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EDITORIAL

Dear Readers,

Maja Storch reports about Resource-activating Selfmanagement with the Zurich Resource Model (ZRM). Background of her work is neurobiology: The new findings of brain research of the past ten years have made it possible for psychologists to develop concepts with sound theoretical and empirical bases that reveal linkages between the concepts and methods of different forms of psychotherapy.

Second you will find Welko Tomić, Will. J. G. Evers and André Brouwers report about Existential Fulfillment And Teacher Burnout. The aim of their study is to determine the prevalence of burnout in primary education teachers and explore the relationship of personal fulfillment – the existence scale – to self-reported burnout scores.

The special subject area of this issue presents a neurobiologically founded resource oriented body therapy: Pesso Boyden System Psychomotor Psychotherapy PBSP. Body therapy can be regarded as a variant of emotion therapeutic intervention. The body is of interest in so far as it is the medium for the emergence of body perceptions (emotions) and the possibility of experiencing them as feelings. Emotions are direct expression of situative.giving of significance. and motor for situational coping action. As it often takes place unconsciously, we only partially understand the actual why and what for of our actions. Where our experience makes us suffer and our actions harm us, it is worthwhile to find conscious access to our emotional regulation. For this, body therapy translates somatic-emotional signals into verbally intellectual decriptions. That's how intra- and interpersonal events can be recognized within their context. This again enables a conscious deliberate self-regulation. Dealing with feelings and relations can be gradually created more satisfactory.

Albert Pessos PBSP is a pioneer body therapy approach which is integrative in multiple sense. On the one hand,at present it is the best match of neurobiology and psychotherapy. On the other hand, it is resource oriented therapy par excellence – every therapy intervention leads to mobilization of central resources, evaluated by objectifiable somatic trademarks as intended by Damasio. Thirdly, it is consequently systemic – the family system is object of the therapeutic work. One could add a fourth and fifth: it moves in the patient's psychodynamic space and dysfunctional cognitions become as obvious as worked out and restructured in Beck's approach.

Serge Sulz

IMPRESSUM

Editors
Rainer Krause,
Professor, Saarbrücken, Germany
Serge Sulz,
Dr. Dr., Munich, Germany

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Maja Storch, University of Zurich

Implications of neuroscientific research for psychotherapy

Abstract

The article provides an overview of the connection between the results of neuroscience and their consequences for Psychotherapy. An attempt has been made to develop a neuro-scientifically based model of psychic functions. What is particulary interesting is the concept of Psyche as a konwledge system which is based of learning and memory processes. Furthermore, we discuss how self-congruent goals and intrinsic motivation can be operationalised on the basis of neuro-scientific theory formation. In addition, we discuss the consequences of such a perspective for Psychotherapy in practice.

The topics in neuroscience that we psychologists studied in the 1970s under the keyword "physiological psychology" left me with unpleasant impressions of the discipline. You may remember, as I do, pitiful laboratory cats with electrodes in their brains, odd experiments in perception having no apparent connection to psychotherapy and of no interest to future psychotherapists, tedious hours spent memorizing the parts of the brain, and depressing grades on tests on the subject.

Today, however, my impression of neuroscience has changed fundamentally. Exploding advances in the neurosciences of the last ten years are of extreme interest to psychotherapists (Dolan, 2002; Sulz, 2002). Neuroscientific research has the potential to become the basis for integrating the estranged schools of psychotherapy. The new findings of the neurosciences are shedding light on the practice of psychotherapy and providing a natural scientific basis for some central psychological concepts. In the following, we provide an overview of central, new linkages between the neurosciences and psychotherapeutic practice. We examine connections between:

- Mental/emotional processes and memory contents
- Mental/emotional development and learning
- Self-regulation and unconscious processes

The neurosciences view the brain as a self-organizing storehouse of experience. The older idea that there is an upper-level control center in the brain is no longer held to be valid. The human brain is a survival organ that is particularly specialized to respond flexibly to changing environments. It allows the initiation and maintenance of postnatal life as an interactional process, that is, it allows continuous perception, evaluation, and response to the information entering the system without pause (KOUKKOU & LEHMANN, 1998a, p. 328). This ability is founded in the fact that on the basis of the experiences the organism has through life, the brain can change its own structures. This means that the brain organizes itself and its behavior on the basis of its own biography (FUSTER, 1995).

The brain's task is to take charge of the "psychobiological well being," as KOUKKOU and LEHMANN call it, of the organism in which it resides. The authors find it reasonable to assume fundamentally that the human brain has the potential to possess psychobiological health (1988a, p. 381). For salutogenetic-oriented psychotherapy, this is a fascinating point of view. If every human brain has the fundamental potential for health, then we have a neuroscientific argument for psychotherapeutic methods that emphasize the activation of resources. GRAWE (2002) holds resource activation to be one of the essential effective factors in successful psychotherapy. Resource-oriented psychotherapy would then consist in the optimal promotion of the health potential of the brains of patients and clients. To obtain a more precise idea of what neuroscience-based resource activation would look like, it is necessary to examine more closely how the mind, or "psyche," can be represented in the models of the brain's information processing.

"The mind" in a neuroscientific view

The brain fulfills its task of assuring psychobiological well-being by means of storing everything that the organism to which it belongs experiences through life. Based on this stored knowledge, behaviors that are found to be adequate are selected and executed. In computer language, we could say that the brain is in a permanent process of updating. Unlike much software, however, this updating does not occur just once a year as new versions of a program come on the market, but instead occurs without interruption until the end of life, when the brain turns off its activity. The brain is an organ that is continually built and rebuilt by one's experiences.

The things an organism does are based on the knowledge that its brain has stored. A part of this knowledge is inherited; another part is learned. To make this knowledge available for implementation in order to guide and control behavior, it must be stored in a retrievable way. This storage of knowledge in a retrievable form is the achievement of memory. In day-to-day language, we usually think of "memory" as the storage of only very specific information, such as when we remember telephone numbers, recipes, or French vocabulary. Memory research provides a more extensive concept of memory:

> Indeed, we would be nothing without memory and recollection; we would not know who and where we are, what day it is, and in what month and year we find ourselves, who the people are around us, why we are in a particular place and not somewhere else, what others expect of us, what the meaning of things and events around us is. We would be fearful of many things without reason, but we would also overlook many dangers. We would not be able to understand or speak a single sentence, not a single gesture or facial expression. Even slightly more complex movements would prove to be difficult, because most movements are practiced and thus depend upon learning and memory. In a nutshell, we would all be lost (ROTH, 2001, p. 150, freely translated).

When in the following we speak of stored knowledge and memory, we always refer to this very broad concept of memory. This is acceptable from the perspective of the neurosciences, because at the level of the nerve cell, comparable processes take place no matter whether a human being is learning the Ten Commandments at church, training to perform a triple Rittberger on the ice, or collecting erotic experiences during clandestine encounters.

As memory processes provide the basis for the brain's fulfillment of the task of assuring survival, health, and well-being, from the neuroscientific perspective it follows quite logically that the knowledge collected in memory is the very basis of mental functioning. The interaction of the growing individual with its own external and internal realities produces its own knowledge (memory, personal biography) or – in the language of psychoanalysis – mental apparatus (KOUKKOU & LEHMANN, 1996). This perspective, which views mental processes from the memory theory standpoint, has far-reaching consequences for psychotherapy. For one thing, it leads to a consistently constructivist position (JOHNSON, 2003). For another, it can help us to avoid unnecessary labeling processes in psychodiagnosis.

The constructivist basic position results from a documented neuroscientific fact that ROTH (1996) describes as follows: The reality in which we live is a construct of the brain (p. 21). From the perspective of neuroscience there is no unambiguous connection between environmental stimuli and internal processes within the brain. It is important to distinguish strictly between *signals*, such as the arousal states produced by the sensory organs, and their *meanings*. Meaning is *assigned* to the activation of the neurons only by the cognitive processing systems, in dependency upon the context in which the excited states occur (ROTH, 1996, p. 108).

The constructivist principle also holds for memory: What enters into storage in the brain are not Polaroid snapshots of people, objects, and landscapes or taped recordings of music or speech. There are no crib sheets like the teleprompter texts that help politicians to earn their daily bread. In other words, there does not appear to be storage of any form of concrete copies – no "miniaturized" copies, copies "on microfilm," or "hard copies." Considering the enormous

amount of knowledge that we acquire throughout life, facsimile storage would overwhelm the storage capacity of the system. If the brain were like a traditional library, our "shelves" would soon be just as full as the shelves in the library usually are. Moreover, facsimile storage would result in serious retrieval problems. As each one of us can verify directly, when we call to mind a certain object, face, or event, what we retrieve is not an exact reproduction, but rather an interpretation, a reconstruction of the original (DAMASIO, 1994, p. 145).

Because memory processes form the basis of mental/emotional activity, the constructivist principle also holds for the mind: Those aspects of human existence that we call the mind, self, soul are "creations" of the dynamic, adaptive, and synthetic workings of billions of neurons of the human brain (KOUKKOU & LEHMAN, 1996). From the neuroscientific perspective, the content of the mental apparatus is individually constructed knowledge. Part of this knowledge is inherited; another part is acquired as we mature and develop. The learning processes in the early years are critical. Like all brains capable of learning, the human brain is also the most deeply and most sustainably programmable during the phase of brain development (HÜTHER ET AL., 1999). The brain of a small organism that, for instance, experiences a lot of fear and stress in childhood stores from the start its experiences in dealing with these states and utilizes these experiences from then on in order to safeguard well-being to the extent possible. The earlier that these crucial experiences in dealing with fear can be engraved in the brain, that is, the more plastic the brain connections at the time the experiences are registered, the more strongly that they are stored in the brain for the rest of life. They then look like innate instincts and can be triggered like innate instincts, but they are not innate instincts. They are the stored experiences of early childhood of coping with fear and stress (HÜTHER, 2001, p. 51). Of course, the lasting experiences stored in the brain can also be positive experiences, which presents an interesting parallel to the psychoanalytic concept of "basic trust."

Stemming from this neuroscientific view of the mental apparatus as knowledge storage of experiences, there results a precise conception of what constitutes mental/emotional health. If the mental apparatus consists of the knowledge that the individual utilizes to guide behavior in order to assure well-being, then neurotic behavior bases ultimately upon a knowledge structure that provides the brain with sub-optimal support for the task. KOUKKOU and LEHMANN see this neuroscientific conception as an alternative to the psychoanalytic conflict model, stating that the pathogenesis of neurosis cannot be explained as conflicts between the "instincts" and socialization. Instead the explanation of neurosis lies in the quality of the knowledge that the individual acquires and creates from interactions with the social realities that are important at different ages. In other words, neurosis can be explained through the general adaptability of brain mechanisms (1998a, p. 287, see also LEDOUX, 2002).

The neuroscientific perspective is of great interest for psychotherapy, because it offers a very pragmatic explanation of neurosis. In this view, there is no longer a need to seek mysterious inner parts of the mental apparatus, whose existence and composition/nature are known only to experts and which are a point of controversy among the various schools of psychotherapy. If a person behaves in a way that is not conducive to his or her psychobiological well being, then he or she simply has inadequate knowledge of ways to produce the desired state. Psychological disorders are the "products" (thoughts and/or emotions and/or actions and/or fantasies, dreams, decisions, function states of various organs) of knowledge and context-determined information processing by the brain that is based on maladaptive knowledge (ibid., p.176). TRESS (2002) has developed a practical method of assessing the emergence of maladaptive patterns in interactional contexts.

In the framework of neuroscientifically oriented psychotherapeutic theory development, the concept of maladaptive knowledge refers to experiences that are not useful for the assuring of psychobiological well-being. In this approach, there is no "sick" or "healthy"; there is only "useless" (maladaptive) and "useful" (adaptive) knowledge. Following these concepts, the usability of experiences that an individual has is assessed *exclusively* in terms of whether the knowledge contributes to maintaining the individual's well-being or not. In addition to the potential of this perspective to contribute towards an integrative theory of psychotherapy, it can also free patients from the stigma that is associated with mental illness. It is indeed so that this stigma, reinforced by the language of illness still in current use in clinical psychology, places an additional burden on patients who are already suffering from their symptoms.

The psychotherapist thus has a significant function to fulfill: the function of teacher, a teacher who helps the client to acquire beneficial adaptive knowledge. How it is that this learning process can occur, however, requires an understanding of the learning processes at the level of the nerve cells.

Learning at the neuronal level

Once the central importance of memory processes for mental functioning has been established, the question arises as to how the neurons build and structure memory. How is information stored, and – of particular interest to psychotherapy – how is additional, new information acquired? HEBB'S postulate of synaptic plasticity (1949) is today the most plausible, well-documented neuroscientific model of learning. Hebb's concept is simple and elegant. Plasticity arises when two or more neurons fire at the same time, following the standard rule that "cells that fire together, wire together," the notion that cells that are often active simultaneously tend to become associated through neural connections they share, such that activity in the one will facilitate activity in the other. Hebb developed the concept of plastic synapses that increase

their readiness to transmit the more often that they are used. A synapse is a gap between two neurons that functions as the site of information transfer, through chemical transmitters, from one neuron to another (see Figure 1). Simultaneous firing strengthens the synaptic connection between neurons and thus improves information transfer. In today's rephrasing of Hebb's famous postulate, we can say that modifications in the synaptic transmission efficacy are driven by correlations in the firing activity of pre- and post-synaptic neurons (GERSTNER & KISTLER, 2002). This correlation-based learning is now generally called *Hebbian learning*. We can think of brain processes as similar to processes in the musculature that occur as the result of strength training at the gym. Those sought-after "washboard" abdominals are built according to a similar principle: if muscles are used frequently, their performance increases, while seldom-used muscles decrease in strength. In the case of neurons, increased or decreased efficacy is expressed as the ability to fire.

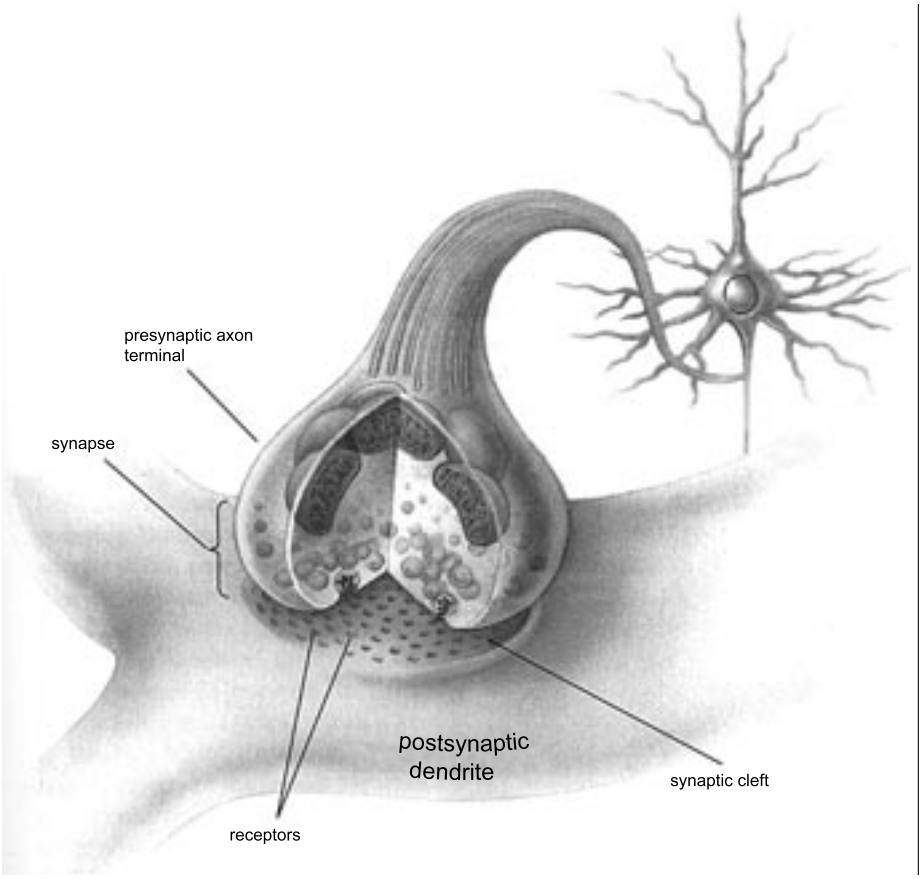
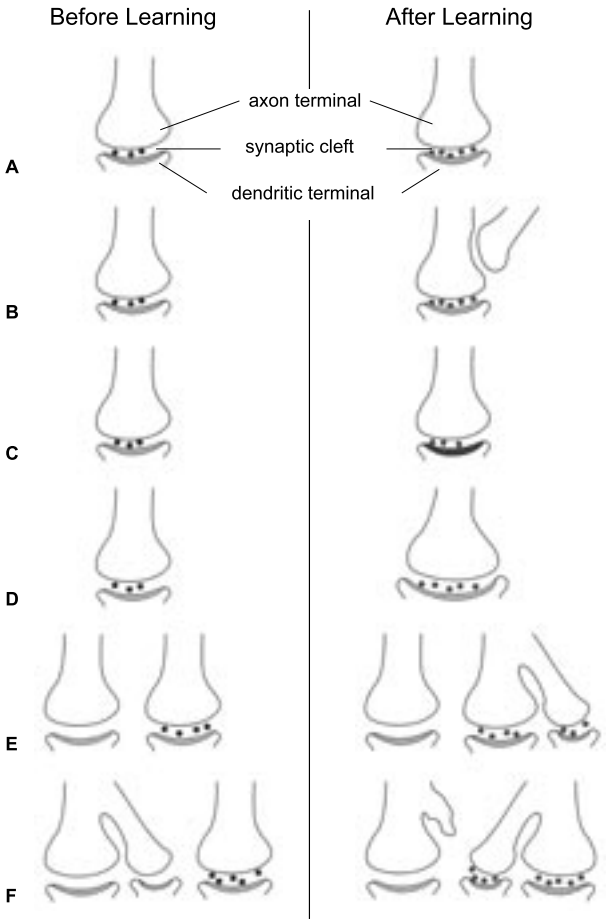


Figure 1: Synapse with presynaptic axon terminal and postsynaptic dendrite (adapted from Bear, Connors & Paradiso, 1996)

Increased synaptic transmission efficacy through frequent use of specific neuronal activity patterns is called *facilitation* in the neurosciences. HÜTHER (1997) describes the process of facilitation in terms of a path that is forged through difficult terrain. The more often that the pathway is traversed, the wider it becomes. After several years of frequent use, the pathway becomes a broad, easily traveled road. Paths that are seldom or no longer used disappear as they are covered by wild growth. Following Hüther's metaphor, well-facilitated connections between individual neurons in the brain are well-built, broad roads. Connections between neurons that are not utilized disappear from the landscape of the brain, as their probability of action potentials and their synaptic transmission efficacy decline. Herein lies the answer to the question of the neuronal basis of memory.



A: Following a training procedure, each new impulse in the affected neuronal system leads to increased release of neurotransmitter molecules (shown as dots).
B: An interneuron modulates the polarization of the axon terminal and triggers the release of neurotransmitter molecules per nerve impulse.
C: Modifications of the postsynaptic receptor membrane results in stronger reaction to same amount of neurotransmitter substance.
D: The area of synaptic contact increases with training.
E: An excitation pattern that is used frequently increases the number of synaptic contacts.
F: A frequently used neural connection "takes over" less used synapses (adapted from Birbaumer & Schmidt, 1996)

Figure 2: Synaptic modifications that may be the underlying basis for storage.

At the neruoscientific level, learning takes place through Hebbian plastic adaptations, or Hebbian learning. Learning is the strengthening of synaptic connections between neurons (LeDoux, 1996, p. 229). All processes of people's learning base upon this mechanism, from memorizing French vocabulary to learning to bake a cake or dance the tango. Rosenzweig and Bennett (1995) provide an excellent overview of the topic of plasticity; a good introduction to the molecular bases of learning is provided by Kandel und Hawkins (1994); and a paper by Toni et al. (1999) contains impressive pictures of the formation of new synapses. Videos of these growth processes are available for viewing on the Internet (www.fmi.ch/members/andrew.matus/video.htm). There exist also hints, that reactivation of a consolidated memory can return it to a labile, sensitive state in which it can be modified (Nader, 2003).

Figure 2 shows some current conceptions of the ways in which neurons change when learning occurs. Remember: learning, in the neuroscientific sense, is the frequent joint use of neurons. The left side of the figure shows the state of the synapses prior to learning; at the right the figure shows the possible changes that learning triggers. Example A shows increased transmission efficacy of the neuronal connection due to the increased release of chemical messages, the neurotransmitters. Examples B and E show that even new synaptic connections can be formed. Example C shows a synapse where, after frequent use, the amount of transmitter substances released remains the same, but due to the increased sensitivity at the surface of the post-synaptic receptor, the synapse reacts more rapidly to the same chemical signals. D is a nice example of what we compared to strength training of the muscles above. Following learning, the synapse is like the biceps that has become full and thick through exercise. Example F is of special interest to psychologists: in human learning it is often important to learn something new *and* at the same time unlearn older patterns. A client who wants to learn to stay more relaxed in stressful situations rather than immediately fly off the handle has to unlearn the old behavior as well as acquire new ways of responding. This can be achieved if the old neural network is utilized as little as possible. Example F shows what happens to a neuronal connection that is no longer used: it is lost and replaced by new connections among neurons. In psychology we would call this a successful developmental step.

Memory is based on neural networks

In seeking to understand Hebbian synaptic plasticity, we have thus far only looked at the case of two neurons. However, plastic changes in the brain not only create connections between pairs of neurons, but also within entire groups of neurons. Memory is not stored in any single brain center; it is built up in many components in far-reaching neural networks (Goldman-Rakic, 1992), and memory processes take place in widely distributed, multi-segmented networks (Markowitsch, 1998, p. 104). The brain contains between one billion and three trillion neurons (The Society for Neuroscience, 2002, p. 4). Individual nerve cells are connected to

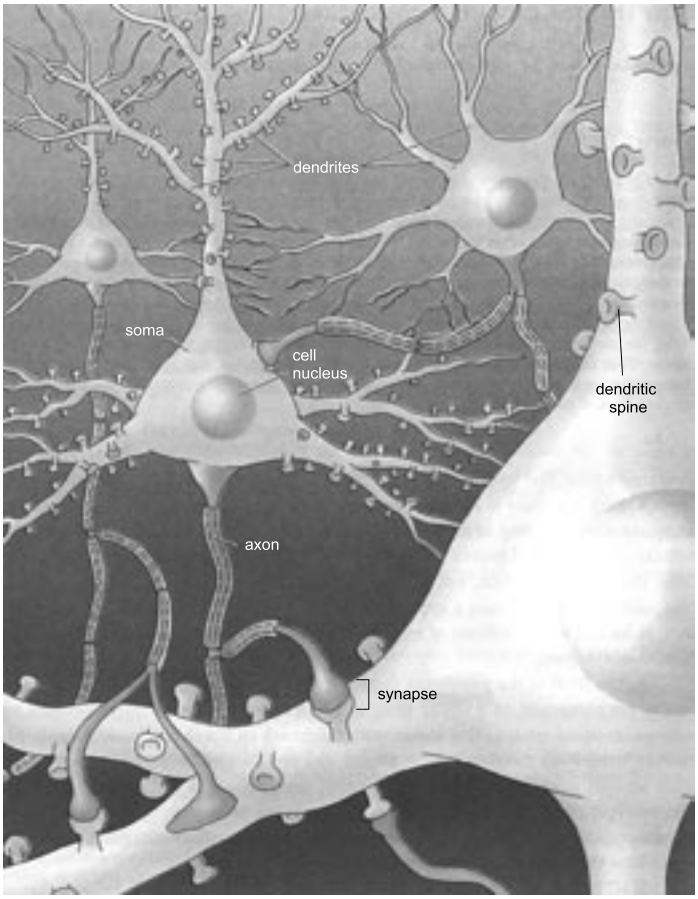


Figure 3: Neural netwirks (taken from Rosenzweig, Leiman & Breedlove, 1996)

one another through synapses and dendrites, as shown in Figure 3. At the level of the neurons, the knowledge that makes up the contents of memory can be seen as enhanced probability of the activation of specific patterns of neuronal excitation. These patterns of excitation are organized in so-called neural networks, or cell assemblies. Cell assemblies are the building blocks of memory. Without them, we would drown in a sea of sensory data. We would not be capable of organizing or retrieving the enormous streams of information that we receive.

