersonal neurobiology concepts to the field of biofeedback will take our profession from its somewhat isolated position in the psychology world to the cutting-edge theory of IPNB. Using IPNB frame of reference shifts biofeedback practice away from “visceral gymnastics” to “social brain training.” Namely, it helps the patients to understand that their body and brain are influenced not only by drugs or automatic conditioning processes, but also by the impact of significant others.

One should admit, however, that the IPNB practitioners did not suggest until now a therapeutic method that really uses the objective physiological data measured from the body. Biofeedback might be a much-needed source of data in these directions.

A few steps for integration of these neighboring fields have already been taken in the last decade. Rolnick and Rickles (2010) suggested the use of biofeedback in the interpersonal space of psychodynamic psychotherapy. Levit Binnun, Golland, Davidovitch, and Rolnick (2010) examined the regulatory capacity of interpersonal interactions as a new model of biofeedback. This new model, called dyadic biofeedback (DBF), allows for real-time training of interpersonal interactions, emphasizing learning through direct observation and active involvement. With Khazan’s (2013) integration of biofeedback with mindfulness, Rolnick, Oren, and Bassett (2016) developed the concept of sensor enhanced therapy (SET), proposing that biofeedback could be integrated very well with third-generation cognitive behavioral therapy (CBT).

**Examples of Future Columns**

**A. Social Psychophysiological Profile**
The triggers that comprise the psychophysiological profile are generally linked to known stressful situations. By examining a patient’s reaction to these triggers, we evaluate the way his or her body reacts while stressed. The embarrassing question trigger is the winning ace. It creates a strong emotional reaction that helps the clinician discuss the role shame or embarrassment play in the body and subsequent social behavior. We will examine various new forms of psychophysiological profiles that reflect patients’ relational patterns.

**B. Dyadic Therapy**
The dyadic form of BF introduced by Levit Binnun et al. (2010) exemplifies how interpersonal perspective can shape the BF therapy model. A more practical way of doing dyadic work with couples has been demonstrated by Steve Kassel’s interpersonal BF (Kassel & LeMay, 2016). We will further expand this line of thinking by suggesting new BF therapy models and modalities, including simultaneous measurement of therapist and patient, giving feedback on facial emotional cues, and parent-child therapy.

**C. Exposure to the Other**
Several anxiety disorders feature a fear that other people will notice the existence of stress reactions. This is clearly the case in social anxiety disorder where the fear of embarrassment is focused on certain aspects of self-presentation such as exhibiting symptoms of anxiety.

Biofeedback can enhance therapy for anxiety disorders in general, and social anxiety in particular, by acting as a tool for simulating a situation in which the client feels shame because another person can see their distress. In this case, if a client is connected to various peripheral physiological sensors (EDA EMG, skin temperature, heart rate), the moment they notice that the therapist has become aware of any change in their physiology, many patients will experience an increase in stress.

As in all types of exposure, this situation allows the client to face their fear—that someone will notice their anxiety. This experience tends to attenuate the fear, and the client comes to learn and accept that they can survive the shame.

**D. The Role of the Other in the Self-Regulation Process**
Originally based on work by Winicott (1971), and later Bollas (1987), anxiety disorders are perceived as a function of poor ability to self-regulate, a capacity that typically develops throughout infancy via interaction with parental figures.

It has been argued that in order to attain a sense of safety, children typically react with fear in new situations, which results in fear-based dependency on caregivers (Milrod, Busch, Cooper, & Shapiro, 1997).

A parallel may be drawn within biofeedback-assisted psychotherapy. The fearful, anxious patient is exposed as helpless and dependent before the therapist, which may incite feelings of shame, impotency, and hopelessness. In contrast to the patient’s developmental experience, the biofeedback therapist reacts calmly. Observing with the patient their physiological reaction, an opportunity is provided for the therapist to validate this experience, label it, and explain emotional arousal. The therapist also offers the patient an explanation of the process that produces their arousal. Then the therapist teaches self-regulation, fulfilling
a role that was absent in the original parenting. Therapy conducted with biofeedback calls for validation, empathy, and acquisition of self-regulation ability.

**Who are We?**

Dr. Arnon Rolnick is a clinical psychologist specializing in psychophysiology and the integration of technology and psychology. Dr. Rolnick gained his PhD in psychology from Tel Aviv University and did his postdoctoral studies at Brandeis University in Boston. He is a recipient of the Rothschild and Lewis Fellowships. Dr. Rolnick established the Israeli Association for Applied Psychophysiology and Biofeedback, and was also on the AAPB Board. He is also a consultant for several British and Israeli startups, helping them to develop psychophysiological programs as well as cognitive behavioral interventions.

As a part of his academic teaching (Ben Gurion University and IDC, Herzlia), Dr. Rolnick wrote numerous articles and presented at international conferences. His current interest is to integrate biofeedback with interpersonal neurobiology.

In his forthcoming book, *From the Couch to the Screen*, which he is co-authoring, he suggests that technology opens a unique way to study the role of the body and the brain in therapy.

Yossi Ehrenreich, MA, is a PhD candidate and a senior school psychologist specializing in psychophysiology and technology-aided psychotherapy. He is the heading chair of the Israeli Association for Applied Psychophysiology and Biofeedback. He is leading the first academic biofeedback program in Israel at Peres Academic Center, Rehovot, Israel.

Yossi developed the attachment-informed biofeedback treatment model for dyadic and couples therapy, in which graduate psychology students and school psychologists are being trained.

**References**