Cell assemblies consist of many thousands of cells, but the connections develop in such a way that activating any part of the loop by a stimulus causes the rest of it to activate, too. Repetition leads to a strengthening of the connections of the entire nerve complex as a strong loop and

increases the possibility of the whole thing being activated in the future. EDELMAN (1987) described this phenomenon using his concept of reentrant mapping. As an example of the process of reentrant mapping RATEY (2001) described the emergence of a neural network called "grandmother" this way: According to Edelman's theory, the perception of a chair or your own grandmother is based upon repeatedly occurring signals that link the activity of several maps in regions of the brain … each brain region contributes to your recognition of the chair or grandmother, and that explains why recognition is triggered by a number of different kinds of sensory information: the smell of mothballs, the taste of paprika, a gray-haired woman, a figure sitting and crocheting in a rocking chair, an elderly female voice (RATEY, 2001, p. 173). In the language of neuroscience, in a neural network the information from the different areas of the brain become connected as units through *multidimensional encoding*. KOUKKOU and LEHMANN (1998a) write that the mnemonic representations (the neural networks) are encoded in individually acquired symbols of language; in other, non-verbal representations such as forms and colors and so on; and in individually acquired emotional information (p. 352).

There are other interesting points of view concerning multidimensional encoding, however. In their definitions of multidimensional encoding, RATEY as well as KOUKKOU & LEHMANN refer to the encoding of sensory signals, linguistic-cognitive aspects, and emotional aspects. DAMASIO (1999) adds still another aspect that contributes to the multidimensional encoding of a neural network: memories of an object that was once perceived in reality contain not only representations of sensory aspects like color, shape, or sound, but also representations of (bodily) adaptive responses, body state maps, that necessarily accompany the collecting of the sensory signals. Further, memories also contain representations of the unavoidable emotional responses to the object. When we recollect an object, we thus retrieve not only sensory data, but also the accompanying motor and emotional data. This means that we retrieve not only the sensory peculiarities of the real object, but also our past responses to that object (1999, p. 160). Neural networks therefore also encode information at the level of the body. Taking Ratey's example of "grandmother," this would mean that when we remember Grandma at the emotional level, we might get a feeling of security, for example, and remembering her at the physical level, we might experience a good "gut feeling."

Hebbian plasticity also applies to groups of neurons. When particular excitation patterns become well established through frequent repetition and, therefore, linked in cell assemblies, the group of neurons becomes more easily activated. The interesting fact for psychology here lies in one of the brain's particular characteristics, the ability to see perceived incomplete patterns as closed and complete, which was already described by Gestalt psychology as the law of closure (TSCHACHER, 1997) and is related to invariant pattern recognition. With increasing facilitation of the neural network, the pattern of excitation is increasingly easy to activate from very different points and with ever less sensory information. This explains why hearing the song

that was playing during our first kiss can immediately evoke all the pleasurable feelings that belonged to that context. This effect can be unpleasant as well, such as when the typical "hospital smell" triggers all kinds of unpleasant associations. ROTH (1996) writes that sometimes, mere fragments of real sensory data are sufficient to generate a complete percept, which originates not from the sensory organs, but comes instead from memory (p. 267). GRAWE (2002) describes this as follows: Individual memory contents are represented by specific neuronal activity patterns for which, due to previous facilitation, there is an increased readiness in the form of synaptic connection weights, as Hebb described for cell assemblies. Recalling a memory involves reconstituting the neuronal activity pattern present at previous input under the influence of current context conditions (p. 230).

Neural networks build and organize psychological events

Up to now, we have examined how learning takes place and how, at the level of the neuron, the building blocks of memory become linked. The task now is to establish the connection to psychology. From the perspective of neuroscience, all aspects of normal mental functioning as well as all neurotic behavior arise from the normal functioning of the mnemonic functions of the human brain (KOUKKOU & LEHMANN, 1996). Furthermore, the organizer of the genesis, coordination, and control of the quality of all dimensions of human behavior, at all ages and in all states of consciousness, is the amount and quality of the acquired and created knowledge in the brain of the individual. Here memory and the stored information take on crucial significance as regards both the human mind and behavioral control.

Psychologists have a term for the phenomenon of connectivity, the joint activity of many components in a unit, which in the terminology of neuroscience is called the neural network. The psychological term is *schema*. GRAWE (2002) writes that Hebb's cell assemblies, Edelman's neuronal groups, or facilitated neuronal activity patterns are what PIAGET (1976), BARTLETT (1932), or NEISSER (1967) called "schemata."

The way that a schema influences perception can be described as follows. The percept is actively "constructed" on the basis of the available activity pattern stored as memory content, whereby current, real context conditions together with the facilitated activation tendencies influence the perception that actually arises (GRAWE, 2002). To illustrate this concept, we can apply the notion of schemata-guided perception to Ratey's "grandmother." Ratey's grandmother evidently carried the scent of mothballs and liked to cook a dish seasoned with paprika that left a strong impression on the young boy (Ratey does not mention whether this was a pleasant or unpleasant emotion). She sat in a rocking chair crocheting and had the voice of an old woman. At the cognitive level, she is encoded semantically as "grandmother," and, in addition, at the emotional level a number of feelings connected with grandmother have been stored in

Ratey's memory (such as a feeling of comfort) as well as various encoded bodily states (a good "gut feeling"). Because Ratey saw his grandmother often when he was a boy, all the different sensory data, which are perceived in various regions of the brain, have become associated in a neural "grandmother" network through reentrant mapping. In the language of psychology, we would speak of a grandmother *schema* that is encoded in multiple dimensions – cognitive, emotional, bodily.

In the framework of a similar concept in perceptual theory, KOUKKOU and LEHMANN (1998a) find a neurological basis for the psychoanalytical concept of transference (p. 362f). As we have noted, the brain has the ability to see figures with gaps as closed and complete (law of closure). Just one element of the neural network, if well established, can suffice to co-activate the entire network. If Mr. Ratey comes for an analytic session, and his analyst possesses two or three elements that activate his "grandmother" neural network (say, gray hair or elderly voice), the "grandmother" glasses he wears will color his perception of the analyst. Or, in the language of psychoanalysis, "grandmother" transference occurs.

Beyond a person's features and characteristics, however, we also learn the experiences that we have when we interact with that person. As MERTENS (1998, p. 72) describes it, as development progresses, children come to form expectations of how the significant other will react to their own intentions and actions, and they also think about the motives and intentions that guide the other's behavior. During the learning process, a neural network develops for "grandmother" that, in addition to schema-guided perception, also activates corresponding action tendencies, emotional tendencies, and motivational tendencies. The same applies, of course, for learning processes in relation to animals, objects, or complete sets of contexts and situations.

MERTENS (1998) provides a detailed overview of various psychological concepts that can be readily correlated with neural network models of memory formation. They include PIAGET'S (1952) sensorimotor schemata in the genetic epistemological perspective, DOWNING'S (1997/1994) affect-motor schemata in the body therapy approach, DORNE'S (1993) perceptual-emotional action patterns described from a psychoanalytical perspective, and STERN'S (1985) RIGs (representations of interaction that have been generalized) in early childhood development research.

Staying with this neuroscience-based model of mind, we can describe psychological development as the expansion of memory contents and, therefore, as learning. Following this logic, GRAWE (2002) proposes that psychotherapy can be viewed as the process of modifying memory contents. Psychotherapy, says, Grawe, focuses to a large extent on lasting change to arbitrary, controllable behavior. For this reason, we need models in psychotherapy that do justice to this complex learning process (ibid., p. 276). For Grawe, the goal of psychotherapy is to influ-

ence arbitrary, controllable behavior. This raises the question of how mental events are regulated according to the neuroscientific perspective.

How is mental activity regulated?

We have looked at the ways that neuroscience can model mental processing, but now the question arises as to the nature of the regulatory processes that assure the psychobiological well-being of the organism. First of all, it becomes immediately clear that we must discard the notion that the thing that we experience as the self is the central control organ of our lives and mental/emotional lives. Following Grawe, the self that we experience is a quality that emerges from the totality of the neuronal processes that take place within us. Our self does not monitor and control these processes; it is the *product* of those processes (GRAWE, 2002; see also LEDOUX, 2002).
Consciousness, which psychological theories couple with the notion of ego activity, does not take on the central role in the neurosciences that academic psychology has longed ascribed to it. The reason is that the major portion of brain activity takes place via unconscious processes. According to ROTH (2001, p. 218f), only those processes are conscious that are connected with activity of the associative cerebral cortex. This means that we are not conscious of all the activities that occur in the brain when, and for as long as, the associative cortex is not active. Figure 4 shows the areas of the cortex of whose activity we can be conscious.

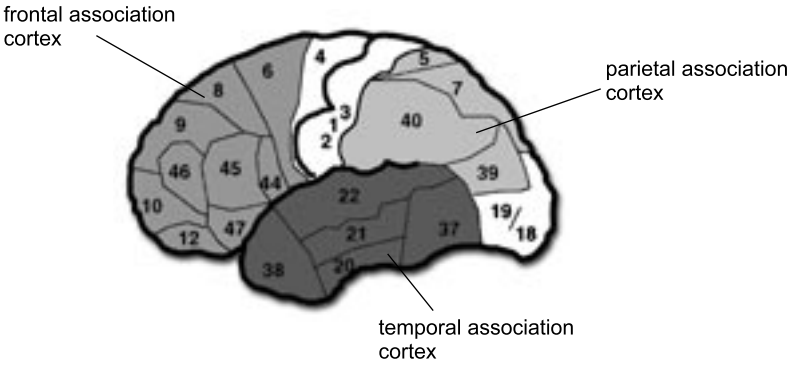


Figure 4: Association cortical areas with conscious activity

The distinction between conscious and unconscious processes in the brain corresponds to the distinction between explicit and implicit processes in the psychology of memory (SCHACTER, 1987). GRAWE (2002) provides a detailed overview. Grawe also writes that the existence of an unconscious function mode is not merely a psychoanalytical notion; it has been demonstrated empirically. The conscious and unconscious modes show different types of functioning and are grounded in different anatomical brain structures. Explicit processes require time and atten-

tion; implicit processes can be called up automatically in seconds. Explicit processes are vulnerable to disturbances; implicit processes, once evoked, function reliably. As explicit processes are much more expensive in terms of energy-metabolic physiology than implicit processes, Roth calls them the brain's special tool (ROTH, 2001, p. 231). For the organism, consciousness is a state that it is well-advised to stay clear of, a tool to be used only in emergency situations (ibid., p. 231). Explicit, conscious processes are only set into motion by the brain if processing below the level of consciousness, called preattentive perception in the neurosciences, registers an object or situation that is "new" or "important." If things are registered by preattentive processing as "familiar" or "unimportant", processing remains implicit. The brain has the tendency to transfer even those contents that require focused attention and "expensive" consciousness into implicit memory as soon as possible. This is achieved through repetition and practice.
The more that sequences are repeated, practiced, and then finally made more or less automatic and requiring les effort, the less attention and consciousness is needed. Finally, if at all, only a certain level of accompanying consciousness remains. For instance, if you compare your first driving lesson with how you drive today, the difference between explicit and implicit processing becomes evident. Basically, this ability of the brain to process many things automatically in the implicit mode is an advantage. However, for psychological processes, this ability can sometimes become a problem. This is the case when maladaptive neural networks take over the control function and evoke in people perceptual tendencies, motivational tendencies, and behavioral tendencies that are detrimental to psychobiological well-being.

There is a part of the implicit memory system that is of particular interest to psychotherapy. ROTH calls it emotional experience memory. According to Roth, emotional learning for the most part takes place subcortically and implicitly, even when it is experienced consciously or is induced (2001, p. 320f). For Roth, top-down conscious control over emotional experience memory is hardly possible. This opinion is supported by psychological research. GRAWE (2002) writes that it is not possible to influence emotional reaction tendencies that are stored in implicit emotional memory through conversation alone. ROTH illustrates this with an example: people who are anxious by constitution or due to early childhood conditioning can hardly calm themselves by simply telling themselves that a test is just a test; this recognition will not free people of their examination anxiety (2001, p. 320). Figure 5 shows the interaction of the cortical and subcortical levels according to Roth. Thin and thick arrows represent the degree of influence that the one can have on the other.

Let us look more closely at the example of examination anxiety and how psychotherapy may help. A person's anxiety about tests is stored in the implicit memory system. From the brain's point of view, this is good, because – as Roth notes – our conditioned feelings are nothing more than concentrated life experiences (ROTH, 2001, p. 321). It is advantageous for the organism to make these concentrated life experiences available in this rapidly accessible and highly reliable

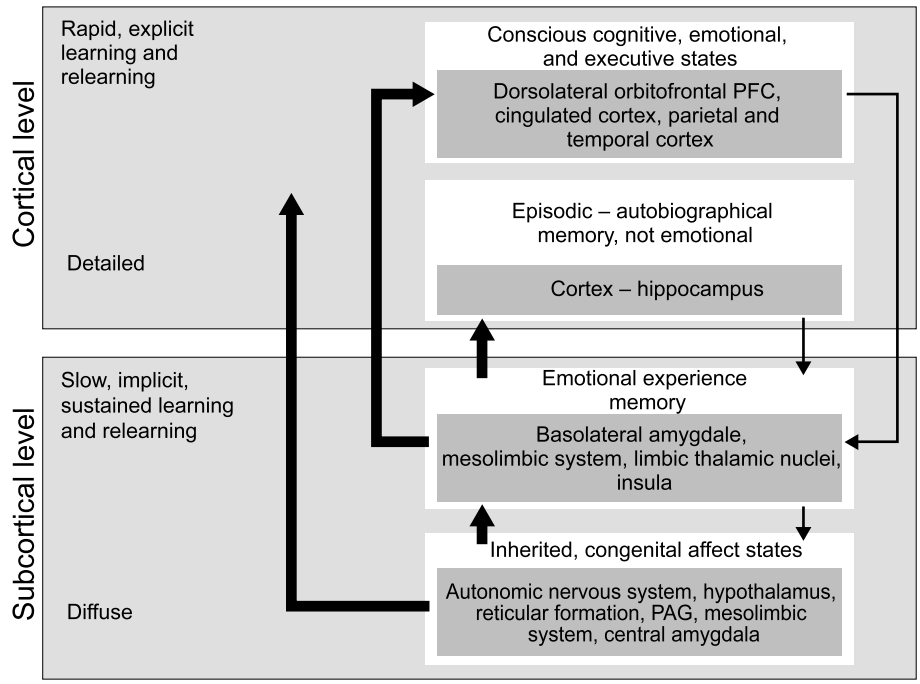


Figure 5: Interaction of cortical and subcortical levels (taken from Roth, 2001)

implicit mode. This useful process becomes a problem only when something is stored in the implicit mode that that does not contribute to the well-being of the organism. In this case, psychotherapy must attempt to replace the unwelcome automatic process with a new process that promotes psychobiological well-being. What does this look like at the neuronal level?

As we have seen, memory contents are stored at the neuronal level in the form of neural networks and corresponding activity patterns. This is true of both explicit and implicit memory. Higher-level psychological processes can also be described in these terms. GRAWE (2002) assumes that all the peculiarities of mental/emotional processes are grounded in particular neuronal excitation patterns. The increased probabilities of these patterns of excitation are stored in various types of memory. Moreover, we know that with strongly established patterns of activity, activation of part of a cell assembly kicks off activation of the entire assembly due to facilitated association. Accordingly, an intended modification of response or behavior would be a new neural network. It would have to be so strongly established that it would replace older, no longer desirable automatic connections. The desired neuronal pattern of excitation must be transferred from the explicit mode to the implicit mode, so that it can run as a process reliably and without disturbance.

This principle can be described quite simply and elegantly, and for that reason the neuroscientific perspective provides in this connection a useful guide for psychology. HÜTHER (2001) writes that the individual must "reorganize the neuronal connections in his brain" (p. 137). Implementation of the principle, acquiring a new neuronal activity pattern and making it automatic, will involve, of course, all manner of effort and difficulties that come with learning in general: time, patience, and perseverance are required. No one can learn to drive a car in a day. GRAWE notes that as long as such new patterns of activity are not yet firmly established, they require conscious processing capacity. Through frequent repetition, the new connections become ever more facilitated. They are more readily activated and gain easier influence over mental activity without requiring consciousness.

Following neuroscientific concepts, psychotherapy can be defined as the acquisition of well-adapted neural activation patterns that, through practice and training, can become automatic enough that they increasingly take over the regulatory function from older, maladaptive activation patterns. This conception of psychotherapy follows quite naturally upon a major finding of psychotherapy research, often emphasized by GRAWE (2002), that successful psychotherapy involves *resource activation*. GRAWE says that the neuroscientific conception of psychotherapy allows us to define that which in the psychotherapeutic process is seen as a resource. This resource can now be defined as a neuronal activity pattern that can be evaluated as positive. Whereas the term "resource" is often used in an unclear manner in psychotherapy contexts (STORCH & KRAUSE, 2002; SCHIEPEK & CREMERS, 2002) and is therefore not always easy to operationalize in practice, resource – conceived as an adaptive neuronal activity pattern – can much better serve as the basis of psychotherapeutic action. In the following section, we turn to the problem of recognizing adaptive neural networks, that is, neural networks that can be called resources.

The diagnostics of adaptive neural networks

Grawe addresses the process of assessment when he defines resource as a neural activation pattern that can be evaluated as positive. How is the psychotherapist to know when neural activation patterns are to be assessed as positive? This issue has a long tradition in psychology and is held to be problematic. Much of the research in this area comes from goal psychology, that branch of psychology that deals with personal goals (an overview is provided in STORCH & KRAUSE, 2002). A well-known finding of this research tradition is that people who follow their goals with a high degree of self-perceived self-determination, self-commitment, or intrinsic motivation (KUHL, 2001, p. 223) report more satisfaction with life and subjective well-being than people whose goals have been determined by others. The problem for psychotherapy lies in correctly identifying the subjective, positive goals of patients. At first glance, it does not seem possible to measure objectively the degree to which an action or goal has been set by the person or by others (KUHL, 2001, p. 223). KANFER ET AL. (1990) quite correctly point out a possi-

ble source of error in this process: if we presume to form conclusions about clients' goals and plans merely on the basis of our own ideas, there is always the danger that we will think that we know their plans, when what we are really doing is formulating only our own fantasies of clients' plans (p. 265).

Positive adaptive goals – and thus resources to be activated – would therefore be goals that the patient experiences as highly self-determined and that motivate the patient to achieve realization. The neurosciences offer psychotherapy a useful concept as regards to how these positive adaptive goals can be diagnosed reliably. This is Damasio's hypothesis of "somatic markers" (DAMASIO, 1994), which explains how emotions are biologically indispensable to decision-making. Somatic markers are the bodily sensations ("the gut feelings") that are associated with a particular outcome of an action. Somatic markers are part of a biological assessment system that emerges through experience and functions using physical and/or emotional signals. Somatic markers control appetence (seek pleasure) and avoidance behavior (avoid pain). All objects and situations that an organism experiences leave somatic markers that store an assessment of the encounter. Evaluation consists in a dual system of "was good, seek out again" or "was bad, avoid in future" and takes place extremely rapid (<120ms) (SMITH ET AL., 2003). If a person encounters a similar object or situation later on, or even anticipates how she will respond to such an encounter when planning and thinking about future outcomes, somatic markers provide her with instantaneous information on her previous experience (BECHARA ET AL., 1997). Of course, decision-making also involves reasoning, but it comes into play only after somatic markers have long been activated. DAMASIO (1994) describes how the system of somatic markers works:

> In a "situation which calls for choice ... the brain of a normal, intelligent, and educated adult reacts to the situation by rapidly creating scenarios of possible response options *and* related outcomes. To our consciousness, the scenarios are made of multiple imaginary scenes, not really a smooth film, but rather pictorial flashes of key images in those scenes, jump cut from one frame to another, in quick juxtapositions" (p. 170). ... "The key components unfold in our minds instantly, sketchily, and virtually simultaneously, too fast for the details to be clearly defined. But now, imagine that *before* you apply any kind of cost/benefit analysis to the premises, and before you reason toward the solution of the problem, something quite important happens: When the bad outcome connected with a given response option comes into mind, however fleetingly, you experience an unpleasant gut feeling. Because the *feeling is about the body, I gave the phenomenon the technical term somatic* state ("soma" is Greek for body); and because it "marks" an image, I called it a *marker*. … What does the somatic marker achieve? It forces attention on the negative outcome to which a given action may lead, and functions as an automate alarm signal… The automated signal protects you against future losses, without further ado, and then allows you *to choose from among fewer*

alternatives. There is still room for using a cost/benefit analysis and proper deductive competence, but only after the automated step drastically reduces the number of options" (p. 173).

Damasio's example refers to cases where somatic markers act as an alarm bell if the outcome of actions is likely to be undesirable based on previous experience. They thus help to sift options in decision-making. But for resource activation in psychotherapy, positive somatic markers are also of interest. It is in these emotional reactions connected with positive somatic markers and accompanying bodily responses (good "gut feelings") that we now see the *neurobiological basis of the motivation system*. There is ample empirical evidence from motivational research in psychology that the forming of intentions is coupled with the emergence of positive emotions (GOLLWITZER, 1991, 1993). In Kuhl's personality psychological conception of the functioning of the psychological processes, positive emotions and motivation form a unit; Kuhl sees the ability of self-regulated recruitment of positive affect as the crucial determinant in self-determination and intrinsic motivation (KUHL, 2001, p. 177). Roth, as a neuroscientist, also sees this connection: emotions intervene in behavioral planning and control in that they play a part in the choosing of an action and promote certain behaviors; as "will" they energize actions during execution, and as fear and aversion they suppress others (ROTH, 2001, p. 7).

Somatic markers do not have to be perceived consciously to be effective, as DAMASIO (1994) demonstrated in "gambling" experiments with decks of cards (p. 212f.). The subject sits in front of four decks of cards, and the goal of the game is to lose as little as possible of a $2.000 loan. After playing from the four decks, which according to undisclosed rules pay out or require payment from the player, the player begins to have a gut feeling about which decks to play from. Before and beneath the conscious hunch that some decks are more dangerous than others, "there is a nonconscious process gradually formulating a prediction for the outcome of each move" (p. 214) and "telling the player that punishment or reward is about to strike" (ibid.). Damasio examined the physiological correlates of the nonconscious process, the somatic markers, by measuring skin conductance responses. All people possess this system of somatic markers and would show skin conductance responses in Damasio's experiment, but not everyone has bodily perception abilities that are sufficiently trained to consciously perceive the bodily signals. This fact also has consequences for psychotherapy.

KUHL'S (1998, 2001) theory of self-regulation examines in detail how insufficient discrimination of self-determined and externally determined goals are related to psychopathological symptoms. Psychological research provides ample evidence that self-congruent generation of goals (self-determination) more frequently leads to successful goal achievement than goals having low self-congruence (SHELDON & KASSER, 1995, 1998). Kuhl points out that the self-

congruence of goals is monitored by a memory system that works in the implicit mode and is closely linked to bodily reactions. It thus makes sense to conceive of the signal system of somatic markers as the neuroscientific model of the specific abilities of the self-congruent person described by Kuhl, who has good perception of her own reactions and can organize her life accordingly. In this regard, Kuhl defines self-regulation as the ability to form and pursue self-compatible goals that are supported by positive emotions (1998, p. 66). Psychotherapy's task, accordingly, would be to provide proprioception training to people who are not able to perceive their somatic markers, in order to promote in the long term self-congruent generation of goals. There is an advantage here in that, according to Kuhl, the system of somatic markers is always active; what is underdeveloped or unlearned are only proprioceptive abilities. According to this, DOLAN (2002) identifies an urgent need to adress how the growth of emotional awareness informs mechanisms that underwrite the emergence of self-identity and social competence.

Another aspect of somatic markers is also crucial for psychology. Somatic markers are evoked not only in real situations, such as in Damasio's gambling experiments, but are also triggered when people think during phases of conscious deliberation and planning. DAMASIO calls this process the "as if" loop (1994, p. 174). As LEDOUX (1996) notes, in certain situations it is possible to imagine what bodily feedback would feel like if it appeared (p. 318). This is of course only possible if the brain has already experienced real feedback a number of times and thus can access knowledge that allows it to imagine how the feedback feels. The "as if" loop is particularly interesting for psychotherapy and the work with clients. Because of this phenomenon, it is safe to assume to that when clients consider behavior alternatives in the virtual experiential space of the therapeutic dialogue, the somatic marker system will be activated.

Somatic markers are highly individual, for they result from experience. DAMASIO writes: "The critical, formative set of stimuli to somatic pairings is, no doubt, acquired in childhood and adolescence. But the accrual of somatically marked stimuli ceases only when life ceases, and thus it is appropriate to describe that accrual as a process of continuous learning" (1994, p. 179). Naturally, somatic markers alone are not all that is needed for human decision-making. In this, emotion and cognition cooperate. The biological assessment system of somatic markers provides an initial qualitative ranking and pre-selection that is often, if not always, followed by logical reasoning and final selection. Damasio found that patients with lesions of the prefrontal cortex, the processing area for somatic markers, are not able to make decisions (BECHARA ET AL., 2000). They remain caught up in an endless process of cost-benefit analysis and never reach a decision. Damasio's studies demonstrate that emotions and their accompanying bodily states are thus an *integral part* of the decision process and therefore *indispensable* for rational behavior.

The finding that bodily sensations and emotions not only support decision-making but make them possible in the first place is exciting in its own right. But Damasio's findings have further consequences that are of particular interest to psychotherapy. Damasio's considerations, namely, accord remarkably well with the functions of the self system as viewed from a personality psychology perspective. For this reason, Kuhl, who is a motivation and personality psychologist, also refers to Damasio's concepts in his work on the functioning of the self system. According to KUHL (2001), the self system registers the personal relevance of behavioral consequences (such as their need satisfaction potential) and feeds this information into behavioral control in later situations. The information must represent not only previous actions and their results, but also the emotional reactions accompanying the results in an integrated manner. Without these emotional reactions, it would be difficult to choose among various previous responses when similar situations occur in the future (p. 153). The emotions experienced and associated body states, Kuhl notes, evidently belong to the signals that help the self system to decide among the behavioral options that have been tried out in the past (ibid., p. 153).

Expressed in the language of psychology, emotional experience memory, via the signal system of somatic markers, not only provides general support to decision-making, and not only helps to trigger motivation processes through positive somatic markers. Instead, it is a direct reflection of that which makes up our deepest experience of the self. This has the following consequence: the appearance of positive somatic markers is a direct signpost pointing to the topics, contents, intentions, and plans that the self system of the client supports. In this connection, therefore, somatic markers can be utilized as *diagnostic indicators of self-congruence*. They indicate whether the client experiences a decision made as consistent with the self. The advantage for psychotherapy in working with somatic markers as a diagnostic guide is that somatic markers are based on bodily states. This means that they are relatively simple to observe and measure and thus can be objective. Through the guiding system of somatic markers, the concept of "self," which is very difficult to operationalize, becomes more accessible to scientific research and therapeutic practice.

Conclusions

Neuroscientific perspectives have a dual relevance for psychology and psychotherapy. For one, the neurosciences can contribute to the grounding of psychological concept formation in an empirical basis. This became evident when we looked at, for example, the concepts of "the mind," "transference," "resource activation," "motivation," and "self-congruence," or "self system." On the basis of my work in the areas of personality theory, identity theory, and self-concept research as a researcher and therapist (STORCH, 1999). I am convinced that the field can only profit from a more uniform formation of concepts. Certainly, students would gain more rapidly an overview and understanding of the central variables in the field than is the case at present.

For another, the neuroscientific perspective has great integrative power for successful communication and mutual understanding among the various schools of psychotherapy, which I see as an important task for all practitioners and theorists in psychology who seek a future orientation in their work. The neuroscientific models of psychological regulation systems contain representations of all currently recognized directions in psychotherapy in their essential aspects – from behavior therapy regarding learning aspects to psychoanalysis regarding aspects of the unconscious. The view of man in humanistic forms of psychotherapy accords with the neuroscientific postulate that the human brain possesses the potential to assure psychobiological well-being and health and that this highly individual process, taking a constructivist approach, must be treated with respect. And all forms of therapy that work with body aspects in the broadest sense find in neuroscientific considerations a further empirical basis for their methods. All forms of solution-oriented therapeutic approaches find support in the concept of the automaticity of resource-activating neural networks.

In this sense the neurosciences can certainly not replace psychotherapy theory development, as they deal with only a part of the psychological system, namely, that part that can be tapped and described at the biological level. Mental/emotional experience, however, can in the end most assuredly not be described as a mere storm of neuronal activity or reduced to a few biochemical changes in the brain's metabolism. In the neurosciences, however, there is no such intention to do so. DAMASIO (1994) offers the following comment on the consequences of neuroscientific research for the particular importance and value of higher psychological processes: "Does this mean that love, generosity, kindness, compassion, honesty, and other commendable human characteristics are nothing but the result of conscious but selfish, survival-oriented neurobiological regulation? … That is definitely *not* the case. Love is true, friendship sincere, and compassion genuine, if I do not lie about how I feel, if I really feel loving, friendly, and compassionate" (p. 125); "Realizing that there are biological mechanisms behind the most sublime human behavior does not imply a simplistic reduction to the nuts and bolts of neurobiology" (p. 125f.)

In this way, therefore, psychology and psychotherapy should utilize the neuroscientific perspective as an integrating resource, without falling into the trap of biological reductionism. For psychology also has linkages to the arts and humanities, which are just as important for our understanding of human beings and the nature of human existence as are natural scientific findings.

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Correspondence address:

Dr. phil. Maja Storch
University of Zurich
Institute of Pedagogy
Scheuchzerstr. 21
CH-8006 Zurich
Switzerland
Phone: ++41 / (0)1 / 634 45 72
Fax: ++41 / (0)1 / 634 43 65
e-mail: Storch@paed.unizh.ch

Maja Storch, University of Zurich

Resource-activating Selfmanagement with the Zurich Resource Model (ZRM)

Abstract

This article is the second part of a study contributing towards coordinating and integrating various forms of psychotherapy on a sound scientific basis and tried and tested in practice. Here the neurosciences have an important bridging function. The new findings of brain research of the past ten years have made it possible for psychologists to develop concepts with sound theoretical and empirical bases that reveal linkages between the concepts and methods of different forms of psychotherapy. The first part of the study (Storch, 2002; 2004) examined neuroscientific theory. Based on those considerations, this second part introduces a resource-activating method to enhance selfmanagement in psychotherapy, coaching and counseling. It is called the Zurich Resource Model ZRM and was developed and tested at the University of Zurich.

Key words: self-management, personality development, psychotherapy, goal psychology, motivation, neurobiology, resources, self-efficacy, health psychology.

The Zurich Resource Model is the result of fruitful collaboration with my colleague Frank Krause and the numerous, motivated graduate students at the University of Zurich who did papers and theses on the topic. The model, based on neuroscientific findings and psychological theory, provides a theoretical model that is conceived as training in integrated self-management. We also implemented our theoretical considerations in a practical training program, called ZRM Training[1], which is suitable equally for work with individuals and with groups, with adolescents and with adults (Storch & Krause, 2002; Storch, 2003a, Storch & Riedener, 2004). The Zurich Resource Model is comprehensive in concept and was not developed for any specific disorder. It can be adapted to fit the needs of the client and can be used with clinical groups as well as in educational or work psychological settings. We know of no contraindications for using the approach. The effectiveness of ZRM Training is undergoing continuous scientific evaluation in an ongoing research project (Keller, Storch & Bigler, 1999; Keller & Storch 2002a; Keller & Storch 2002b; Storch, Küttel & Stüssi, 2004).

[1] ZRM Training is "Neurodynamic Self Management" (NSM) in English.

ZRM Training and the Zurich Resource Model that forms its basis have the following features:
- concept of "resource," neuroscientifically defined
- development of resources, based on memory theory
- somatic markers to check self-concordance
- resource-guided theory of action.

ZRM Training can be conducted in group settings, either as a block course of three days' duration or as a series of five sessions (each three to four hours long). For individual therapy, the parts of the training seminar can be scheduled as desired. For groups up to 12 people, one experienced trainer, or coach, can conduct the training seminar; for groups larger than 12, two coaches are required. The maximum size for a ZRM Training group is 20 persons. However, for clinical groups and for young people, it is recommended to keep the group size small (six to ten persons). A detailed and well-documented manual of the training methods and procedures is available (STORCH & KRAUSE, 2002; STORCH & RIEDENER, 2004).

The Zurich Resource Model bases upon the view of man in the tradition of humanistic psychology. Recently, solution-oriented approaches have once again taken up on this view, namely, that all people carry within themselves essential resources that they need to realize their goals. Psychotherapy consists in helping people to discover those resources and to utilize them consistently. This fundamental assumption stands in excellent agreement with a neuroscientifically-defined definition of the concept of resource. Resources in this sense are all those neural networks that when activated, put the person in the state required in order to implement goals in action. Resource as a concept underpinned by neuroscience is also supported by GRAWE (1998, 2004). In the first part (STORCH, 2002; 2004) of the present study, we looked at the fact that, from a neuroscientific perspective, the psychotherapist's task much resembles that of teachers. Psychotherapy, in this view, consists in unlearning maladaptive knowledge and learning the adaptive knowledge that assures psychological well-being. The task entailed in this psychotherapeutic procedure is to identify the adaptive knowledge that is an appropriate replacement for the particular individual's undesirable, maladaptive knowledge and to understand how new, desirable and, thus, adaptive knowledge can be successfully implemented in the person's daily life. The heuristic model that we chose for translating this process into a scientifically-grounded and comprehensible systematic is the Rubicon model by HECKHAUSEN (1991) and GOLLWITZER (1990), extended for our purposes. We call the extended form of the model the "Rubicon Process" to underline that the model presents a sequence of individual steps leading towards systematic goal-realizing action. This will be described in the following.

The Rubicon Process

Heckhausen and Gollwitzer's Rubicon model is a motivation psychology model of goal-realizing action. The model shows the entire sequence of a person's goal-directed activities starting out from an action goal, something that the person desires to do. The model gives an overview of various "maturing" phases that a wish or desire – once it becomes conscious – must go through before the person is mobilized, motivated, and activated to turn a wish into a set goal, follow it with determination, and realize it in action. Heckhausen developed a conclusive and well-founded description of the course of the action phases, which aids laymen and professional counselors alike in finding the correct route to goal realization. Heckhausen chose the term "Rubicon" in allusion to the decisive moment in 49 B.C. when Julius Caesar, after much deliberation, decided to cross the river Rubicon with his soldiers, declaring "alea jacta est" ("The die is cast") and effectively starting a war. The Rubicon model is, of course, not a theory to explain how wars are started. But it analyses the basic problem in motivation psychology, namely, that there is a metaphorical Rubicon to cross between the separate and distinct processes of how intentions to act are formed (the pre-decisional phase) and how action goals are realized (the implementation, or actional, phase) (Gollwitzer, 1991, p. 39). In other words, it analyses the process of what wishes must go through such that they can be implemented effectively in pertinent actions (Gollwitzer, 1991, p. 39).

The Rubicon Model in its original form divided the action stream into a sequence of four succeeding action phases, beginning with a motive and ending with action. However, Gollwitzer's concept of motives seems too imprecisely defined to be applied with any benefit in practice: "the motives of a person are understood as the more or less strongly bubbling sources of wish production" (Gollwitzer, 1991, p. 40, freely translated here). As a consequence, criticism has been directed to the weakness of the original model, namely, that the description of action phases begins only with *consciously* perceived motives, wishes, or fears (Grawe, 1998, 2004). With the model, Gollwitzer is not interested in studying the basis of the "bubbling source"; it is merely a given. Neuroscientific theory formation starts out from the assumption that the forming of motives must be sought in unconscious processes. "The unconscious, limbic memory of experience steers – just as Freud said – our actions much more strongly than our conscious ego; it expresses itself as motives, likes and dislikes, moods, drives, wishes, and plans that are experienced as relatively diffuse and lacking in detail" (Roth, 2001, p. 373, freely translated here). From a motivation psychology perspective, Kuhl (2001) starts out from the assumption that every conscious motive originates from a core need (p. 553). For this reason Grawe (1998, 2004) proposes inserting into the model a very first phase, prior to the conscious motivation phase, that contains unconscious and preconscious needs. Figure 1 below depicts the Rubicon Process (the Rubicon model has been extended to include this pre-phase) corresponding to the ZRM Training method. This extended process model distinguishes among, need, motive, intention, pre-actional preparation phase, and action.

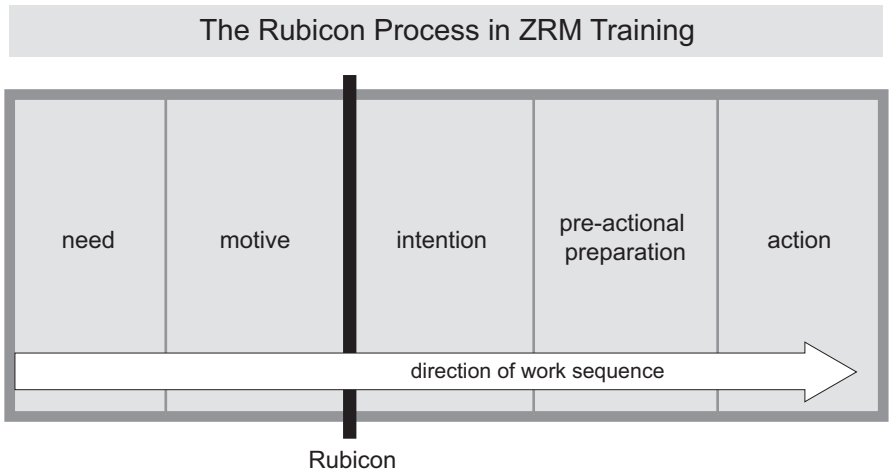

Fig. 1: The Rubicon Process.

As the Rubicon Process represents a theoretical system, whereas ZRM Training was developed for practical implementation, the individual phases in the training are given different weightings and foci for therapeutic work. Phase 1 of ZRM Training addresses the transition from need to motive. Phase 2 is the "crossing of the Rubicon." In Phase 3 of ZRM Training, a resource pool is developed, which in the logic of the Rubicon Process falls under the area of "pre-actional preparation." Phase 4 of ZRM Training also works on pre-actional preparation, but with a different focus. In the Rubicon Process, the phase of pre-actional preparation leads to action. Action itself can no longer be considered part of the training, for training participants at this point in time have completed the training seminar. Nevertheless, it is possible to initiate, during training, additional measures to assure transfer, to assure that participants will have support when they are "out there" in their everyday lives. This is the subject of Phase 5 of ZRM Training, which deals with social resources. As is usual with out-patient or stationary psychotherapies, action is usually executed outside the therapeutic setting, but the therapist can monitor this much more closely than with a training method that is completed in only three days. For this reason, it is always our recommendation that three to six months after the training seminar, a follow-up day is held for participants in a ZRM Training seminar. In the following, the individual phases of ZRM Training will be presented in greater detail.

Phase 1: Key Theme

Phase 1 of ZRM Training corresponds to the transition from need to motive in the Rubicon Process. Recall that in Rubicon terminology, needs and motives differ in the extent to which they are conscious. Needs are unconscious drives and wishes, whereas we speak of motive

once the possessor of the motive has become conscious of an unconscious need and can communicate it to self and others. We extended Heckhausen and Gollwitzer's Rubicon model to include the need phase. It deals with the domains of the unconscious and, thus, with a topic that is originally psychoanalytic. While the first psychoanalytic thinkers had to base their explanations of the interrelations of unconscious processes to a large extent on suppositions and speculation, today psychoanalysts are making increasing efforts to connect psychoanalytic theory formation on the functioning of the unconscious with the findings of the neurosciences (Solms, 2004; Deneke, 2001; Kaplan-Solms & Solms, 2000; Slipp, 2000; Fonagy, 1999; Koukkou, Leuzinger-Bohleber, Mertens, 1998, Leuzinger-Bohleber, Mertens, Kouukkou, 1998). On the other hand, academic psychologists discover the unconscious as fascinating topic, that opnes up to empiric research (Hassin, Uleman & Bargh, 2004; Chartrand & Bargh, 2002; Wegner, 2002; Wilson, 2002).

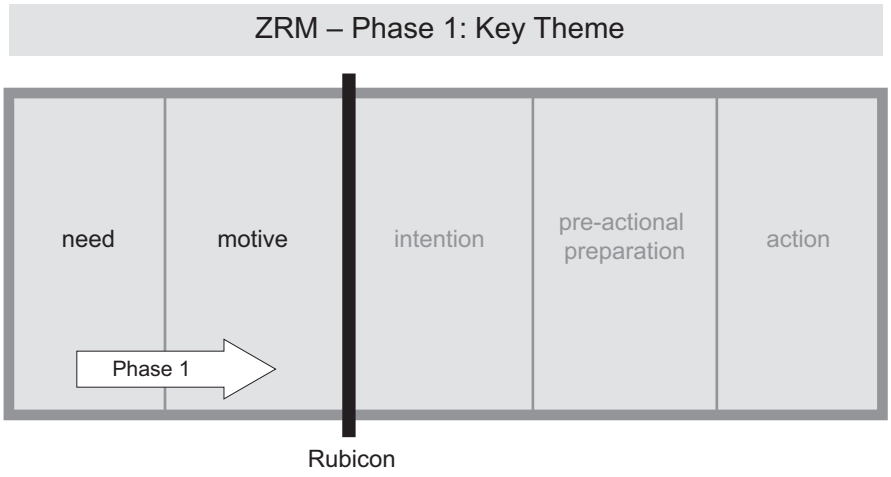

Fig. 2: Key theme.

Kuhl (2000, 2001) supports the inclusion of classical psychoanalysis in academic psychology when he writes that, despite Freud's ground-breaking findings, it requires still today a massive effort at argumentation to explain that study participants, in their self-evaluations, often tell us much more than they can possibly know: consciousness generates explanations continuously, even for those things that the true explanation cannot be known (Nisbett & Wilson, 1977; Wegner & Wheatley, 1999; Wilson, 2002). Not infrequently these explanations contain self-chosen intentions as well as goals suggested by others or some sort of presumed meaningful connection. In everyday life, we often cannot verify whether what a person says about his/her intentions really describes the true forces behind a person's actions (Bargh, 2002).

GRAWE (2004) writes that it is in psychotherapy particularly that we deal with the phenomenon that people follow a number of intentions simultaneously that are actually not congruent and thus work mutually to hinder realization of any one of them. We then speak of conflicts. What is interesting, however, is "that these contradictory intentions very often are not consciously experienced as conflicts. It would then seem correct when psychodynamic therapists speak of unconscious conflicts and accredit a crucial role to their processing and resolution for achieving successful therapy outcomes" (p. 59). Personality psychologists meanwhile widely agree, that the synchronization of unconscious and conscious intentions can be seen as an important factor of psychic health (RYAN & DECI, 2001; KOOLE & KUHL, 2003; DEVOS & BANAJI, 2003).

Going beyond the psychoanalytic realm, the use of so-called projective tests in psychodiagnostics has since become firmly established. The methods are utilized in ZRM Training, based on the assumption that suitable visual material can activate unconscious processes. Unconscious elements are projected on appropriate material. Although projective methods are not always undisputed according to the validity criteria of test theory, they can be used with good reason as stimuli that serve to generate reflection and discussion in the psychotherapeutic context (SCHAIPP, 2001). Based on his conclusions after an extensive review of the literature, KUHL (2001) recommends the use of projective methods for discovering *implicit* themes which cannot measured by using direct inquiry methods as, for example, questionnaires or interviews.

Projective methods have been used traditionally to tap inner psychic conflicts, as described by Grawe. For this reason, visual stimuli are often used that depict situations that can trigger projections of the conflict. From a consistent resource perspective, however, this procedure is not optimal, for the problem-centered visual materials of typical projective methods appeal to the client's deficits, not his/her resources. ZRM Training implements two measures to ensure that important resources in the client are activated from the very start of the therapeutic work. For one, the training seminar works with a *special selection of visual material*. The collection of pictures presented to the client is geared to enabling the client to enter into the development work with an activation of personal resources. It contains only pictures with resource content. This means that the pictures are floral motifs, pictures of beautiful landscapes, animals, scenes of people engaged in pleasant interaction or in pleasant situations when they are alone. Secondly, the clients are given *special instructions* on how to work with the pictures. Clients are instructed to select from the collection those pictures that trigger positive *somatic markers* (1). The selection of pictures in this way assures three things. Putting the focus on positive, and not on negative, somatic markers gives clients access to things that they would like to achieve instead of things that trouble them. In this sense, a resource has already been activated. Then, selecting pictures according to somatic markers instead of conscious decision assures that unconscious contents that the client has have an initial opportunity to articulate themselves.

Following GRAWE (2004, p. 64), moreover, referring the client to somatic markers from the very start makes possible direct and systematic access to the client's affective schemata. This results in deeper processing, or elaboration, following Sachse's model of processing depth (SACHSE 1992) and thus better prospects for therapeutic success.

Phase 2: From Key Theme to Goal

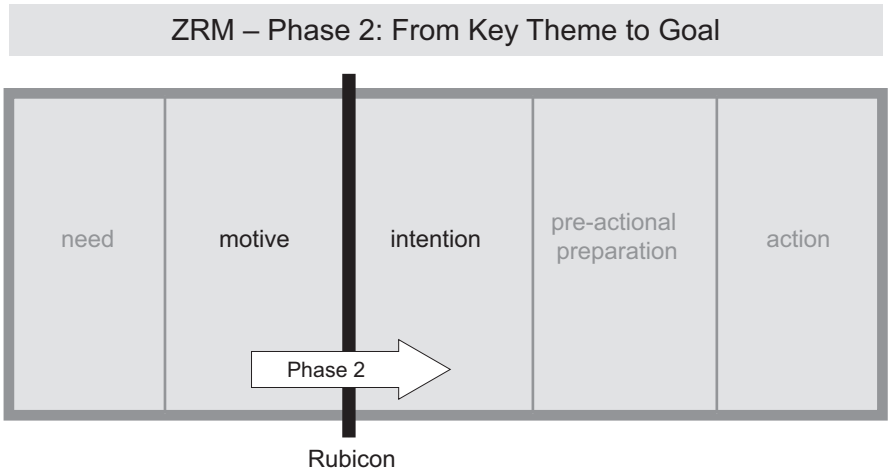

Fig. 3: from key theme to goal.

At the start of Phase 2, motives are available that have become conscious. To reach the route to action, they must go through the next phase, the crossing of the Rubicon and thus the forming of an intention. (Rather than use the word "intention," which in German is a borrowed foreign word, participants are asked to focus on an "action-effective," or highly motivating goal.) Thus, Phase 2 of ZRM Training deals with the crossing of the Rubicon. If Phase 1 has been traversed successfully, a need has now become a motive. The characteristic of motive, in the framework of the Rubicon Process is that it is available to consciousness. An action goal in the form of a motive can be communicated. Also in this phase, possible motive conflicts have become conscious and recognized as contradictory. If the motives that have arisen from unconscious needs stand in harmony, progress to Phase 3, pre-actional preparation, can be fast in the individual client setting. In a group setting, Phase 2 is worked on within the group. Motives that stand in conflict to one another have to be reviewed and evaluated as to their relative weightings in some form or other.

As an important function of psychotherapy, Grawe sees its contribution towards a motivational clarification process that facilitates the forming of clear intentions. Grawe is of the opinion that the deliberation process prior to selection of the goal intention in the Rubicon model presents a suitable starting point for initiating therapeutic changes (2004, p. 64). The transition from motive to intention, the making of a decision, is the metaphorical "crossing of the Rubicon" in the Rubicon model. This is the task of Phase 2 of ZRM Training. It is therefore important to examine the two "sides of the river" more closely.

On the left bank of the Rubicon are the motives, on the right bank an intention. In terms of the experience, the difference between motives and clear intention is called the difference between goal setting and goal striving (Gollwitzer, 1991; 1993; Heckhausen & Gollwitzer, 1987). Feelings play a crucial role in the difference between the two phases and the choosing of goals. The process of search and deliberating moves forward into volition via a feeling of decisiveness and certainty (Michotte und Prüm, 1910). The goal takes on a binding character; there is a feeling of commitment to pursue the goal (Gollwitzer, 1991, p. 42). Kuhl (1996, 1998) also describes the relation between emotion and goal striving in this way: a positive affect is what determines the value of pursuing a goal and helps a person to cross the Rubicon. When the positive affect is experienced, the decision and commitment have been made. Now action can begin.

At this point it is possible to find important parallels in the neurosciences. Damasio (1994) describes in his theory of somatic markers that emotional experience memory, a biological assessment system, evaluates every event in a person's life and associates it with a somatic marker. The dual system of somatic markers assesses situations as "good" or "bad" with regard to the person's psychological well-being. People can perceive these somatic markers via bodily signals and/or feelings. Damasio's studies have shown that somatic makers play a decisive role in decision-making situations. Bodily signals or emotions, as the theory goes, provide the crucial "stop" and "go" signals in motivational processes. It is reasonable to conclude that positive feelings, which are known in motivation psychology to allow the crossing of the Rubicon, are identical with somatic markers as demonstrated by the neurosciences.

Moreover, Damasio has shown that not all people perceive their somatic markers, even though their appearance can be measured physiologically, such as through changes in skin conduction. To help people to successfully end the deliberation phase and cross the Rubicon, a key to a psychological counseling method can lie in directing clients' attention to the emergence of somatic markers from the unconscious, rather than to brood over possible solutions at a conscious level. If we assume that the system of somatic markers working below the threshold of consciousness gives the decisive command to "go!" across the Rubicon, then this yields particular psychological methods also for the case of conflicting motives. What is needed, is

strong positive affect. In order to arrive at effective solutions, therefore, methods are needed that stimulate positive affect. In the ZRM-Training we use a special type of goals to reach this aim: we call this type of goals *general attitude goals*.

General Attitude Goals

Goals as developed within ZRM Training seminars have an important feature that makes them highly action-effective. We work with a special type of goals, namely, not with concrete, specific goals, but rather with *general attitude goals*. This difference has been investigated in a branch of research on goals that categorizes goals into various types, depending on whether they are concrete and specific or abstract and general in formulation (for an overview of the research, see EMMONS, 1996a). For example, the intention to present oneself more self-confidently could be expressed in a concrete goal as follows: "At the next team meeting, I will make a proposal for project X." The same intention, formulated generally as an attitude, might be: "I will trust in my abilities and show what I am capable of." People experience generally formulated attitude goals as belonging much more strongly to their own selves than specific goals do. They are typically accompanied by stronger emotions (MCCLELLAND ET AL., 1989). GOLLWITZER (1987) called this type of goal an "identity goal" and described it as "insatiable," insatiable because identity goals can remain valid and continue to guide one's actions throughout one's entire life (see also WICKLUND & GOLLWITZER, 1982; BAYER & GOLLWITZER, 2000). KUHL (2001) criticizes traditional motivation research for restricting investigation to very controlled laboratory situations and failing to devote attention to this type of comprehensive personal goal, which he calls "life goals" (p. 277).

The different possibilities of formulating goals can be represented in graphical form.

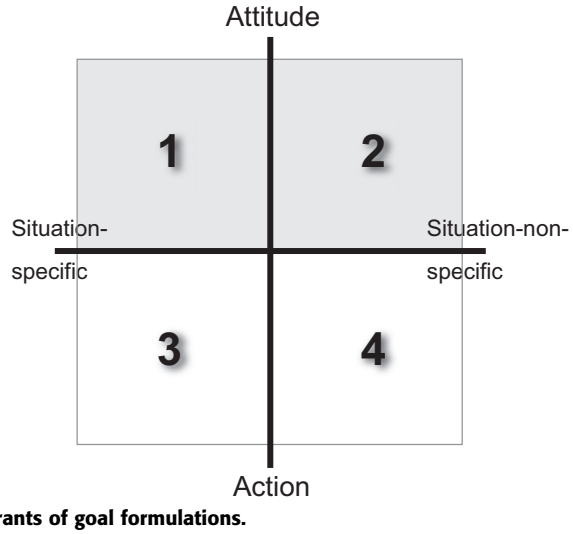

Fig. 4: The four quadrants of goal formulations.

Goals can be categorized according to whether they are formulated as specific to a situation or transcending situations. For instance, "I want to be calm and focused when I take my driving test" is an extremely situation-specific goal that applies to only about one-half hour of your whole human life. "I want to achieve a harmonious balance between work and life," is a goal at the opposite end of the continuum. Clients typically see this kind of goal as valid "always." It transcends particular situations and, for most people, is valid also in the future, for life.

Goals can also be categorized as attitude goals or action goals. Goals at the attitude level describe, in a general formulation, a particular inner state of mind that will lead to particular behaviors, which are not, however, stated in the formulation of the goal. "I will stay relaxed to the core" is such a goal. It describes a state of mind with which the client would like to approach the world in certain situations (or always). "The next time Customer X speaks to me, I will take three deep breaths before I respond" is a possible specification of this state goal at the action level. In psychotherapeutic methods, it is often recommended to make sure that the client's goals be specified and concrete. The goal formulations can be usually located in the graphical representation in Figure 4 in quadrant 3 or 4, depending on whether the goal is formulated as specific or non-specific to situations (2).

ZRM Training is explicit about taking a different route. Goals are formulated in Phase 2, at the crossing of the Rubicon, as *general attitude goals* and not as concrete action goals. As mentioned above, most therapy clients do not have to be instructed explicitly to do this, because they in any case formulate the things closest to their hearts as attitude goals. "I want to finally have joy in my life" or "I want to be more self-confident" are typical goal statements that psychotherapists come to hear at the start of therapy. Rather than to immediately break these goals down into concrete measures, ZRM Training participants are encouraged to stay at the attitude level until they have crossed the Rubicon. There are a number of reasons for this: In addition to the reasons mentioned above, it is important to recall the fact, presented further above, that the emotional memory of experience that we require to produce positive somatic markers is more accessible via pictorial and metaphorical contents than through all too concrete and realistic resolutions. Naturally, in the course of ZRM Training, the action level is also worked on, but not until later, namely in Phase 4. The crossing of the Rubicon takes place, made possible by strong positive emotions, in quadrant 1 or 2 at the attitude level. Only as a later step are goals specified at the action level.

In ZRM Training, the task of formulating general attitude goals takes place by having seminar participants work further on their key theme, taking three core criteria into account.

The three core criteria of an effective goal as an engine to action are:
• The goal must be an approach goal.

• Realization of the goal must be solely under the control of the person.
• The goal must be accompanied by a clearly observable, positive somatic marker.

There is a long tradition in academic psychology that deals with goals and their effects on the results of action. There is also an abundance of sound results demonstrating how different types of goals are associated with psychological well-being and what shape goals must take in order to ensure high motivation to take the steps necessary to fulfill those goals (for detailed overviews, see BRUNSTEIN & MAIER, 1996; EMMONS, 1996b or GOLLWITZER & MOSKOWITZ, 1996). The three core criteria of ZRM for formulating an action-effective goal are based upon the findings of "goal psychology."

Approach Goal versus Avoidance Goal

One and the same good intention can be expressed verbally in two ways. Take, for instance, a person who has decided that it is important for her to have more rest and recuperation in her life. She can word this intention in different ways. She can say, "I will give myself more rest" or "I will put myself under less pressure." Both statements deal with the same topic. It might seem inconsequential as to which verbal formulation is used. However, research has shown that the way that a goal is formulated can have important consequences. Goal formulations that contain the state that is to be achieved are called approach goals (I will give myself more rest). Statements that describe the state to be avoided are called avoidance goals (I will put myself under less pressure). People who habitually use avoidance goals show lowered mood, increased anxiety, less satisfaction with life, and even poorer health (GOLLWITZER & MOSKOWITZ, 1996, p. 367). ELLIOT AND SHELDON (1997) found that people with avoidance goals feel less competent when it comes to implementing their goals in action. The reduction in experiencing competency that goes along with avoidance goals also has negative effects on goal-related achievement and on psychological well-being. Based on their investigations, Elliot and Sheldon go so far as to issue a warning: "The adoption of avoidance goals must be considered a psychological vulnerability in that it places one at risk for a host of negative experiences and outcomes" (ibid., p. 182).

100% Under Personal Control

This core criterion for a highly motivating, action-effective goal is also derived from an insight provided by the Rubicon model: motives are more likely to cross the Rubicon and become intentions if they are feasible and attainable. The more strongly a person feels that she can reach a particular goal under her own powers, the greater the motivation to make a sustained effort to do so. This finding of motivation psychology connects up directly with an area called locus of control (ROTTER, 1954). This type of expectation shows up in numerous constructs in psychology. The concept of self-efficacy (BANDURA 1997) is, for example, a well-known construct of control beliefs, whose effects on psychological and physical well-being have been

researched extensively. It is the person's expectation that he or she can perform the necessary action, that is, will have the strength and determination to actually perform the action even in the face of internal and external difficulties (KUHL, 2001, p. 259, freely translated here). Related concepts are found as an element of "sense of coherence" (ANTONOVSKY, 1979), which Antonovsky calls "manageability." KOBASA'S (1979) concept of "hardiness" also contains positive control beliefs. Positive control beliefs also appear as a central determinant of emotional health in more recent concepts on optimism (SELIGMAN, 1991) and resilience (FLACH, 1997; WALSH, 1998). It can be stated generally that people who are convinced that they can do something in difficult situations in order to improve their position deal more successfully with stressful situations than people who slip into the role of victim and develop symptoms of "learned helplessness" (SELIGMAN, 1975). These are people who act proactively rather than reactively. They have a "doer mentality and view themselves as responsible for solving problems, even if they did not create the problems themselves" (SCHWARZER, 1998). Positive control beliefs are a decisive support to people as they deal with emotional strain and stress. FLAMMER (1990) provides a detailed overview of this topic.

Formerly, positive control beliefs were viewed as a set personality characteristic, or trait. Today, it is acknowledged that positive control beliefs can be learned. SCHWARZER (1998) developed a training program to promote self-efficacy in teachers. SELIGMAN (1999) developed optimism training for children. Seligman believes that just as one can learn helplessness, with professional help one can also learn optimism. In ZRM Training, positive control convictions are a core criterion for action-effective goals for two reasons. First, as an aspect of motivation, control beliefs facilitate the crossing of the Rubicon and thus the forming of intentions. Second, they make a sustainable contribution towards emotional health, from both a salutogenetic and prevention perspective.

Positive Somatic Markers

The third core criterion of ZRM tests for positive affect that leads to determination and accompanies a motive across the Rubicon. Our theoretical basis here is the theory of somatic markers by DAMASIO (1994), who starts out from the assumption that the person's individual emotional memory of past experience evaluates decision situations through the aid of somatic markers. Psychologists call this type of process *automatic evaluation* (DUCKWORTH ET AL., 2002; GARCIA & BARGH, 2003, MUSCH & KLAUER, 2003). Although the evaluation processes take place below the threshold of consciousness, the signals of the completed evaluation can be perceived. These signals are observed well and reliably by people themselves or by others, because they are expressed bodily. People in whom a positive somatic marker occurs begin to glow and show clearly recognizable signs of satisfaction. This can be seen, for example, in a laugh or smile, a change in posture or breathing, or a better flow of blood to the skin of the face. ZRM Training seminars include a demonstration, with the aid of volunteers from the group, of the

appearance of positive somatic markers when a goal is formulated accordingly. Somatic markers have high face validity, so that a group of laypeople become quickly capable of reliably recognizing their presence or absence.

Recent considerations by KUHL (2001) allow the conclusion that the emotional memory of experience with its somatic markers, as the neuroscientists call it, is largely identical with what psychology has called the "self system." Kuhl writes that bodily sensations apparently belong to those signals that help the self system to choose among options for action that have been tried in the past (KUHL, 2001, p. 153). The self system, according to Kuhl, is stored in implicit, unconscious memory, just like the emotional memory of experience of neuroscience. Decisions, which include the bodily and emotional signals of the self system, make possible the setting of goals that have high congruency with the self. Psychological research has produced a lot of evidence that goals that are accompanied by a high degree of self-concordance more frequently lead to success than goals with lower self-concordance (SHELDON & KASSER, 1995, 1998). This is also related to the concept of intrinsic motivation: "By definition, intrinsically motivated behaviors, the prototype of self-determined actions, stem from the self. They are unalienated and authentic in the fullest sense of those terms" (RYAN & DECI, 2000, p. 74).

When connecting these psychological considerations with neuroscientific findings on somatic markers, as ZRM does, the strong positive feeling that reveals a somatic marker is indicative of self-concordance and intrinsic motivation. It is reasonable to assume that the so-called "felt sense" that plays a central role in the focusing technique (GENDLIN, 1998) also describes the appearance of somatic markers. It is through this third criterion that ZRM Training seminar participants learn to continue to develop their goals until a good feeling is generated that is clearly observable to themselves and others. This provides them with an easily learned and unambiguous criterion for their own self-regulation. Kuhl writes that he considers the ability for the self-regulated recruiting of positive affect to be a decisive prerequisite for self-determination and intrinsic motivation (KUHL, 2001, p. 177).

However, this kind of self-motivation only succeeds if it is possible to form goals that are in accordance with the need and value structure of the organism (KUHL 2001, p. 181). If access to bodily and emotional signals is blocked, "volition inhibition" results. The system cannot even identify thoughts, feelings, or goals that do not fit the self and are therefore undesirable, as incompatible to the self, never mind stop them (KUHL, 2001, p. 169). A person who does not perceive the signals of the self system can in this sense not even have his own wants, but remains dependent upon goals, values, and motivators from the outside. In the worst case, the person spends a lifetime following goals that may look fine as measured by external standards, but may stand in grave contradiction to the self system. In the long run, this makes people ill, so that Kuhl sees marked volition inhibition as an indicative of mental illness. Hautzinger writes

that it has been demonstrated empirically that mental illnesses such as depression, obsessive-compulsive disorders, anxiety and eating disorders, etc., are accompanied by an excessively strong volition inhibition that results from affective fixation (HAUTZINGER, 1994). Therapeutic progress depends decisively on eliminating this special form of inhibition (HARTUNG & SCHULTE, 1994) (KUHL, 2001, p. 179).

Because in ZRM Training a goal is accepted as highly motivating if it is accompanied by clearly recognizable positive somatic markers, even training participants who have previously not had access to the emotional and bodily signals of the self system learn to take this important source of information into account. However, in cases of grave volition inhibition, it can take some time before participants learn to perceive bodily signals, a type of perception that is also called *proprioception*. The group situation in ZRM Training seminars makes the learning process significantly easier. We mentioned above that positive somatic markers have high face validity; they are clearly observable. For this reason, a demonstration of the appearance of positive somatic markers in volunteers in the group provides observing participants with the opportunity for role model learning. Also, in ZRM Training seminars, the core criteria for goal statements are worked on in the framework of an exercise for small groups, with the small group functioning as a human biofeedback system. When visible somatic markers appear in people who may themselves have little proprioceptive ability, they are readily observable by fellow participants, who provide immediate feedback. In this way, the training works to systematically eliminate volition inhibition.

ZRM Training participants work on the three core criteria for goal statements in small groups. Group members support each other mutually in the formulation of goals that meet the criteria and thus are highly motivating. In this phase, however, good coaching of the small groups is necessary. Although it is always astonishing how capable groups of laymen are, after hearing theoretical explanations and observing one or two example exercises using volunteers, of providing each other with decisive impulses. Nevertheless, it can happen that an individual may be so caught up in a deep conflict of motives that the capacity of the lay group is overtaxed. In this case, the coaches intervene. They have at their disposal a repertory of intervention methods that they acquired as part of their ZRM training as coaches. These can be psychodramatic or gestalt therapy methods or more conversation-oriented procedures. BAMBERGER (1999) provides a comprehensive collection of solution-oriented interventions in the tradition of Steve de Shazer. ZRM Trainers have been instructed to always apply a fundamental rule: intervene only as required, with as little intervention as possible! ZRM Training, following the idea of self management, is designed to help others to help themselves, and a helpful suggestion by the coach is often enough to get a small group on track and once again autonomous and able to work.

Phase 3: From Goal to Resource Pool

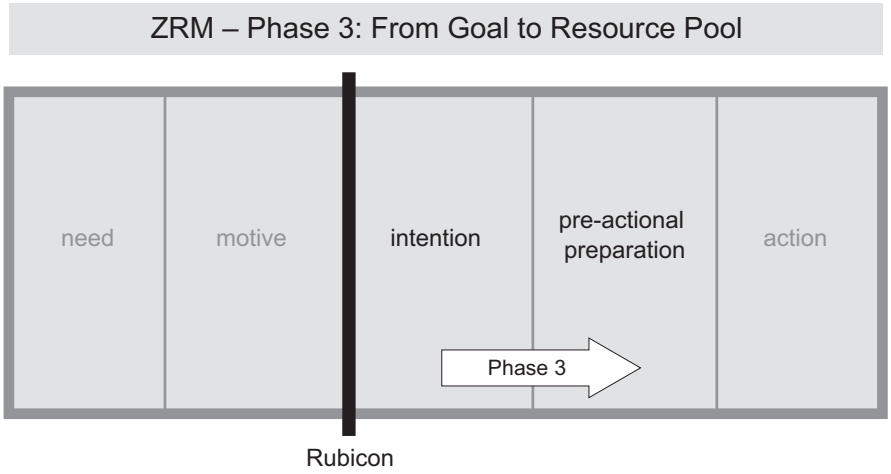

Fig. 5: From goal to resource pool.

Once participants have developed goals at the attitude level that meet the three core criteria for action-effective goals, the pre-actional phase begins, to use the terminology of the Rubicon Process. Now additional preparations are made for implementing the goals in actions. The goals, as developed up to this point, are viewed in the Zurich Resource Model as newly formed neural networks. In contrast to the maladaptive neural networks that have previously guided the clients' behavior, the adaptive neural network associated with the desired goal is rudimentary and usually not yet sufficiently firmly established to be reliably action-effective. Thus, the crucial task now is to transfer the goal, which at this time is mainly accessible in the explicit knowledge system, to the implicit knowledge system, where it can become automated and thus become effective at steering behavior even in difficult situations (3). The way in which pre-actional preparation is approached is a further decisive feature of the Zurich Resource Model.

In ZRM Training the phase of pre-actional preparation is divided into two successive work phases. A *resource pool* is developed first (Phase 3), and only then are *implementation intentions* developed (Phase 4). While the resource pool still relates to the attitude level, implementation intentions deal with specific actions to realize the goal. There are two reasons for this sequence of proceeding in preactional preparation – resource development at the attitude level first, followed by planning implementation intentions at the action level:

Goal-realizing action is achieved, according to the Zurich Resource Model, when the adaptive neural network of goal-related resources can be activated reliably precisely when it is needed. This means that the desired neural network, which should go into action at the moment of action – at present a goal formulated at the attitude level – must become a more firmly established neural pathway. Reliable activation aids must be found, which is the object of the work on the resource pool. Logically, only once a selection of efficient activation aids are available is it possible to consider implementation intentions, or in other words, to consider implementing aids in specific situations.

Second, motivation psychologist OETTINGEN (2001) has shown that success expectancy judgments and commitment to goals increases when people indulge in spontaneous positive fantasies about achieving their goals *first*, and only *then* consider actions to realize those goals. If the reverse order occurs, expectations of success and commitment do not increase. The results can be interpreted to indicate that the positive emotions associated with fantasies about the future can help to firmly establish at the emotional level the neural network that represents the goal. With activation of the goal, reliably strong, positive emotions are then developed simultaneously. These can help in maintaining motivation if implementation difficulties appear later on.

The procedures in Phase 3 are consistently resource-oriented and are based on neuroscientific and memory theory foundations of the acquisition of implicit knowledge (4). There are two routes to acquiring implicit knowledge (SEEGER, 1994). Through *repetition, practice*, and *training*, automatic reactions that run at the unconscious level can be developed. A good example of slowly building up automated sequences is the way that people learn to drive. The other route to implicit knowledge proceeds via a particular form of non-conscious learning called *priming* (for an overview, see HIGGINS, 1996; DIJKSTERHUIS ET AL., 2004). Social psychologist John Bargh has demonstrated in numerous experiments that through priming, emotions, attitudes, goals, and intentions can be activated non-consciously and that this non-conscious activation has a demonstrable effect on the way that people think and act in the associated situations (FITZSIMONS & BARGH, 2004).

> In one of their most well-known experiments, BARGH AND COLLEAGUES (1996) presented participants with a scrambled sentences task including either elderly stereotype words ("elderly prime") such as old, retired, and wrinkle for the experimental group or neutral words ("neutral prime") for the control group, thus subliminally priming the participants. In other words, in the experimental group, participants' brains were "forced" to activate neural networks associated with "elderly." When they were done, the participants were informed that the experiment was over, and they could leave. But the real data collection had only just begun. When these participants left the lab, a confederate in the hallway recorded the time the participant took to walk from the lab to the elevator to leave the building.

Participants who had been primed with the elderly stereotype walked significantly slower than participants who had done a version of the word jumble task that did not prime the elderly stereotype. Without the participants' awareness, the concept "elderly" had been neurally activated, and this small intervention had an immediate, automatic effect on participants' behavior.

At first glance, it may seem outlandish that people walking slowly down a corridor should be of importance to psychotherapy. But the priming experiments are interesting for the Rubicon Process, because it could be shown that this type of unconscious learning can be utilized in the service of goal-realizing behavior. BARGH ET AL. (2001) conducted further experiments on non-conscious activation and pursuit of behavioral goals, from which they conclude that "mental representations of goals can become activated without an act of conscious will, such that the subsequent behavior is then guided by these goals within the situational context faced by the individual" (p. 1014). *Non-conscious* priming that contains *goals* can have effects on people's goal-realizing *actions* that are similar to the effects of goals followed consciously. If a person aims to remain "calm and composed" in a particular situation, he or she can use priming to ensure that action. The scientific findings provide evidence that the non-conscious learning processes that were examined in the priming experiments do indeed increase the probability of the appearance of goal-appropriate actions.

For this reason, BARGH ET AL. (2001) speak of the "automated will." Bargh starts out from the assumption that particularly in difficult situations, it can be advantageous to switch from conscious goal pursuit to automated goal pursuit: "Because of the limitations of conscious processing, and the strain on these limited resources in times of difficult self-regulation tasks, to shift the regulation of goal pursuit from conscious control to automatic control can be an adaptive way of ensuring effective goal pursuit even under new, complex, or difficult circumstances" (BARGH ET AL., 2001, p. 1025). For people who after the forming of an intention are not yet capable of sustaining goal-realizing action, it can be recommended in the pre-actional phase to ensure that good priming processes are installed prior to and during the crucial situations, so that the implicit mode is "well instructed."

Phase 3 of ZRM Training focuses on the preparation of such priming processes, systematically utilizing the brain's synaptic plasticity (5) in the service of the new goal. This is achieved through the installation of memory aids and through body work.

Memory Aids

To strengthen the new neural connections set up during the work on the goal, the first purpose is simply to begin immediately to use the new synaptic connections as frequently as possible. From the priming experiments, we know that to be effective, it is not important whether activation of the neural networks occurs with or without the person's awareness. It is this phenomenon that yields an extremely elegant option for psychotherapy. Many forms of therapy utilize the intervention of giving clients assignments to do outside therapy. One great difficulty

with this type of intervention is the same than any teacher has with assignments: people often do not do their homework. In many cases, this has nothing to do with evil intentions or secret resistance on the part of the client to therapy or therapist; people are often just too busy with their daily lives. If it is indeed so that simply frequent use of a neural network already sets into motion the process of plastic change of neural structures, than a one-time action, namely, *targeted installation of memory aids, or reminders,* can accomplish much in terms of adaptive change of the brain. After this action has been taken once, clients can turn their attention to their daily lives, for the changes in the brain proceed on their own, as it were.

In ZRM Training seminars, participants hear a report that explains the principle of synaptic plasticity and a list of memory aids that in our experience have proved to work well for most people. The reminders come from diverse areas, ensuring that each person will find reminders that suit their preferences. The reminders range from triggers through specific pieces of music, to smells, such as perfume, to the targeted use of colors, whether in clothing or in objects at home or in the office. People often like to use certain plants as reminders, or special pieces of jewelry, or key chains. For business people, a special screensaver or wallpaper on their personal computers is a good reminder, and some clients decide to utilize a special word as their computer password as a memory aid. It is of utmost importance when choosing personal reminders that the reminder always relates to the goal to be realized. It is not enough to buy a pink blouse, because pink is fashionable at the moment, or to listen to Gregorian chants in the evening, because you have the CDs at home anyway. Reminders should activate the adaptive neural network. A person with an activity goal must choose a different music selection as a reminder than he or she would choose if the goal had something to do with relaxation and composure.

The method utilized here to make the neural network more effective consists in a kind of "chronic priming", in psychological terminology. Training participants are encouraged to systematically set up and equip their environments with reminders that ensure that the new neural pathway is always activated, even when their attention is caught up in other matters. In the language of behavior therapy, this is "self-conditioning," and the reminder has the status of triggering stimulus. Allowing training participants complete freedom in the selection of their memory aids ensures that each person finds individualized ways to prepare his or her environment accordingly.

Body Work

The goal of body work in ZRM Training is to strengthen the synaptic connections in the new neural network through broad-based information, making it more readily activated. Research in memory psychology indicates that lasting storage of information can be facilitated by a resource that is available to everyone: the body. ENGELKAMP (1997, 1998), a memory psychologist, has

developed a multimodel memory theory that examines the "do effect." The "do effect" is based on sound empirical evidence regarding memory of one's own actions. In an experiment, Engelkamp read aloud lists of simple, unrelated phrases on actions to participants, such as "comb hair," "open jar," "bend wire," or "close umbrella." A group of participants that only listened to the phrases was compared to another group that was asked to actually execute the actions. The second group had a much higher recall of the phrases than the group that had only listened (ENGELKAMP, 1997, p. 11). Engelkamp explains the difference as due to the fact that execution of the actions provides additional encoding of the information. This encoding takes place at the sensory-motor level.

Research on "autonomous agents" (PFEIFER, 1995; PFEIFER & SCHEIER, 1999) confirms the memory psychological findings. The term autonomous agents refers to robots that are capable of acting autonomously. Constructors of autonomous agents build small robots that can play football or learn to collect garbage, for example. Attempts at programming these machines revealed that learning programs without sensorimotor feedback are not successful. Thus, an approach that can be fruitfully applied to the connection between human memory and bodily processes gained confirmation from the world of informatics and machines. The research approach belongs to the field of "embodied cognitive science" (for a detailed overview, see TSCHACHER AND SCHEIER, 2001). In this tradition, memory is understood as an active, creative act of the entire organism that bases on sensorimotor-affective coordination processes (LEUZINGER-BOHLEBER, 2001, p. 81). Information in long-term storage in memory always has a bodily component. It is "embodiment" of information that allows reliable recall. Remembering is dependent upon integrated, embodied, sensorimotor-affective and cognitive processes in and between persons (LEUZINGER-BOHLEBER, 2001, p. 83).

In the language of memory psychology, in ZRM Training the new goal becomes encoded bodily. In neuroscientific terms, the new neural network becomes associated with goal-appropriate bodily representations. In order to achieve this, ZRM uses a procedure that is familiar from hypnotherapy (KOSSAK, 1989) and mental training (GUBELMANN, 1998). From neuroscientific findings, we know that imagining bodily movements is sufficient to stimulate plastic changes in corresponding motor areas of the brain.

> PASCUAL-LEONE ET AL. (1995) conducted an impressive experiment. Subjects who had never played the piano learned a one-handed, five-finger exercise on the keyboard. They were divided randomly into a "practice group," a "mental training group," and a control group. The manual practice group played the exercise for two hours a day for five days. The mental training group sat at the piano, imagined playing the exercise, but did not actually practice on the piano or even in the air. The control group, after initially learning the exercise, did not practice any specific task, manual or mental. Transcranial magnetic stimulation (TMS) mapping, which is a non-invasive method of recording brain

activity, was used daily to map the cortical motor areas targeting the contralateral long-finger flexor and extensor muscles of the hand used in the exercise. During the five days of the experiment, for both the practice group and the mental training group, the cortical motor areas targeting the long-finger flexor and extensor muscles enlarged, and their activation threshold decreased. No changes of cortical motor outputs occurred in the control group. "…mental practice alone led to the same plastic changes in the motor system as those occurring with the acquisition of a skill by repeated physical practice. By the end of day 5, the changes in the cortical motor outputs to the muscles involved in the task did not differ between the physical and the mental practice groups" (PASCUAL-LEONE ET AL., 1995, p.1041).

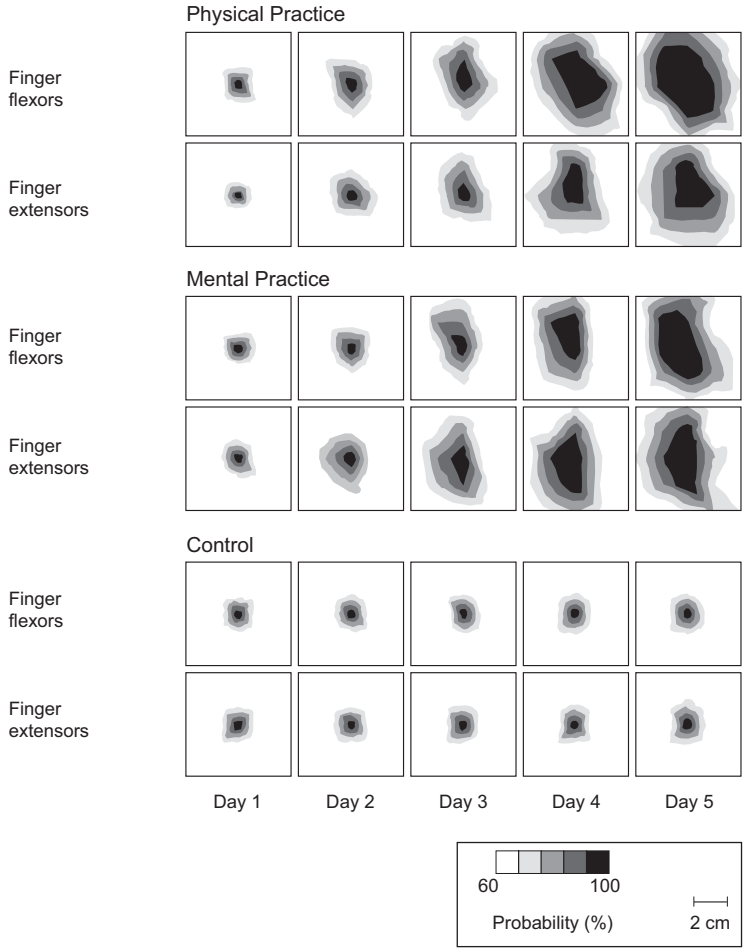

Fig. 6: Representative examples of the cortical motor output maps for the long finger flexor and extensor muscles on days 1-5 in a subject from each group. Each map is based on 25 measured points (Pascual-Leone, 1995).

After measurements had been completed, the mental training group was asked to play the exercise on the piano. Although their skill did not reach the standard of the practice group, their ability to play the exercise – after no manual practice at all – was equal to the skill of the practice group on day 3. Moreover, after practicing for only two hours, their skill was equal to the skill of the practice group on day 5. Pascual-Leone et al. see mental training as effecting a virtual simulation of behavior and activating the associated neural connections. This assumption is confirmed by general findings in psychology: "…research over the past several decades has shown that mental imagery has many of the same characteristics as a real experience" (BLAIR ET AL., 2001, p. 828). Preparation through mental training can significantly accelerate the acquisition of new motor skills. This is the case not only for simple finger exercises, but also for highly complex sequences of movements. Because of its effectiveness, mental training has long since become an established method in the training of athletes (GUBELMANN, 1998). Pascual-Leone et al. also report that many famous performance musicians utilize mental training as a part of their preparations for concert appearances (SCHÖNBERG, 1987, 1988).

Based on the findings on mental training, the bodily expression that corresponds to the goal to be realized is first trained in ZRM Training mentally. Training seminar participants take part in a mental journey guided by imagery, whereby they picture themselves executing the desired goal-realizing actions. The guided imagery provided by the training coaches focuses on the bodily features of the goal-realizing actions, including both skeletal-motor aspects and the inner perception of bodily phenomena, such as a feeling of warmth in certain areas of the body. In addition, the ZRM mental journey allows participants to develop associated mental pictures, such as landscapes, which often provide better access to the implicit system than words do. For example, a teacher who wanted to be more relaxed and composed in difficult classroom situations imagined himself standing at the top of a lighthouse, with the raging sea far below him. In this imagined position in the lighthouse, his body posture changed, his breathing became deeper, and he reported experiencing a feeling of "freedom" in the chest. In this way, the neural network associated with the goal becomes strengthened through information that contains the associated bodily expression. After the mental journey exercise, training seminar participants practice this bodily expression associated with the goal in reality. The practical approach in ZRM Training here follows methods that were developed in psychodramatics. In psychodrama, the attempt is made to create scenic experience that is as authentic and corresponds as closely as possible to reality; for this reason, there is a strong emphasis on adequate introduction of the roles that people will play. The techniques that are used to bring people into the experience are similarly elaborated. The ZRM Training Manual (STORCH & KRAUSE, 2002) provides detailed information on the techniques as used in ZRM Training seminars.

The Resource Pool

At the end of Phase 3 of ZRM Training, participants begin to develop their pool of personal resources. At this point in the training program, their resource pools contain:

- personal goal, formulated to promote effective action
- personally meaningful reminders and triggers
- personally important body resources facilitating goal achievement

Phase 4: Targeted, Goal-Oriented Resource Utilization

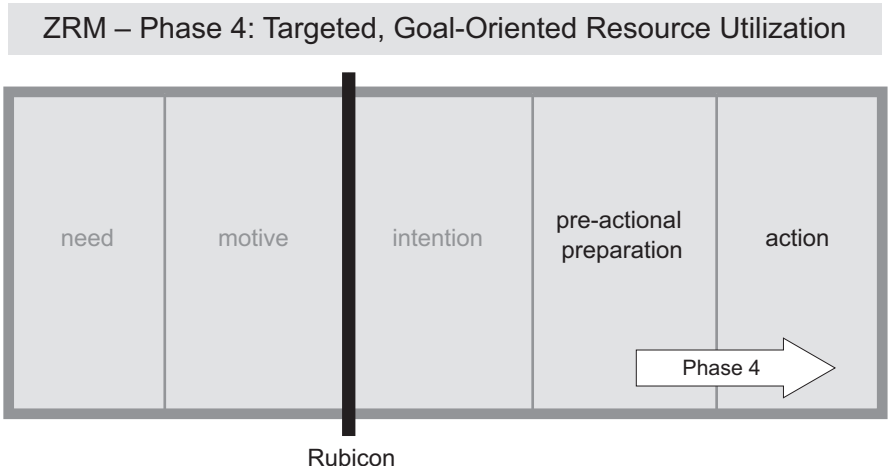

Fig. 7: Targeted, goal-oriented resource utilization.

Phase 4 of ZRM Training deals with implementation intentions. This phase is a shift from the attitude level to the action level. The aim is to activate and utilize resources in a targeted way to trigger the adaptive neural network as planned and desired by the participants. Following GOLLWITZER (1993, 1999; GOLLWITZER ET AL. 2004), we can distinguish between goal intentions and implementation intentions. 'I Intend to do X" is a goal intention; "I plan to do X in the following way, when situation Y occurs" is an implementation intention. GOLLWITZER (1999) provides an overview of the various advantages of forming careful implementation intentions in the pre-actional phase through the aid of conscious deliberation. For one, the forming of an implementation goal clearly increases one's sense of personal commitment. This is particularly relevant when it comes to goals that involve changing health-related behaviors, such as smoking cessation, weight loss, or getting more physical exercise (RENNER & SCHWARZER, 2000). In addition, implementation intentions help people to begin executing goal-oriented actions. People put into action goal intentions that have been transformed into implementation inten-

tions three times more frequently than goal intentions that have not been transformed. Implementation intentions, because they are coupled with situational conditions, have sustained impact. They continue to be effective for long periods after the intention was formed, whenever the specific situation occurs.

Gollwitzer explains the positive effect of implementation intentions as resulting from the fact that situation-specific key features are more easily recognized if a mental pathway has been facilitated already during the pre-actional phase. In the pre-actional phase, the specific situational conditions are coupled mentally to the desired behavior patterns. When the situation occurs, it takes on the character of a trigger and steers execution of an action. With the planned implementation intentions, the situation is the trigger stimulus for the planned reaction. The initiation of the action is triggered automatically; little or no conscious processing is required. Due to planning, there is direct access to the implicit mode. GOLLWITZER (1999) writes: "Once people have formed implementation intentions, goal-directed behavior will be triggered automatically when the specified situation is encountered" (p. 501). Forming implementation intentions automates the start of goal-realizing actions. This is a second way in which people during the pre-actional phase can prepare the implicit mode in a targeted fashion for the desired action.

At this point in ZRM Training, the implementation intentions relate to the action level. This does not involve a change in the formulation of the goal, for following the logic of the Zurich Resource Model, implementation intentions are formed with a view to triggering the adaptive neural network. For this reason, they relate to the way that resources from the resource pool can be utilized. Here ZRM Training seminar participants decide themselves what resources they will call upon. This procedure of leaving the selection of resources to the participants themselves increases the likelihood that each participant can apply effective individual preferences. Many forms of psychotherapy are specialized in one method alone. There are methods that employ language, music, painting, or dance and methods that work with fantasy techniques or the body. Each appeals to some people, who feel at home in the therapy method, and not others, who can make nothing of it. In Phase 4 of ZRM Training, the participants have available a resource pool that contains a broad and diverse repertory, and they are completely free as to the choice of preferred resources. Thanks to this, resistance on the part of participants to ZRM Training is virtually non-existent. One participant may work with verbal formulations of the goal, while others may use musical triggers or a rose as a symbol, and still others may work with bodily features.

For implementation of goals in action, the Zurich Resource Model differentiates three types of situations and prepares training participants for meeting these types of situation as they go about implementing their goals:

Type A Situations
- Situations in which goal realization succeeds almost effortlessly

Type B Situations
- Situations in which goal realization is difficult, but which are foreseeable and thus can be prepared for

Type C Situations
- Situations in which goal realization is difficult and which are unforeseeable and unexpected

No implementation intentions have to be developed in the training program for situations of Type A, as what has already been learned through training is sufficient to allow participants to act to realize their goals. Type B Situations, however, require specific implementation intentions. Type C Situations cannot be mastered directly following the end of training, for quite a long time is required before the automation of new action intentions has advanced enough for the unexpected occurrence of a particular situation to work as a trigger for the desired action. However, ZRM Training participants receive an introduction to dealing with these situations.

For Type B Situations, implementation intentions are recorded in a very precise form in writing, as recommended as in many cases advantageous by RENNER & SCHWARZER (2000, p. 43). Training participants consider carefully what context conditions they will face if they wish to implement their goals in a difficult, but foreseeable situation. After considering the situation, they plan how they will utilize their resources and take measures. For instance, the participant who wants to work with the symbol of the rose decides to place a rose on her desk the next time that she is to make a presentation and wants to be competent, charming, and self-confident. A teacher who prefers to work with bodily resources sets up a "resource station" in a corner of his classroom behind a large map. He can withdraw there briefly to perform his exercises. A student who wants to remain calm and composed when taking an examination decides to wear a green sweater to the test, as it is her "resource color." A creative-thinking participant, whose goal is to live out the last two years before retiring from a stressful company team situation in such a way that preserves his joy in life, utilizes his picture from the "mental journey" exercise. The picture shows him sailing into a Portuguese harbor; he will have it with him at the next team meeting and imagine that he and all of his co-workers are sitting together in a harbor pub in Portugal.

Type C Situations are also discussed with ZRM Training participants. This is important mainly in consideration of maintaining self-efficacy beliefs and in view of possible failure and to facilitate "recovery self-efficacy" (MARLATT et al., 1995). As KANFER ET AL. (1990) state, not even the best preparation for a stressful situation can ever anticipate *all* of its unpredictability; a complex situation can develop into something quite other than predicted (KANFER ET AL. 1990, p. 435). Although unexpected situations per definition cannot be foreseen, some degree of preparation

can be taken in the pre-actional phase. ZRM Training helps prepare participants guided by behavior therapy procedures as recommended by MEICHENBAUM'S (1979) Stress Inoculation Training, which has been found to be particularly effective for people who are subject to multiple strains and stresses in their daily lives (NOVACO, 2000, p. 330).

In the instruction phase, Meichenbaum's stress inoculation training refers mainly to the stress theory by SCHACHTER AND SINGER (1962). Other, similar training programs are based on the stress theory by LAZARUS (1966). In ZRM Training, we use our own theoretical developments to prepare participants for Type 2 Situations. While guided by current theoretical considerations, our materials focus on the utilization of resources. Figure 8 shows a graphical representation that is used in ZRM Training seminars to explain preparation for a stressful situation.

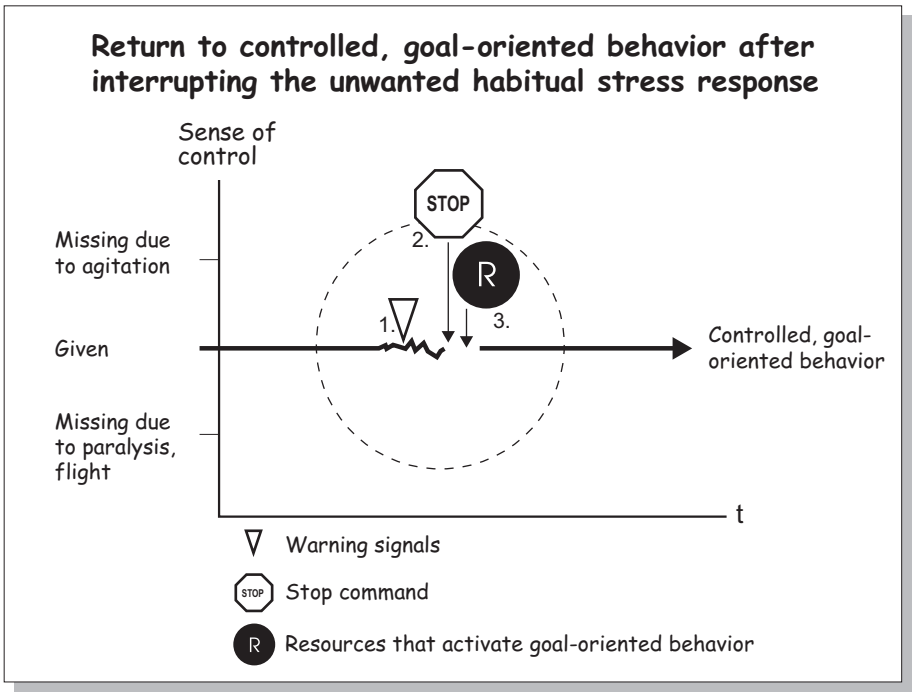

Fig. 8: How to use resources.

The participants learn to identify the warning signals – internal and external – of Type C Situations, choose appropriate internal "stop" commands, and plan ways to activate the adaptive neural network where the opportunity exists. Participants work on this planning individually, in small groups, and in the larger training group, so that by the end of this phase, each participant possesses a reliable reservoir of ideas for dealing with Type B and C Situations.

The Resource Pool

At the end of Phase 4, each participant expands his/her resource pool. At this point in time, the resource pool contains:

- personal goal, formulated to promote effective action
- personally meaningful reminders and triggers
- personally important body resources facilitating goal achievement
- warning signals for the activation of the maladaptive neural network
- effective "stop" commands to interrupt undesired activation of maladaptive neural network

Phase 5: Integration and Transfer

The measures taken in Phase 5 of ZRM Training have to do with the realm of social resources. In the literature, "social resources" is a collective term that is used by different scientific disciplines according to partly different definitions (for detailed overviews of the history of the concept, see LAIREITER, 1993; RÖHRLE, 1994 and BACHMANN, 1998). One essential point that differs in the various conceptions is the issue of where social resources are to be located. Some approaches see social resources as *resources in a person's environment*. They focus on the existence, availability, and efficiency of social networks and social support. Other approaches view social resources ultimately as a characteristic of the *person*. These approaches focus on the capacity of the individual to build up social resources, recognize them as such, and use them when available; they also emphasize that merely knowing about social resources and their emotional, and not necessarily actual, availability can have decisive health-promoting effects. Also belonging to these approaches focusing on the personal aspects of social resources are approaches that point out the identity-creating aspects of social reflection processes. This aspect is well-known mainly from work within the tradition of symbolic interactionism (for example, MEAD, 1934). A third position, which is also a guiding approach for the theoretical considerations of the Zurich Resource Model, starts out from the assumption that in addition to environment aspects and personal aspects, the *transactional* instance between these two aspects is also essential. Resources in the environment and individual resources must enter into mutual interaction in order to be effective. As put by HORNUNG AND GUTSCHER (1994), the individual's action resources are prerequisite for optimal accessing of environmental resources (HORNUNG UND GUTSCHER, 1994). This exchange between individual and environment forms the basis of mutual transactions. In ZRM Training, we attempt in Phase 5 to stimulate the emergence of both the personal features and environmental features of social resources and to plan, already during training, for exchange between them.

It would be illusionary to expect that the period during which the social system of the training participants becomes familiar with the person's new behavior patterns is always a smooth one. The trainees' newly developed patterns of behavior do not always brings advantages for the

social interaction partners; frequently, the new behaviors cause them more discomfort than comfort. Although the training participants consider the probable reactions of their social systems to their new behaviors during training when formulating their goals, people's actual reactions often raise wholly new aspects that require adaptation and balancing of the goal as developed in training. How can we support training participants as they test their new neural networks out there in the raw winds of everyday life? How can we help them with appropriate evaluation and balancing of the new patterns in consideration of social responses? ZRM Training addresses these issues using two measures: one directed to the level of the identity of the participant, and one at the level of the social network and social support (environmental aspect), including attention to the corresponding transactions.

The Identity Aspect

The concept of *self* as used in the Zurich Resource Model refers mainly to a person's inner life. It comprises both conscious and unconscious parts. This concept is appropriate for Phases 1 to 4 of ZRM Training. For work on areas that have to do with social interaction, as is the content of Phase 5, we find it more useful to use the term *identity*. Identity was introduced in this sense by ERIKSON (1973), who selected the term and developed theoretical considerations to express the socially transmitted aspect of the psyche. Whereas Erikson assumed that that identity is formed during adolescence and retained until life's end, there is today general agreement that the forming of identity is a process that must be produced actively in continual balance with the environment throughout one's entire life (STORCH, 1994; KRAPPMANN, 1997; KEUPP, 1999; FEND 2001). BARKHAUS (1999) provides an excellent overview of the history of the concept of identity, and STORCH (1999; STORCH & RIEDENER, 2004) discusses recent approaches.

In an identity theory perspective, the goal that participants have developed is a new part of their identities. For example, a person who has previously always seen himself as a "helpful" person may decide to take up a new facet in his view of himself, namely, self-boundaries. In order to maintain mental health, it is important that the new part-identity can be integrated into the person's existing ideas about self in a coherent way. "Narration" approaches offer a very use view of how individuals can bring coherency to their inner diversity (MCADAMS, 1997, KEUPP, 1999). According to narrative approaches, inner coherency can be produced by the individual himself by developing an appropriate history, or narrative. In our example of the helpful person, his possible narrative could look as follows: "I was the eldest of five brothers and sisters and was always responsible for others. That is why I developed an above-average sense of responsibility, and I was always thinking, I just can't leave the others to fend for themselves. But I got so burned out over time that I just couldn't do it anymore. Now I have to learn to take better care of myself, because if I get sick, I won't be of any use to anybody anyway."

Narratives are experienced as fitting or not according to the individual's *sense of identity*. Following Kreupp, identity is a project that has as its goal the creation of an individually desirable or necessary sense of identity (KEUPP, 1997, p. 34). BLASI (1988, 1991) also emphasizes the emotional components of successful identity (6). For these reasons, ZRM Training introduces a narration process in Phase 5. Participants are asked to reflect upon and discuss their personal processes during the course of the training seminar – from the very first visual material that they selected, to their goal, to their resource pool. At the end of the reflection period, participants are asked to paint a picture that integrates all of these things. Thus, narration work is stimulated in two ways, at a more verbal-analytic level and at the integrative-creative level.

The Environment Aspect

When social resources are viewed under the aspect of environmental resources, it refers to the availability of people with whom social exchange processes are at all possible. Here we can distinguish two components: the *structural* and the *functional*. The structural level is discussed in the literature mainly in connection with the topic of social networks, with the research investigating what social networks are available to individuals, how many people these networks contain, the density of the interconnections within the network, or what the relationships are from a sociometric perspective. The functional component is the subject of interest in the research on social support. Here the analyses focus on emotional exchange among members of a social network, the atmosphere of the network, and individuals' satisfaction with their social support from the network. The particulars of the exact interacting causes and effects continue to be discussed, but a central finding of health psychology is that social resources, under both structural and functional aspects, are a significant factor in mental health (BACHMANN, 1998, p. 30 ff).

Structurally, at the end of the training seminar the participants do not yet have a network of people with whom they can exchange their experiences with their new behavior patterns. Our conversations with people who completed the seminar and during seminar follow-up sessions revealed that training participants have a great need for this exchange. They take meaningful steps during ZRM Training toward personal development, for the consolidation of which they need social mirroring processes. And that is not all: they also learn a lot of theory during the course of the training seminar that they need to process. Their conversation partners in their regular social networks usually lack this knowledge base and cannot offer the same support as fellow training participants can. This is a problem that many therapists are familiar with. People who have experienced a significant development process of a psychological nature under professional direction have had the experience that even very well-meaning people whom they are close to are able to follow their reports on the happenings in psychotherapy or a seminar only with difficulty. Problems already begin with understanding the technical terms that are

explained thoroughly in the professional setting, but may not be so easy for people themselves to explain to others. From the research in adult education, we know that social support from fellow participants, or peers, can significantly improve the translation of what has been learned in a seminar to everyday life (SCHMIDT, 2001).

In a *functional* view as well, persons who have taken a ZRM Training seminar together are highly competent at assuring that the quality of social support in a network is very high. During training, they have developed a constructive, resource-oriented, and respectful culture of communication. They have learned to choose their words with care and have also learned to recognize reliably the effects of what they say on the other person by means of somatic markers. For these reasons, there are optimal conditions for exchange in networks of fellow training participants, also without the presence of coaches, and they achieve good results. The coaches welcome this effect and also refer to it several times during the training seminar. Helping others to help themselves, as foreseen by the Zurich Resource Model, is not limited to individuals, not even during training itself. The communication culture that is transmitted to the participants also creates the opportunity for them to continue onwards in the context of intervision groups working self-responsibly after completing the training seminar. This is a social resource that should be utilized.

The Resource Pool

At the end of Phase 5, the participants expand their list of resources to include social resources. At the end of training, the resource pool contains:

- personal goal, formulated to promote effective action
- personally meaningful reminders and triggers
- personally important body resources facilitating goal achievement
- warning signals for the activation of the maladaptive neural network
- effective "stop" commands to interrupt undesired activation of maladaptive neural network
- their most important social resources

Conclusions

At the end of the first contribution (STORCH, 2002; 2004), we refer to the fact that psychology has not only natural science aspects, but arts and humanities aspects as well. I would like to return to this topic here, at the end of part two, on practical application, of this contribution. Especially when the natural sciences provide a great deal of knowledge on how people can be supported effectively and systematically to place their goals, actions, and ultimately elements of their personality in the service of their psychobiological well-being, it is the task of psychotherapy to reflect on its roots in philosophy and the humanities. For even the best knowledge of synaptic plasticity will give birth to horrors, if the meaning of human life is

measured in the number of adaptive neural networks that can be formed in the brain. In human life there is also suffering, darkness, difficulty, and the incomprehensible – these all have a place and must continue so. Many of the greatest works of art known to humanity did not emerge from exuberant feelings of happiness, but from states of the soul that for neurobiology would perhaps fall under the category of "maladaptive neural networks."

Particularly when psychotherapy is in a better position to produce happiness, it is important to ask ever more carefully what happiness really is. And it is better, if it comes to the conclusion that there is no formula for happiness. In many cases of human misfortune that confront psychotherapists in their professional work, helping consists in simply providing accompaniment to and helping people to bear cruel strokes of fate and private tragedies that they have experienced. In existential situations such as those, tackling clients prematurely with adaptive neural networks would be a loss of respect for the unpredictability of life and a fall into scientific megalomania. In the interest of holding onto and strengthening our roots in the humanities, I would like to recommend two works. The first book is by the Freiburger philosophy professor Ludger Lütkehaus and carries the striking title *Nichts* (LÜTKEHAUS, 1999). The second book is *Verdammt zum Glück* by PASCAL BRUCKNER (2002), and it described happiness as the curse of modernity that actually brings people to real unhappiness. I believe that reading these two works will give psychotherapists a good, humanistic cushion of reservation that will allow them to deal responsibly with the blessings of neurobiology.

Notes:

(1) Somatic markers are signals from emotional experience memory, or biological assessment system, and they are perceptible as bodily sensation and/or emotions. The concept of somatic markers was developed by neuroscientist ANTONIO DAMASIO and introduced to a wider public in his book *Descartes' Error*, published in 1994. Somatic markers are explained in detail in part one (STORCH, 2002; 2004) of the present contribution. Recently, the present author has also published a popular scientific book on the subject, providing a comprehensible account for clients and patients: STORCH, M. (2003b). *Das Geheimnis kluger Entscheidungen Somatische Marker und Bauchgefühl.* [The Secret of Smart Decisions. Somatic Markers and Gut-Feelings]. Zürich: Pendo.

(2) In their textbook on solution-oriented short-term therapies following STEVE DE SHAZER, WALTER & PELLER (1994) recommend that goals be formulated as specifically as possible (p. 77). KANFER, REINECKER AND SCHMELZER (1990), in their self-management therapy, have this to say: "Many goals are formulated as exceedingly vague and global declarations of intention (like "get healthy," "find satisfaction," "follow good environmental policy," etc.). An important step on the way towards effective implementation of these global goals in real action, therefore, is breaking down these vague intentions into a number of specific behaviors" (p. 461, freely translated here). In ZRM Training, this breaking-down of goals does *not* take place.

(3) The difference between the explicit (conscious) and implicit (unconscious) functioning mode was presented in detail in part one (STORCH, 2002; 2004) of the present contribution. The explicit mode and implicit mode are grounded in different anatomical brain structures. The explicit mode works slowly and is susceptible to disturbances, but it works with precision; the implicit mode works quickly and reliably, but diffusely. The brain switches over to implicit processing to steer behavior particularly in pressure situations, but it often activates maladaptive neural networks, if they are firmly established and have become automatic. Psychotherapy regularly works with people who suffer detriments to psychological well-being due undesired, automatic activation of maladaptive neural networks.

(4) A significant prerequisite making it possible for clients to access the implicit mode with their goal, which has been produced according to the rules of the Zurich Resource Model, lies in the fact that the goal was formulated in Phase 2 as a general attitude-goal. Generally formulated attitude-goals are typically stored in the implicit mode. GRAWE (2004) writes that the greatest part of mental processes is determined by transcendent identity goals in the sense of automatic perception, information processing, and action regulation (p. 62). Grawe bases this statement on action control theories by POWERS (1973) and CARVER AND SCHEIER (1981) and makes a plea for more consideration of this type of goal in psychotherapeutic procedures (GRAWE, 2004, p. 158f). KUHL (2001, p. 150f) also see implicit regulation of general goals as the decisive factor in successful self-regulation.

(5) Readers are referred to the discussion of synaptic plasticity in part one (STORCH, 2002: 2004) of the present contribution. This is the ability of the brain to change its own structure, which is dependent on use: neuronal pathways that are used frequently increase in processing efficiency.

(6) Here there are, of course, interesting parallels to the theory of somatic markers. It would be worthwhile to conduct scientific studies to investigate relations between identity theory considerations, which emphasize the emotional components of identity, and neuroscientific theories.

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Correspondence address:

Dr. phil. Maja Storch
University of Zurich
Institute of Pedagogy
Scheuchzerstr. 21
CH-8006 Zurich
Switzerland
Phone: ++41 / (0)1 / 634 45 72
Fax: ++41 / (0)1 / 634 43 65
e-mail: Storch@paed.unizh.ch
The Zurich Resource Model on the Internet: www.zrm.ch

Welko Tomić, Will. J. G. Evers, André Brouwers
The Open University, Heerlen, the Netherlands

Existential Fulfillment And Teacher Burnout

Abstract

The aim of the current study is to determine the prevalence of burnout in primary education teachers and explore the relationship of personal fulfillment – the existence scale – to self-reported burnout scores. 215 primary education teachers in the Netherlands participated in a cross-sectional study using an anonymous, mailed survey. Personal fulfillment in one's existence was measured by the Längle, Orgler and Kundi (2003b) existence scale that consists of four subscales, i.e. "self-distance", "self-transcendence", "freedom" and "responsibility". Burnout was measured by applying the Maslach Burnout Inventory.

Regression analysis shows that the lower the scores on responsibility and self-distance the higher the scores on emotional exhaustion. There is also an inverted relationship between self-transcendence and depersonalization: the lower the scores on self-transcendence the higher the scores on depersonalization. Responsibility and self-transcendence are significantly related to personal accomplishment. Teacher age correlates only with the latter burnout dimension: the younger teachers are the more they have a sense of high personal accomplishment.

Key words: Existential Fulfillment, Burnout, Teachers

Introduction

Burnout is a syndrome of emotional exhaustion, depersonalization and a sense of low personal accomplishment (Maslach, Jackson & Leiter, 1996). It is associated with decreased job performance (Brouwers & Tomić, 2000; Evers, Brouwers, & Tomić, 2002), reduced job commitment and predicts low career satisfaction (Lemkau, Rafferty, & Gordon, 1994), and stress-related health problems (Maslach, Schaufeli, & Leiter, 2001).

According to Längle (2003a) burnout has to be understood as an enduring state of exhaustion due to work. However, in a broader perspective burnout is to be understood as a form of an existential vacuum that is characterized by apathy, boredom and a loss of interest in relationships. People displaying symptoms of an existential vacuum appeared to have high degrees of depersonalization and emotional exhaustion (Karazman, 1994). Burnout people

lack a sense of inner fulfillment, or in other words they misinterpret the necessities and components for successful human existence. Burnout people view their work as something to serve their own aims and not as something that should be valued because of its unique value and inherent meaning (LÄNGLE, 2003a).

In studies on burnout the Maslach Burnout Inventory (MBI) is almost the only instrument used to measure whether and to what degree workers suffer from burnout. The MBI is not only the most widely used instrument to measure burnout, but also an international accepted instrument and consists of three dimensions: emotional exhaustion, depersonalization, and personal accomplishment. In the Netherlands the MBI has been applied as an instrument of research among workers in many occupations: teachers (BROUWERS, EVERS & TOMIĆ, 2001; EVERS, BROUWERS, & TOMIĆ, 2002), nurses (JANSSEN, SCHAUFELI, & HOUKES, 1999; OGUS, 1990), dentists (GORTER, 2000), carers for the elderly (EVERS, BROUWERS, & TOMIĆ, 2002), and pastors (TOMIĆ, & EVERS, 2003), to mention but a few.

Whereas the MBI is meant to measure the degree of burnout among categories of workers or individual workers, the Existence Scale (LÄNGLE, ORGLER, & KUNDI, 2003b) is a 46-item questionnaire "…assessing the degree of someone's personal fulfillment in one's existence." (LÄNGLE ET AL., 2003b, p. 135). The questionnaire asks the respondent after his competence "…to cope in a meaningful way with oneself and the world" (LÄNGLE ET AL., 2003b, p. 136). To this end the authors of the questionnaire posed that the individual has to take four steps to find the way to the realization of a meaningful life or the realization of his existential potentiality. These steps are, first, the search of meaning in life, which means the individual has to gather relevant information of world's objects. Distortion of reality may be an impediment to reach the other steps. Second, the individual's understanding of the qualitative relationship between the objects and between the objects and the individual himself. The third step refers to the individual's choice of the various options the world offers, which means that he has to eliminate some possibilities in favor of others. This step also deals with the individual's devotion to the chosen option. The last step consists of the individual's carrying out of his decisions and plans. Steps 1 and 2 are called the P-factor, they deal with the development of the Personality. Steps 3 and 4 are called the E-factor, and deal with Existential field, or with taking and realizing decisions.

Burnout appears common among teachers (BROUWERS & TOMIĆ, 2000; EVERS ET AL. 2002). However, until now only one study associated existential fulfillment with burnout (NINDL, 2001). In the present study we examined the prevalence of burnout and existential fulfillment among primary education teachers and evaluated the relationship of existential fulfillment to burnout dimensions.

Method

Participants

We randomly selected 300 teachers of primary schools from a district in the middle of the Netherlands and asked them to participate in our study. All teachers were eligible for the present study. We mailed a 72-item, self-administered survey to teachers' homes. The survey addressed topics in the following order: existence scale, burnout inventory, and demographic characteristics (gender, teacher age, years of work experience). The accompanying cover letter states that the purpose of the study was to better understand teachers' feelings of personal fulfillment in one's existence and teacher well-being. The letter also explained that participation was elective and that responses would be anonymous. Teachers were blinded to any specific hypothesis of the study, and burnout was not mentioned in the cover letter. After the survey was mailed to all teachers, one reminder was sent by mail fourteen days later. In order to try and raise the response rate we followed suggestions from GREEN, BOSER AND HUTCHINSON (1997): we provided respondents with postage free envelopes, we sent the questionnaires to the respondents directly, the respondents could contact us at any time if necessary, and we used a rather brief questionnaire. In total 215 surveys were returned, a response of 72%, which is not only very good for survey research according to BABBIE (1995), but also in accordance with the findings of ASCH, JEDRZIEWSKI, AND CHRISTAKIS (1997).

The number of male teachers was 44 (20.47%) and the number of female teachers was 171 (79.53%). The mean age of our respondents was 39.46 whereas the national mean age of primary school teachers is 40.49. There was no significant difference concerning the variable "age" of the 215 respondents and the total population of teachers: $t(309) = 1.29$, $p = < .05$.

Instruments

Burnout was measured with the Maslach Burnout Inventory (MASLACH, JACKSON & LEITER, 1986; Dutch translation by SCHAUFELI & VAN DIERENDONCK, 1995). The items of the MBI-NL for human service professionals were presented simultaneously in Dutch and English; independent and professional translators so as not to deviate from the original intentions of the authors did the translations. The MBI (20 items) consists of 3 sub-scales: emotional exhaustion (8 items), e.g. "Working with people all day is really a strain for me"; depersonalization (5 items), e.g. "I don't really care what happens to some of the young residents; and personal accomplishment (7 items), e.g. "I have accomplished many worthwhile things in this job". Teachers responded on a 7-point scale, from "never" to "always". MBI reliability tests (SCHAUFELI, 1990) showed that the emotional exhaustion sub-scale is the most reliable of the three; Cronbach's alphas vary between .80 and .90. The other two sub-scales appeared to have Cronbach's alphas of between .70 and .80, which may be regarded as sufficient for research purposes according to NUNNALLY AND BERNSTEIN (1994).

The three-factor structure of the *Dutch* version of the MBI-NL has been investigated with confirmatory factor analysis (GREEN & WALKEY, 1988; VLERICK, 1995; SCHAUFELI & VAN DIERENDONCK,

1994). SCHAUFELI AND VAN HORN (1995) found acceptable degrees of internal consistency, alphas of .87, .71 and .78, for emotional exhaustion, depersonalization, and personal accomplishment, respectively (N = 916).

Personal fulfillment in one's existence was measured with The Existence Scale. The survey consists of 46 items and is based on questions relating to the achievement of four steps necessary to reach the fulfillment of one's personal life: subscale 1 is called "self-distance (8 items), subscale 2 is called "self-transcendence" (14 items), subscale 3 is called "freedom" (11 items); and subscale 4 is called "responsibility" (13 items). LÄNGLE (2003b) found acceptable degrees of internal consistency, alphas of .70, .85, .82 and .83 for self-distance, self-transcendence, freedom, and responsibility, respectively (N = 1028).

Results

Table 1 shows the reliability coefficients of the MBI and the Existence Scale. Internal consistency coefficients of the LÄNGLE ET AL. (2003b) study are higher, for his sample consisted of a heterogeneous group of 1028 respondents, whereas our sample consisted of a homogeneous group of primary schoolteachers.

Table 1. A Survey of Alpha Coefficients for the Existence Scale Subscales From the Present Study and the Längle et al. Study (2003b).

Existence Scale Subscales	Number of Items per Scale	Present Study Teacher Sample (N = 215)	Längle et al. General Population Sample (N = 1028)
Self-distance (SD)	8 items	.71	.70
Self-transcendence (ST)	14 items	.76	.85
Freedom (F)	11 items	.71	.82
Responsibility (R)	13 items	.80	.83
Total score	46 items	.90	.93

Table 2 presents the mean scores, standard deviations and correlations between the four existence subscales and three burnout dimensions. The results show that self-distance, self-transcendence, freedom and responsibility are negatively correlated to both emotional exhaustion and depersonalization: the less the scores on the existence subscales, the higher the scores on the two burnout dimensions. The existence subscales are positively correlated to personal accomplishment: the higher the scores on the existence subscales, the higher the personal accomplishment scores. The results also show that the higher the responsibility scores, the older teachers are. Correlation coefficients are significant.

Table 2. A Survey of Mean Scores, Standard Deviations and Correlations Between Burnout Dimensions and Independent Variables (N = 215)

	Mean	SD	1	2	3	4	5	6	7
1. Teacher Age	39.46	10.69							
2. Emotional Exhaustion	12.65	6.24	-.04						
3. Depersonalization	3.31	2.61	.03	.42**					
4. Personal Accomplishment	32.28	4.56	-.07	-.29**	-.30**				
5. Self-Distance	37.41	4.82	.08	-.37**	-.34**	.37**			
6. Self-Transcendence	73.34	5.08	.11	-.33**	-.45**	.40**	.53**		
7. Freedom	52.29	5.78	.01	-.34**	-.39**	.43**	.55**	.66**	
8. Responsibility	61.87	7.21	.20**	-.39**	-.35**	.41**	.53**	.55**	.73**

* $p < .05$, ** $p < .01$

Hierarchical regression was applied to determine if addition of information regarding self-distance and then self-transcendence, freedom and responsibility improved prediction of emotional exhaustion, depersonalization and personal accomplishment (Table 3).

In the first step of the analysis teacher age is entered to determine how much variance in the dependent variables, i.e. the three dimensions of burnout, can be accounted for by differences in age. In the second step self-distance is entered to determine if there is a significant increase in R^2 when differences in self-distance are added to the equation. The third step is the entry of self-transcendence to determine if differences in self-transcendence are related to dimensions of burnout after differences in age, self-distance and self-transcendence are statistically accounted for. The fourth step is the entry of freedom, and the fifth step is the entry of the independent variable responsibility. Because burnout consists of three dimensions, three regression analyses have been employed.

After step 1, with teacher age in the equation, $R^2 = .00$, F_{inc} (1, 209) = .312, $p > .05$. After step 2, with self-distance added to prediction of emotional exhaustion, the equation $R^2 = .13$, F_{inc} (1, 209) = 16.33, $p < .001$. Addition of self-distance to the equation with teacher age results in a significant increment in R^2. After step 3, with self-transcendence added to prediction of emotional exhaustion by age and self-distance, $R^2 = .16$, F_{inc} (1, 209) = 13.44, $p < .001$. Addition of self-transcendence to the equation improved R^2. After step 4, with freedom added to the prediction of emotional exhaustion, $R^2 = .70$. Addition of freedom did not reliably improve R^2. After step 5, with responsibility added, $R^2 = .20$, which means a significant increment.

The results show that there is no reliable increase in prediction of emotional exhaustion by addition of teacher age and freedom to the equation if differences in self-distance, self-transcendence, and responsibility are already accounted for. Regression analysis shows that the

lower the scores on responsibility and self-distance the higher the scores on emotional exhaustion. There is also an inverted relationship between self-transcendence and depersonalization: the lower the scores on self-transcendence the higher the scores on depersonalization. Responsibility and self-transcendence are significantly related to personal accomplishment. Teacher age correlates only with the latter burnout dimension: the younger teachers are the more they have a sense of high personal accomplishment..

Table 3. Hierarchical Regression of Predicting Variables on Emotional Exhaustion, Depersonalization, and Personal Accomplishment

	Emotional Exhaustion		Depersonalization		Personal Accomplishment	
Predicting Variable	β	ΔR^2	β	ΔR^2	β	ΔR^2
Step 1: Teacher Age	.04	.00	.09	.00	-.14*	.01
Step 2: Self-distance	-.19*	.13**	-.10	.12**	.13	.14**
Step 3: Self-transcendence	-.12	.03*	-.31**	.10**	.18*	.06**
Step 4: Freedom	.03	.01	-.06	.01	.10	.02*
Step 5: Responsibility	-.25*	.03*	-.10	.00	.20*	.02*
Overall Regression F test		10.10**		12.68**		13.89**

*p < .05, **p < .01

Discussion

To our knowledge, this is the second study to evaluate the relationship between existential fulfillment and teacher burnout dimensions. Results showed that existential fulfillment – self-distance, self-transcendence, freedom and responsibility – is significantly negatively related to emotional exhaustion and depersonalization and positively to reduced personal accomplishment. These findings are in agreement with LÄNGLE'S (2003a) conception of burnout and existential meaning. The present study also confirms KARAZMAN'S (1994) research on female Austrian physicians. NINDL (2001) examined the relationship between existential fulfillment and three dimensions of teacher burnout. He observed significant negative correlations between the four dimensions of existential fulfillment and emotional exhaustion and depersonalization. These results are in agreement with our study.

Our study has some limitations. Although the response rate was quite acceptable, response bias remains a possibility. We conducted our study primarily in January, after the Christmas break – a time of year during which teacher morale is typically relatively high (BROUWERS & TOMIĆ, 2000). Therefore, surveying teachers at a different time of year, for instance in June, could have resulted in different rates of burnout. We could not compare respondents with non-

respondents because, to fully protect the anonymity of all teachers – regardless of participation –, we obtained only limited demographic information from respondents. We did not obtain data on nonrespondents.

Measures in our study were based on self-report, and we do not know the extent to which these self-reports accurately reflect existential fulfillment and burnout assessed in the survey. Naturally, the results of the present study regarding the association between existential fulfillment and burnout should be viewed cautiously, yet there are no indications that these findings solely reflect biased respondent reporting. The findings of the survey could be used to generate hypotheses for future research. Finally, our study is limited by its cross-sectional design. Future longitudinal studies are required to evaluate the possibility of a causal relationship between existential fulfillment and teacher burnout.

However, in spite of the limitations, our study has several important strengths. To our knowledge, the current study has a larger number of participants than previously reported studies regarding existential fulfillment and teacher burnout (NINDL, 2001). Second, our study had a quite acceptable survey response rate (BABBIE, 1995; ASCH, ET AL. (1997). Third, teachers were blinded to the purpose of the study. Fourth, the observed association between existential fulfillment and teacher burnout was statistically significant and large enough to suggest that the findings could be meaningful.

Increased understanding of existential fulfillment – self-distance, self-transcendence, freedom and responsibility – that lead to teacher burnout seems to be essential. Therefore, it is important to conduct future studies which hopefully replicate our findings.

The present study shows that existential fulfillment in one's existence was associated with burnout dimensions. Further investigation of the prevalence, causes, consequences, and management of teacher burnout is needed.

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Correspondence address:

Welko Tomić
Department of Psychology
The Open University
P.O. Box 2960
NL-6401 DL Heerlen
The Netherlands
Phone ++31 / (0)45 / 57 62 539
Fax ++31 / (0)45 / 5762939
e-mail: Welko.Tomic@ou.nl

Pesso Therapy (PBSP) – a Neurobiological Founded, Body and Ressource Oriented Approach to Psychotherapy

Albert Pesso

Memory and Consciousness: In the Mind's Eye, in the Mind's Body

Abstract

The present understanding of the consequences of physical and psychological trauma as well as recent studies on emotion, memory and brain functions, show that psychological problems manifest themselves in the actual present as physical experiences and sensations. These insights have increased the awareness that treatment modalities in which the body is taken into account in a respectful, professional manner, can add significantly to the field of psychotherapy. This article presents some of the theories and procedures for including the body in psychotherapy utilized in Pesso Boyden System Psychomotor therapy (PBSP) co-founded by Albert Pesso and Diane Boyden-Pesso. PBSP offers techniques that support clients to examine the organization of their consciousness by teaching them how to explore their bodily states and feelings as a source of information. The awareness that comes from those techniques supports clients ability to track memories that are the foundation of their present states of perceptions, emotions, thoughts and behaviors. The path PBSP follows is to construct a symbolic "virtual arena" where clients are given an opportunity for satisfying expression of body-based emotions in a carefully structured experience as well as providing them with the tools to create interactive events, out of which they can create new, symbolic, satisfying memories. When clients look at the world through the lens and perspective offered by those new symbolic memories they can experience the present more fully and with greater pleasure.

Introduction

Psychotherapy is more than just talking and listening. Looking, imagining, physically experiencing and reacting all form an inseparable part of any therapeutic process. A client talking with his therapist about emotionally loaded memories of the past, will experience affect which shows up as charged body states. These affectively charged body states are indeed the precursors of emotional expression. The emotional behavior that underlies those states is often unconsciously suppressed and will remain bound in the body and be experienced by the client as physical discomfort. The general public tends to consider those disturbing conditions of as a sign of something "gone wrong". They want the unpleasantness removed by any means available, such as massage, medication and sometimes even surgery.

The path PBSP follows is to construct a symbolic "virtual arena" where clients are given an opportunity for satisfying expression of those body-bound emotions in a carefully structured experience in a symbolic setting. This is accomplished with the help of role-playing group members who provide the internally anticipated, visual, motoric, tactile and verbal interactions to the emotionally expressed actions. This technique called "accommodation" results not only in reduction of physical discomfort, but also leaves the client in a more relaxed and pleasurable condition – more open to satisfying external events and stimuli. The assumption is that our real, *deficit-ridden* memories influence our perceptions in the present. Thus, PBSP takes the further route of providing clients with the tools to create interactive events, structured in the therapy setting, out of which they can create new, symbolic, *deficit-satisfying* memories. This is not something to be done casually or incidentally. PBSP is careful in applying a well-developed technology which assists clients to stay responsible for the creation of those new symbolic events and memories. The goal is *not* to try to change their real memories – they remain the remembrance of what has really happened to the client. However, new symbolic memories seem to enable clients to understand more clearly and deal more successfully with what had actually happened to them in the past. When clients look at the world through the lens and perspective offered by those new symbolic memories they report that they see and experience the present more fully and with greater pleasure. They also report that these experiences appear to contribute to the development of their psyches to more mature and individuated states.

Mind – Body – Memory

Cartesian duality is invalid. Recent brain research makes it abundantly clear. The mind and the body are one. Neuroscience shows that our consciousness and thinking arise from sensations and information coming from our bodies during interactive experiences. As Antonio Damasio clearly states, consciousness comes from The Feeling of What Happens (1999).

As we grow up, the experiences we have of living in our bodies in interaction with the world teaches us how to live well in the world. The bodily based experiences of the first years of our

life are the source of our implicit and explicit memories, records of how we have lived in the world right from the beginning. They form the basis for the thoughts and ideas we formulate of how to live in the world later on. This *implicit* memory consists out of non-conscious, automatically recallable blueprints of routine motor/behavioral patterns, like opening a door or riding a bicycle, as well as unconscious emotional and physical memories of interactions with our caregivers and all the events and situations we have experienced in the formative years of our life. Our *explicit* memory concerns all what is consciously recallable as factual and emotionally charged significant events, like rites de passage and other landmark situations, threatening moments, events or episodes resulting in great pleasure as well as explicit knowledge and ideas about how the world is. Our brain is so organized that it produces verbal narratives to describe to ourselves and others what we have felt in our bodies, seen with our eyes, and learned with our entire beings about the world.

The early interactions we have experienced in the past and the thoughts we have about those experiences, are registered in brain-body, neural memory circuits. They are functioning as maps for present behavior: everything we perceive today and every action we take today is influenced by memories of significant events we have experienced and actions we have taken in the past. It is for that reason that Nobel laureate, GERALD EDELMAN, routinely calls consciousness "the remembered present" in his book, A Universe of Consciousness (2000). Neuroscience shows that what we experience as consciousness of the present is mainly based on and largely driven by memory. So, if we have problems in the present – the present looks miserable and the future looks even worse – the trouble may well be something that happened, or didn't happen to us in the past. And, we may be considering the impact of that problematic past as if it were still happening in the present. Freud identified that reality long ago, but now neuroscience shows that the organization and composition of our present consciousness indeed is neurally dependent on memory. One can even say we *are* the memories of our past perceptions and actions. That is why the past can play tricks on us.

To accurately examine the influence of the past on our lives, we must add the influence of our genetic heritage on our lives – not merely the influence of our own mother's and father's ancestral genetic contributions, but the influence of evolutionary selection from the beginning of time on our genetic organization which results in having certain kinds of minds and bodies as human beings. We are all the heirs of that evolutionary process that has by trial and error, "learned" to live, procreate and evolve – generation after generation, species after species, from the first appearance of living substance on this planet. One could refer to this source of information as "genetic or evolutionary memory" – as it certainly has an influence on how we perceive and how we act moment to moment. Our genes are the source for this information that guides our cells to construct the very systems and neural processes that give rise to perception and action in the first place. We naturally and without thinking, access that gene-inspired information – perfectly suited to provide avenues, strategies, perceptions and actions that can lead to successful living. On this basis, two classes of memory can be posited – auto-

biographical memory, based on our individual experiences in life, and evolutionary memory, genetically based programs reaching us via body feelings and sensations, emotions and motor impulses, essential for the survival of the self and the species. Our autobiographical memory is tabula rasa at our birth, but our evolutionary/genetic memory is not. It is full of what one could call a "passion for existence." Under its influence we seek and selectively attend to those elements in the outside world that will lead to the continuity of our individual life. And as we mature, it insistently "nudges" us to actions and interactions that will result in the continuity of our species. It is as if our genes anticipate our individual demise and have built into us a craving for sexual and social interactions that can result in the continuity of human existence. From that genetic source we yearn to find our mates, find our calling and make our contributions to the world. But before we are able to arrive at that generative phase of life we first have to experience appropriate and stable parenting interactions that naturally lead to successful maturation and individuation. Of course the culture we are born in influences what kind of rearing we will receive. But the most fitting program for optimum maturation can be divined by observing rearing impulses in loving parents, and noting what new born babes need and thrive with when they receive it.

PBSP assumes that when we have had the good fortune to have those needs sufficiently met at the right age and with the right kinship relationship figures, we can anticipate a life with a good portion of pleasure, satisfaction, meaning and connectedness. When we have had the misfortune of an impoverished history, we live – and continue to anticipate living – with a high amount of opposite qualities. Instead of pleasure we anticipate pain, instead of satisfaction we anticipate frustration, instead of meaning we anticipate despair, and instead of connectedness we anticipate alienation and isolation. After many years of observing deep, emotional experience and bodily expression of clients in structured therapy settings we have concluded the following five innate tasks or evolutionary, genetic requirements that may lead to satisfactory living.

Genetic Nature Makes Demands

We are pushed by our Genetic Nature, to become wholly and truly who we are if we have the good fortune to get our basic developmental needs satisfied – the physical and psychological need for place, nurture, support, protection, and limits – they all have to be concretely satisfied by parents or parent substitutes. Subsequently, these needs will have to be satisfied on a symbolic level when the child has a place in the heart of the parents, is nurtured in its self-confidence, supported in its efforts, protected in its rights, and helped to discover its own possibilities and limits. When this care and attention has been internalized, the adult can, at last, satisfy their own needs, can feel at home somewhere, take care of themselves, find support, and protect and confine themselves, in their own interest and that of the community. Further requirements for child development are: to be assisted with the integration and uni-

fication of the polarities of our biological and psychological being, like power and vulnerability; to be supported in developing our consciousness and our self-organizing center – the "pilot" of our ego-system, which coordinates what we feel, think, decide and act on; to be seen and validated in our personal uniqueness and potentiality.

And what if we have not met those developmental requirements enough at the right time, in the right kinship relationships? Those who have had that unfortunate history have an inclination to see the world in a negative light and are rather destined to have a fairly unsatisfactory present and future. What do we, psychotherapists do about this condition? How do we go about helping clients overcome the vicissitudes of negative actual histories recorded in both mind and body? Most modes of psychotherapy offer "real-time," verbal interactions with the therapist as the major component of the treatment. Pesso Boyden Psychomotor System differs from these methods in two ways. First by including body based experience, expression and interactions in the therapeutic process and secondly by employing symbolic time as well as real time interactions. In the therapeutic setting of the "actual here and now" of the group room, a "virtual, symbolic stage" is established. This is not a fixed stage, for it can virtually move through time and space, just as the shifts occur in the clients mind as they remember events happening at different ages, in different places with different people. In this symbolic time, there and then stage, client's memories are externalized and "come alive" with them included in the scene.

Micro-tracking consciousness

It is a given that the client's autobiographical memories of unfulfilled needs, neglect or even violation underlie and drive their present day, undesirable conscious experience and behavior. As noted above, in Pesso Boyden System Psychomotor, therapists help clients carefully design new interactive events to create new "symbolic memories" more in line with genetic expectations to offset the negative effects of their "actual memories". How do we know which memories may be significantly distorting and undermining present experiences and actions so that clients can more accurately and precisely construct new, symbolic memories, which memories – had they really happened – would have provided the basis for a more livable and satisfying existence? We help the client learn that by a process called *micro-tracking* -- that is, to meticulously track their present consciousness. Present consciousness consists of what the client perceives now, how they react and feel about what they perceive now and the thoughts that arise while they perceive and react. We attend to the mercurial play of emotions that move on the client's face, moment to moment, in response to rapidly shifting affective states that are caused by the client's immediate consciousness. Using Edelman's term, what we are looking at may be the felt response to the "reentrant loop" between perceiving and reacting. To help the client to be more conscious of their own emotional states and to know the context of those states, we posit the notion of a "witness figure." That figure, once enrolled, will make statements

like, "I see how fearful you are when you talk about the situation at the office." The words for the witness statements are organized by the therapist in dialogue with the client, and not by the role-player. For it takes great sensitivity and skill to first, find the just-right single word to name the emotion showing on the client's face, and second, to simultaneously register and remember – accurately and without paraphrasing – the words the client used when speaking about the context which aroused that emotion. Those statements are voiced only with the beforehand agreement of the client – who is the only determinant of their accuracy and validity. Then those words can be said back to the client by the witness figure. An accurate witness statement has a recognizable effect. The client nods in knowing agreement with the truth of the statement and looks at the therapist with a sense of increased alliance. What often follows is the client's expression of some evaluative statement – a good example of declarative memory – like, "You"d better be fearful and on guard with that kind of boss." With their beforehand agreement that kind of phrase is spoken back to the client by another hypothetical figure, in this case it might be called a Voice of Warning, the name of the figure being dependent on the "gist" of the presented idea. Voice figures are used to track the thoughts of the client and to present those thoughts back as if they were commands. For indeed such thoughts and ideas, stored in our memory, are reacted to by us as if they were good suggestions or commands for how to survive in the world as we have found it. If the micro-tracking is accurate and successful it increases the client's consciousness of their own process while the client is simultaneously in that process. We call that effect "enriching the client's *pilot*, the observing, decision-making and executive component of the ego.

In the Mind's eye

As the micro-tracking process continues, the client gains increasing perspective on inner mind-body processes. The external messages coming from the witness and voice figures established in the "here and now" arena of the therapy room begin to stimulate associations, as the client notes the similarity of what she is conscious of in the present with what she suddenly remembers of the "there and then" of the past. The client may suddenly speak heatedly of her father and some similarly unpleasant situation she experienced with him as recently with the boss. We assume that she is now, not only seeing the room with her actual eyes, but she is simultaneously seeing her father in her *mind's eye*. And, as Damasio points out, whatever we are conscious of results in a feeling. Here she is conscious of her boss and her father and she has a lot of feeling, but those feelings are not relevant to the "here and now" of the office situation or the therapy room, but of the "there and then" of the past. The therapist can note this shift and say something like, "Since you are thinking of your father and reacting emotionally so strongly to his image, perhaps this would be a time to have someone in the group enroll as that part of your father to be represented in the virtual arena of the past". That is how we can have both stages in play at the same time. For indeed, the client is still in the room with the

therapist, the role played witness figure, the voice figure, the role played boss and the rest of the group in the "here and now". Nevertheless part of her psyche is also active in the "there and then". That scene of the past can now be externalized, illustrated and represented by role-players. If the client is ready to make that step and chooses someone from the group to step into the role of the father she is seeing in her mind's eye, an interesting phenomenon happens. The client sees with her mind's eye images selected from a lifetime archive of remembered images and events which are projected on her inner "virtual reality" theater screen.
The step carried out in a PBSP session is to support the "Pilot Ego" of the client to project this "inner reality" theater, where she sees remembered images and events in her mind's Eye, – into the outer reality theater of the therapy room by inviting group members to be enrolled as specific figures. This therapeutic step enables the client to link Inner and Outer Theatres visually and emotionally. Once the group member steps into the role and onto the "virtual stage", the client has a kind of "stereoscopic vision" – simultaneously seeing the real person with her "actual eyes" while she is so vividly seeing her real father in her mind's eye. Now a remarkable shift happens in the psyche of the client. She knows it is a role-player before her, but since she has consciously projected characteristics of her real father on him, part of her will react to him as if he himself were really in the room at whatever age she was at that time. One can guess that her "mind's body" is at work and affecting her actual body – for she is experiencing this moment with some modicum of body sensations, impulses and postures relevant to that time. What is even more remarkable is that the same responses can be released by having an object or even a volume in the air represent her real father. What is in our mind's Eye can consciously or unconsciously be projected outwardly in the air, on an object, on a person and reacted to as if "real". This is what can be practiced in a one to one session when there are no group members or role-players available.

In the mind's Body

Damasio writes about what he calls the "as if body" in the mind – a neural organization which gives us the facility to review and practice complex body behaviors without moving a muscle. He suggests that when we do that internal practice, we are in effect, "making a memory of the future." Clearly we have a vast storehouse of neural information and coordination to be used for many different purposes. In PBSP we do not focus on making a "memory of the future" but we assist clients in making a "symbolic memory of the past" which they can store in the "as if body" in the mind – or the mind's body. That new memory of the mind's Body may be accessed consciously or unconsciously and may influence present consciousness in some of the same ways that actual memories affect present consciousness. In our mind's Body we can feel movement sensations without actually moving, experience how we moved at different ages and practice complex movement sequences at rest. Experiences stored in our mind's Body influence actual body behavior and sensations.

Now we return to the client with the role-played figure of the real father. On the "virtual stage" of the "there and then," she can feel all the emotions and impulses that had been stored in her "mind's body". She may have never consciously noted those states in the past and if she had, she would not have acted on them for fear that it would have had disastrous consequences. Now, on this "virtual stage," she can safely give full attention and free rein to those body states – feel the emotions that are linked to them and allow the motor behavior that would naturally arise from them to be expressed with her actual body. There may be fear, anger, grief and affection associated with her father and the expression of those emotions are facilitated with the help of good accommodation. In the grip of the pain of that loss she may also find the longing for what should, or could, have happened between a father and a daughter. She may remember that she wished then for a father who was not dangerous and un-protective as her real father. What to do now? The only father she had was the one she had. In this method we take the route of giving her the option of experiencing a new, symbolic more fatherly, father. One more in line with what our genetic memory has primed us to anticipate. She can ask another group member to take the role of an ideal father and create an interactive event for herself with this new possibility. Let us assume that all steps of enrolling group members have been appropriately accomplished and she is now in the midst of experiencing how it would have been in the past to have the contact she wanted with a father who would have been protective and supportive at the ages she would have needed it. Just as she had the capacity to respond emotionally to the representation of her real father, she fully believes in the emotional reality of the representation of an ideal father. She surrenders in amazement to the abundant sense of relief, pleasure and safety that contact with such a father would have provided, had it happened when she was a child. This sense of relief is often followed by waves of grief as the full impact of what clients have lost also washes over them.

Soon the oscillating rhythm of joy and grief subsides and a feeling of peaceful contentment comes over her, visible to all in the room. Where to store such a moment so it will have long term effect on her life? We make the move of suggesting to her that she access her "mind's body" as she experiences those powerful emotions in her actual body. With her mind's body she can call on the memories of her childhood body states and combine those interior body images and remembered body sensations with the actual emotional, kinesthetic, tactile, auditory and visual inputs she is experiencing in her real body now. We help her use her "mind's body" not to make a memory of the future, but to make a *symbolic memory of the hypothetical past* we have organized on the "virtual stage" of the "there and then" in the therapy room. When that final step is completed and the client indicates she is ready to stop, she tells her role-players to de-roll. They do so and thereby leave the virtual stage of the "there and then" and return to the actual stage of the "here and now" of the therapy session. This new symbolic memory can be refreshed and reinforced – not by repeating the identical process in the therapy room, but by the client – motivated by her own initiative and pleasure – recalling and re-tasting it over and over again. The interactive event has happened in the present, but some

part of the mind –using that which is registered in the mind's eye and in the mind's body – responds to this event as if it had happened in the past.
Clients undergoing this process often report that they experience their present with more satisfaction and that they have more anticipation of pleasure, meaning and connectedness in the future than before.

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Correspondence address:

Albert Pesso
Pesso Boyden System Psychomotor
Strolling Woods on Webster Lake
Lake Shore Drive
Franklin, NH 03235, USA
e-mail: PBSP1@aol.com
homepage: www.PBSP.com

Lowijs Perquin, Free University of Amsterdam

Issues of Narcissism and Omnipotence treated by the use of physical limits with a symbolic meaning in Pesso Boyden System Psychomotor

ABSTRACT

This article discusses the central roles of issues of narcissism, omnipotence and limits in early sequences of human development, as well as how these issues are dealt with in the psychotherapeutic process developed by Al Pesso and Diane Boyden-Pesso (Pesso Boyden System Psychomotor, PBSP). The article describes practical steps for strengthening the client's ability to contain omnipotent forces and wishes, and offers suggestions on how to avoid pitfalls and negative therapeutic outcomes when dealing with these powerful impulses emerging in therapy sessions ('structures') in which the body is involved.

Key words: Narcissism, Omnipotence, Limits, Pesso Boyden System Psychomotor, PBSP, Pesso-Psychotherapy, Body-based psychotherapy

'A child is born with a powerful genetic nature, having capacities to affect and be affected by the external world. It needs to discover, by loving interactions, that those powers are not uncontrollable, omnipotent, and infinite. The lovingly limited child can evolve into a free spontaneous adult without fear of its genetic forces or going out of control.' These words from ALBERT PESSO (1994) describe the positive experience of *being limited* as a basic developmental need of the young child. Together with the technique of explicitly establishing a therapeutic climate (Possibility Sphere) and the principle of creating an alternative symbolic event (Antidote), the technique of physical limiting in a therapeutic context is the most important contribution of PBSP to the field of psychotherapy.

In this new millennium, the unmet need for limits and the necessity to contain powerful, violent and destructive forces is alarmingly evident, not only on an individual, psychological level but also on a social, ethical, political and global scale. Although psychotherapy in principle is a profession that is humbly oriented toward individuals and small systems, increasing social fragmentation is forcing our awareness of the need for safe and clear limits in our society as a whole. This urgent problem stresses the necessity to think about how to apply safe limiting techniques in a therapeutic context. It seems useful to reflect on how methods and techniques developed in a body-based psychotherapy like Pesso Boyden System Psychomotor might con-

tribute to the effectiveness of psychotherapy in general and to our thinking of the issue of limits on a daily life level.

Omnipotence, Limits and the Body

Existence itself is limited by time. We cannot experience everything life has to offer in one lifetime. Our body, too, is limited in space; we can only be in one place at a time and we cannot be omnipresent. The innate qualities and possibilities of our Soul are indeed numerous but limited, and that is what partly defines the uniqueness of every single person. In other words, limits determine and define the being-human of human beings. Limits frame the outer and the inner, the me and not-me. With limits – originally provided 'from the outside' – we are defined and enabled to feel our human integrity; we don't diffuse into others or the space around us. With boundaries we have contours, a psychological 'skin,' an ego (Anzieu 1989). We are also defined by our different abilities to transgress boundaries and feel connected to the Universe. But when we lack adequate boundaries, we experience ourselves as larger than we really are: omnipotent and endless. An inflation of the self results, in which finally we will feel diminished and insignificant, useless and desperate. Feelings of omnipotence, narcissistic and megalomaniac illusions, unlimited aggression, as well as the compensatory feelings of impotence, guilt, powerlessness and self-depreciation inherent to them – all these fall under the rubric of 'issues of narcissism and omnipotence'.

Most often these issues relate to early stages in childhood development. A small child needs a safe environment to be able to integrate the experience of boundaries and to feel the confidence that its own powers are not infinite, omnipotent, and therefore uncontrollable. If all goes well during its development, the child will be able to accept the limitations of life to the extent that it feels freedom, creativity, and joy from within safe confines. Reliable physical interaction with parents and caretakers – such as cuddles and skin-contact when being held – creates the first preverbal notion of one's own contours and boundaries with regard to one's surroundings. These first experiences, which are concrete, literal, and based in the body, establish the psychological ground for the transition to the more abstract and symbolic dynamics of cognition and emotion (Pesso 1994).

The formation and maintenance of ego-boundaries and psychological limits are originally physical in their natures and representations. This explains why life topics related to omnipotence are so difficult to treat in verbal adult psychotherapy (Perquin 1994). The unconscious impulses underlying the subjective issues of omnipotence are inseparably welded to physicality and human embodiment. Developmentally speaking, when the small child is furious, screams, stamps with the feet, hits and bites but stays unnoticed by its surroundings and is not safely limited, it will internalize this experience as impossible to handle, frightening, overwhelming and shameful.

Let's have a look at a child who goes through a *temper tantrum*. It rages with fury and frustration, screams from the bottom of the belly and rolls over the floor with its head bent backwards. If the child is not held by a safe figure during such a fit or anoxic episode, it can only self-limit through its own physiological responses. After a while the child turns blue in the face, starts gasping, and due to a lack of oxygen will be unable to give any further expression to its fury. The heart-lung system can no longer supply the energy required by the muscles; it is as if there is more fury available than the body can handle. The child turns pale and limp and finally yields to physical exhaustion. Most 'good enough' parents and caretakers will intuitively know in such moments what the child needs: the safety, support, and limitation supplied by physical holding. They will pick the child from the floor and hold it and within the confines of their arms let it safely express its fury. When these primitive impulses are being expressed, bodily contact seems to be imperative for the child to eventually integrate these forces into the Ego (Pesso 1984).

Parental denial – due to a lack of limiting physical interaction – and negation – resulting from verbal rejection or prohibition – will be internalized by the child's ego as a general suppression of aggression. In child-development that lacks sufficient holding and containment, the child cannot experience the soulful license to express and own its physical strength. The child will learn to restrict – by its own inner means – forces which have not been limited by others from the outside. The Ego then begins to function as a 'tight fitting suit' or a 'prison for that aspect of the soul' (Pesso 1991). There will be not enough space for the development and management of aggressive impulses, strength but creative powers. At a later age, safe and socially accepted forms of anger-expression and power will be insufficiently practiced and acquired in both physical and verbal ways. Through repression and splitting, anger will have become a dark and unknown force. From fear of destructive consequences, from shame and guilt-feelings, it will remain beyond the threshold of conscious awareness – or it will be expressed unconsciously by means of destructive behavior.

A great deal of psychological problems can be understood and treated as forms of self-limitation. They are the consequences of an inability to express and regulate aggression in a healthy way. They include the gamut of obsessive-compulsive symptoms, somatization, anxiety, depersonalization, depression, self-destructive actions and forms of acting out such as promiscuous behavior and impulse-regulation disturbances.

These remarks about omnipotence and limits are intended to frame the technical discussion on limits in PBSP, to which I will now proceed. The specific elaboration of these developmental experiences – and the intra-psychic structuring that results – falls within the rich purview of psychoanalytic ego and object relations theory and research (Crandell 1991, Amundsen, this journal). Exploration and consideration of that extensive domain, so important to the competent practice of PBSP, is beyond the scope of this paper.

Physical limits in Pesso Boyden System Psychomotor

Pesso Boyden System Psychomotor offers a unique approach to issues of omnipotence. The method of assessing omnipotence issues – through observation and interpreting body-language – and the therapeutic *physical* interventions that enable the client to symbolically experience safe limits have been systematically worked out. The client can contact archaic rage and physical power that is experienced as unlimited, unmanageable and frightening. Expressing these forces within safe limiting physical confines with a symbolic meaning, the client can experience that aggression, long perceived as endless and dangerous, can be limited. When rage meets its target in a safe manner, it will as a matter of course meet its satisfying completion or climactic end (Pesso 1984). An assumption in PBSP is that all energy leads to some kind of action and intends toward interaction. Ideally, power can be acted on (in stead of *out*) and handled *in* interaction with loving people. The client will experience that this power doesn't necessarily need to be destructive to self and others, but can be legitimate, vital, and finally effective.

We should note here that limitation does not merely involve aggression and force. It is just as important to experience that other emotions, such as despair, fear, sadness and jealousy have their appropriate human confines. Equally important, repressed love and sexual wishes can be experienced by the individual as unlimited and therefore considered as dangerous. The realization that needs can be fulfilled, such as the need for nurture, support or protection, is itself an experience that also has a limiting quality. Hunger can be satisfied and doesn't ask for infinite eating; the chronic fear of falling down can be halted by support; the experience of protection can attenuate feelings of chronic vulnerability or bring them to closure.

The above principles on physical limitation are common knowledge for the competent Pesso Boyden System Psychomotor therapist. Most PBSP therapists will have experienced that guiding a limit-structure is anything but easy in practice. The first difficulty is that the therapist needs to closely work together *with* the client, yet without abandoning a basic stance of guidance. Simultaneously, she or he needs to 'stage-manage' the group. There must be significant knowledge of anatomy and related emotional/physiological functions – or more simply stated, a great deal of practicing and observing how emotions are physically expressed. Above all, the therapist must be confident with the vehement expressions of clients, and confident as well with his/her own power as a therapist and human being.

Therapeutic guidance and the use of limits in PBSP therapy are inevitably best learned 'on the job'. What follows below is a discussion of important technical tools and therapeutic principles that will help the therapist in understanding and working with limit structures. I will discuss several technical issues under the following subject headings: (1) Why physical limits? (2) What issues are dealt with in limit structures? (3) What do physical Limits in PBSP look like? (4) Specific forms within limit structures. (5) Tricky situations and pitfalls.

Why Physical Limits?

Physical limitation can help the client to get in touch with important aspects of the Soul: destructive forces, cruelty, sadism, hatred and healthy aggression: fury, strength, power, sexual forces. We are all born with these powers; they are part of our existence and human heritage. For many clients, aggression has not been honored and contained as a psychic reality, and has therefore not become useful and important either in therapy or in life (Pesso 1973). It has remained insufficiently tested because of inadequate limiting experiences: absence of a parent, excessively harsh reprimands, untenable prohibitions, over-stimulating physical threats, and so on. In a limit structure these aspects of the true self can receive their proper place; they will be given a correct name, they assume their true dimensions, and they will be respected, validated and blessed (Pesso 1991).

In a limit structure this all happens within symbolic, physical boundaries. Our body is present, perceptible and tangible in a concrete form; it wants to be fed and touched; but the body is also a symbolizing body (Pesso 1984, Stern 1985, Bruine 1994). Kinesthetic, sensory, and motoric potentials – expressed in satisfying interaction with symbolic limiting figures – can result in the satisfaction of unfulfilled needs on both the concrete and symbolic levels. In considering the sensory domains within a PBSP session or 'structure', a rarely considered fact deserves mention here. That is, in addition to visual, auditory, and the all-important tactile senses, the sense of smell often has important evocative and recall-inducing powers. In a very basic and primordial way, smells and scents constitute a powerful component of experiencing another human being.

To summarize this point briefly, the awareness of the true unity of the self will be increased by physical limitation. Fear and shame of one's own aggression and strength will be diminished. Healthy, well-controlled aggression will be more easily available and will be experienced as a source of vitality, without guilt feelings. The client will increase in self-confidence and can dare to venture towards more openness, vulnerability and spontaneity.

What Issues are Dealt with in limit structures?

Fear of aggression and power

Aggression and power are basic vital forces for life. They are the instinctual bases for defense of the self, and the primal energies needed by an individual to take a stand for him or herself and on behalf of others. In wartime, a healthy mother will instinctively know how to defend her child against danger. When not sufficiently expressed and practiced during childhood, power and effective aggression remain 'underground'. They will not be available for conscious daily use according to purposes set by the ego, such as defending the self against danger. Aggressive potential will exist as repressed or split-off energy that may escape or burst unexpectedly out of its inadequate container. Unbounded aggressive impulses are then free to emerge in various indirect and inverted forms, such as panic attacks, depressive episodes, and the like. Often this

results in chronic fear of not being able to control impulses. The individual worries, often unconsciously, along the lines of : "Once I let myself go, I won't be able to stop; I'd better keep cool." In most cases the clients are even not conscious aware of their aggression; the defenses of anxiety, shyness and physical complaints are instead in the foreground of their awareness. Nor is the lack of ego mastery over aggression limited to self-crippling thoughts and self-damaging actions; explosive, passive-aggressive, and antisocial forms of acting out are equally indicated here. However, the central point remains: aggression and power that are not 'ego-wrapped' by the functional structure of the ego, remain in underground of the psyche and are unavailable for lending legitimacy, power, and firmness to the self.

Aggressive fantasies, guilt feelings

Subconscious, subdued impulses can find a way to the surface of consciousness through sadistic dreams and cruel fantasies. An example might be when someone notices after some minor conflict that, "I hate that guy from the bottom of my heart." Residues of uncorrected, magical, omnipotent thoughts from childhood suddenly intrude upon one: "I wished mother was dead, and then she had a car accident. What you merely think, can really happen!" "Looks can kill!" Sadistic fantasies can be considered as dangerous in themselves, even as they remain 'unpronounced' and un-thought. When they surface in awareness, the client feels ashamed and guilty. Thinking and doing, thought and behavior become intertwined, and the client cannot clearly separate them, but instead tends toward magical thinking. The capacity for cruelty is disowned, seems not to exist and is not experienced as part of the Soul. It remains ego-dystonic, un-integrated, and therefore foreign to the ego. Compulsive aggressive thoughts are an example of this: "I am alarmed at my powerful thoughts that are so mean and aggressive." Another example is in paranoid projection: seeing in another person the fury that one cannot recognize within oneself. More complex is projective identification: projecting one's own aggression 'into' someone else, unconsciously identifying with that projection, and then controlling or attacking the power of that other one (POHORELY 1992).

Self-hatred and self-destructiveness

Another strategy of the ego is to consciously or unconsciously direct fury towards the self. Self-destructive tendencies, such as seeking dangerous situations, abuse of alcohol and drugs, self-neglect, self-mutilation and suicidal attempts are examples. Frequently this involves clients who have been abused. Self-hatred and self-destruction originate from underlying intense, aggressive impulses towards the abusers. These powers are insufficiently under the control of the ego. The intense fury towards others is directed towards oneself, because that feels safer. It has been too dangerous in the past to address the fury towards the aggressor. The power of control is being held 'within oneself' in this way. "I am hurting myself; at least I have that power." The aggression is experienced as dangerous and does not surface. Hurting oneself can become a strategy in order to unload the inner tension from the forbidden aggression. The

client unconsciously repeats the original situation and becomes aggressor and victim simultaneously. As aggressor the client replays the original abuse. One's body assumes the role of victim, now under the stage-management of the self. In this way the client keeps illusory command over the situation and can foster the illusion of 'controlling the abuse' in present life and of having caused and managed it in the past. According to this complicated mechanism, a magical antidote is attempted, namely, the overt conclusion that, "It was my fault." This can be seen as a hidden omnipotent fantasy: "I had the power to let this happen *and* I could have stopped it." This results in ignoring the true feelings of hurt and rage about the forced, involuntary surrender (PERQUIN & PESSO 2004).

Megalomaniac fantasies, narcissistic isolation

"I don't need anyone; I can manage on my own. No therapy will really affect me. I'm far above the level of the others. I can save the world." Often there are fantasies about great successes, power and ideal love. The fact that these cannot be attained in the face of all the limitations and limited time frame of real life does not induce the client change his mind. There is an inclination to put oneself into a central position and to demand continuous attention. Criticism and corrections are unbearable. It is one's circumstances or one's fellows that are really deficient. These persons seldom receive unfavorable comments, they are usually carefully spared. This increases the narcissistic isolation, recalling for us here the phrase, 'splendid isolation'. One's counterparts in life intuitively avoid provoking the narcissistic rage that would play up in case of a limiting confrontation. The client has received too little acknowledgment of their realistic possibilities as a child. There is a confusion between fantasy and reality. The child was either left to its own devices or had to comply with parents' narcissistic wishes. "I needed to be someone I never have been." The child, misunderstood, has withdrawn to its own interpretation of the environment. In lonely isolation it developed, as compensation for the cold environment, megalomaniac fantasies or dreams about a perfect world.

Over-responsibility, parentification

Opposite to above pictured pattern, we know of persons who mainly care and arrange things for others. When they are forced to stop these actions, for example because of illness, it seems that they don't feel their rights to exist anymore. For women in our society this seems often to be the case because of a general socialization process. In specific cases this unhappy general pattern seems to be amplified and further exacerbated by the individual life history.

For example, a certain client has taken care of her dying father at the age of nine and has later comforted her grieving mother. She has 'grown up' too early, has been as a consoling parent to her own mother, has replaced the mother's adult partner, and has fallen, as we say, into a 'magical marriage' with her mother. She was given influence and power that were completely out of proportion to her age. This inflated her self-esteem and reinforced a certain omnipotence. But she paid a price; she could not feel free to play and experiment as a child. She

did not appropriately experience the justification and meaning of her life from feelings of satisfaction of her own needs and achieving her own goals and just have pleasure and enjoy. It is still very difficult for her as an adult to enjoy life and have a good time for herself. She can only experience her own value in the course of being useful to others: at these moments she is able to feel important and appreciated, recognized and anchored. Her right to exist with her own needs comes only with the great effort of sealing herself off from the needs and requirements of the outside world. Whenever she manages to do so and spends time for herself, she feels gloomy, dissatisfied, not fulfilled. The tie with her mother has an unconscious and unbound erotic quality and is so strong that a sexual relationship with a male partner seems impossible to her, or at least undesirable. It would feel as a betrayal of the mother and a great loss; she resists giving up the special high position she has in her mother eyes, and the even higher position she maintains in her own fantasy (SAROLEA 1986). Tragically, too early in life this girl has been given tasks that lay far beyond her abilities and responsibilities proper to her age. This has simultaneously reinforced omnipotence and dependency. The loving feelings for her mother that she had as a little girl have never been expressed as such, but have assumed a disguised or displaced expression in the form of 'ministering' or 'caring'.

Unlimited erotic and sexual feelings

When the client has been sexually abused as a child, he/she may be convinced of possessing an almighty seductive power, which the abuser could not resist at the time. Unwittingly, the client will have developed a strong physical, almost reflex-like reaction of openness, for which many actual or potential abusers seem to have an unholy instinct or intuition; sexual abuse is often committed again when the child has become an adult. To have had to submit oneself sexually to someone with more power at the time, to have had to have been physically open, was an experience that happened without the control of the ego. The traumatic *events* were partially *recorded* in memory because they could not be *experienced* from a place of true feeling. To *express* what the child really felt was literally impossible; the whole event was undergone in a dissociative state. The feelings and emotions were not 'ego-wrapped,' not integrated. The overwhelming openness results in an unpredictable, unlimited kind of apperception – a susceptibility for aggression and erotic advances over which the client has minimal control. This lack of ego control very often displays itself without his or her conscious wish. On the other hand, unlimited or over-stimulated sexuality can manifest in the client being involved in promiscuous relationships. This is another unconscious piece of evidence or confirmation of the client's omnipotent sense that, "No one ordinary person can handle or satisfy my sexual desires."

Acting out

Sadism and cruelty can unconsciously be sought from others, reflecting the client's archaic developmental need to be limited in those impulses. Often the client does not recognize this mechanism. For instance, a male client does not understand that his very demanding, testing

behavior results in rejection again and again. He doesn't know that he is unconsciously seeking for parent-figures who accept, validate and safely limit his behavior. His companions in real life understandably do not accept this limiting role, but end up involuntarily in a punishing, sadistic role. The result is that the client, as a grown-up, is rejected again. Acting out is the more visible form of this dynamic. The person has only one way of handling aggression: by concrete physical expressions, actions, and behavior in daily life for which the final limit can literally become jail.

What Does Physical Limitation in PBSP Look Like?

Accepting and validating

Limiting parent figures show to the client in verbal and non-verbal ways that they fully accept the testing, furious child. They accept primitive rage for what it is: a universal instinct. They encourage the child, and they are cognizant and appropriately respectful of his or her power. In the structure they meet it with appropriate vigor, get tired from the efforts, but will 'hang on'. The limiting figures do not discourage the client, by rushing to let him know that they are stronger. They will only make that point clear if it is absolutely needed, namely, when the client tests them strongly. The interaction with the limiting figures needs to fit as exactly as possible the *shape* of the impulse's actual presentation (SCHENKER & FISCHER BARTELMANN, this journal); they should fit the form or attitude of the body or body-contour and the expressed power of the client. The client must never be 'pushed over' or overpowered. This counter-shaping does not only mean fitting with the form and force, but also with the direction, the rhythm and the speed of the physical expression. In PBSP therapy, helpful validation of the Soul and its essential impulses is usually experienced in direct proportion to the accuracy and precision of the interactions provided by the accommodating role figures.

One final point remains to be made in regard to the issue of 'validating the impulses of the Soul' through limit structures. In life or in therapy, when one truly validates another, it is better described as a kind of recognition rather than any kind of tangible gift or transaction. The main task of the accommodators is to assist the enactor come to his/her own validation. It is not the responsibility of the accommodator to decide what has to satisfy the enactor. That is a matter for agreement between the worker and the therapist (BELOOF 1986).

Step by step: under one's own control

Limitation means also managing time and working with the awareness of time-limits. For every therapeutic experience there is a time-frame; only a limited number of issues can be dealt with in one therapy session. This makes selection and a clear focus necessary. One clear and structured step that can be integrated by the client is vastly preferable to a murky situation in which the client gets overwhelmed by emotions, complexity, or novelty. It is important that the client acquires a clear overview of what has been happening.

The client should be able to indicate every step by him/herself, in order to have autonomy and to enable the therapist and the role-figures to be prepared. It is necessary to make clear-cut arrangements with the client: "Let me know in what way you intend to test the parent-figures, before you start." Or: "Tell me in advance what you feel like doing. We will shape the expression into a safe form and we can instruct the limiting figures accordingly." And: "Whenever I say "Stop, please, wait a moment; we will need some time to arrange things safely with the accommodators."

It is true that this will diminish somewhat the spontaneous course of the session. But more important is that the client then creates his/her own scenario, has his/her own ego control, and that the alertness and awareness of the group members are optimized. The delay resulting from 'hitting the brakes' during the setup of a limit-structure rarely results in the client losing important feelings or motivation. The therapist should not be miserly with the time during this important phase of the structure but will attend to the placement of sitting-blocks, cushions, and mattresses, for positioning the limiting figures, and for having members of the group 'stand by' to act as an extension to the limiting parents, if needed. When the issue is sufficiently clear in the client's mind and the motivation comes from inside, the process will restart automatically, despite the delay for improving the scene. After some physical experimenting, the client will usually resume contact with the original need rather quickly. Please note two things. (1) The 'step by step' style of working prevents the *client* from being seduced prematurely into overwhelming, unknown experiences that are extremely difficult to integrate and which can variously result in anxiety, shame, and dissociative phenomena. (2) Working 'step by step' protects the therapist and group from being caught unawares and unprepared in the event of strong abreactions.

From partial to total

The first experiences with limits in PBSP can best be offered by the therapist in a partial way. Representative approaches might include: "Where in your body do you feel most of the energy?" "With which part of your body would you first choose to test the strength of the ideal, limiting parents?" When the client hastily rises, wanting to use the arms and legs and full body weight, there is a good chance that heavy wrestling will quickly ensue, which no therapist or group can reliably regulate. It is never a promising situation when the limiting figures lack the time and opportunity to receive instructions, prepare, take a firm stand. Haste or naiveté at this point merely exposes the limiters to the risk of losing their balance or being otherwise ineffective. For the client this will mean: "They are not so strong and reliable after all, and it is my fault that they fail." It may also happen that the limiting figures react adequately and quickly, however without consultation or instructions. They grab the client by the arms and shoulders. He/she will continue to fight on with all possible strength, but will suddenly stop and ask: "What, for heaven's sake, am I doing here?"

At this point, the therapist might best try to save the moment by offering something like, "Apparently the child within you has a strong need to test its strength." Such a statement may supply needed humor, and may in a curious way fit the moment, being the best the therapist has offer, but it will actually be too late. It is a cognition afterwards, concerning the moment wherein the client did not have his/her own executive ego or 'Pilot' enough available. It is far better to anticipate, test a small hypothesis, start with a step that is surveyable. For example, the therapist might ask: "What would it be like for you to test a parent-figure using one hand?" In this instance, the client might push against the shoulder of the limiting figure with one hand. If that yields a clear validation and feels good, the next step will follow, e.g., pushing with more force or with both hands. Now the role-figures can be supported by other members of the group to become involved as an extension. It may also happen that the client, while trying things out, may change strategy: pushing with one hand to a shoulder may change into pressing with one fist against two hands of the role figure. In this way, the limit-session can develop step by step. From an initially hesitating interaction of one finger testing the smoothness and strength of a limiting figure's palm, a complete limit, where the body is limited from all sides, can develop in measured, comprehensible, step by step fashion.

Flexible

Limitation must not be fixed or rigid, but flexible. Good parents have a natural, self-evident authority over the child, and they are of flesh and blood. By nature they are stronger and do not need to flaunt this obvious fact. A limiting figure who uses excessive power to show the client that he/she will not be moved 'even an inch' may harbor a unproductive conflict about power. In this and related cases, the therapist needs to explicitly inform role-figures that the counterforce to be given needs to exactly fit the muscle power that the client uses. In a flexible counter, the client can experience that his power does have results. This is the validating side of the limit-structure. In other words, a limitation that is premature and/or too strong may lead to discouragement and a feeling of being powerless – a repetition of some earlier 'straitjacket' experience. Receiving ample free latitude within the limitation is experienced variously as consent, permission, and respect. The client is allowed to share fury and force in interaction with others, it must have an impact on the limiting figures, they will react flexible to it, there is space for it, and they appreciate the result.

Definite

The inherent flexibility of a good limit structure does not alter the fact that eventually it must become clear where the 'final stop' and boundary is located. This principle might explained by offering an example of a specific limitation-exercise. It is called 'arm-wrestling-with-a-limiting-figure'. This is identical with the familiar arm wrestling between two opponents lying prone on the floor, facing each other. The enactor would ordinarily and theoretically be able to win this game, but that is an experience of another dimension than 'being limited'. If the enactor wins,

the game is over and he/she can no longer test the limiter's strength, nor will the enactor be able to reach the limit of his/her own strength. Therefore the instructions for arm-wrestling-with-a-limiting-figure allow the limiting figure to use the other hand to additionally support his own limiting arm, for instance, near the wrist of the limiting hand. The enactor is allowed to only use one hand. He/she will enjoy it when succeeding in slowly moving the hand of the limiting figure, having an impact and experiencing at least the symbolic possibility of a 'win'. Therefore there is a second rule for this exercise: Before the hands touch the ground, the enactor will have to indicate the 'final limit', the spot he/she will not be able to pass, the location that symbolizes that the limiting figure is offering enough counterforce and will not lose. It will only be at the moment when the enactor reaches that area that you will see him/her test the opposing arm with full force. First there is frustration, expressible as: "*That* way I can never *win*!" Later, when the limiting figure has countered: "You may test all your force with me, but I will remain steady," the enactor might be relieved and pleased that his/her strength is really allowed, validated, but ultimately able to be contained and limited.

According to the sequence: Energy-Action-Interaction-Satisfaction, Validation, Integration

The familiar sequence of elements in a PBSP structure mentioned above suggests a number of useful and important questions that can be used to evaluate the limit-session itself:

Where is most of the energy? - What is the actual physical experience?
What action results from it? - In which direction does the movement go?
Which interaction fits? - How much counterforce is necessary?

1. How much counterforce will be necessary, should the expression require it?
2. Are there enough role-figures available; are others necessary as an extension or extensions?
3. Does the client already demonstrate a need for interaction?
4. How does the client's use of muscle power suggest a likely direction for a satisfying experience?
5. Does the client restrain him/herself?
6. Is the use of sound indicated?

Are the role figures validating to the client?

7. Is their verbal and non-verbal reaction encouraging?
8. Does their sound of voice fit that of the client?
9. Do they show that they enjoy his or her strength?
10. Is there space for humor, playfulness, and pleasure?

Does it seem that the client *integrates the experience at the level of the historical child* who did not have enough of this experience?

11. Does the client take some time for reflection now and then?
12. Does the client give enough directions and does he/she show enough management, or take responsibility for his/her work?

13. Does the client look at the limiting parent-figures so as to absorb a visual memory?
14. Is the new experience a clear antidote to past events?

Specific Themes for Limiting Sessions

Verbal limiting

Physical limiting will only address the client's ego difficulties when the client can first test or weigh the therapist's authenticity, and can judge the therapist to be genuine as a human being – quite apart from professional and social roles. Within the symbolism of the Possibility Sphere and the therapy-session itself, trust can only manifest when the therapist's implicit and explicit limiting capacity – functions of his/her actual ego strength – are first experienced and accepted within the therapist-client relationship itself. We often see the client measuring the reliability and authenticity of the therapist by checking his or her nonverbal and verbal communications. For instance, the client will subtly and often unconsciously bring into consideration ideas and values that the therapist has about the meaning of life. In these 'preliminary' discussions the working alliance will be built up slowly: the client needs to test the therapist's firmness and receptivity on a transference level as well as on the level of the real relationship. The client must first experience real trust and actual interpersonal limits with the therapist before physical limitation with role figures can be acceptable and believable. If this is not the case, a limit structure will turn into a mere physical measuring of power, a kind of contest that lacks the symbolic meanings crucial to reaching real therapeutic goals.

In order for truly adequate enrollment to occur – that is, for group members to become powerful symbolic figures in a client's structure – role figures must be understood as extensions, so to speak, of the therapist's life-affirming attitude and healing function. In a very real way, it is the therapist's personal, spiritual, and ethical limits that support and maintain the boundaries of the Possibility Sphere. Similarly, group members cannot become potent symbolic role figures for the client unless and until the client experiences them as trustworthy, authentic human beings – apart from their roles as group members. Only then can interactions with them be believable and integrated, truly symbolic of safety, closeness, and acceptance. We might say that *real* limits in the relationship between the therapist and group members – ethics, values, maturity – are necessary precursors that precede any *symbolic* limits that are introduced within a structure.

Parentification

It is not easy to give up the position of a parentified child. The client derives self-esteem, influence, power and intimate closeness from this former function. A limit-structure will deal with the inclinations to take care of the parent, to deeply merge into and identify oneself with the parent's needs. Recall the previous example given under the heading 'Over-responsibility and parentification'. Ideal, limiting parents will tell this girl: "To take care of the mother is not

your task". Ideal grandparents, who take care of the real mother, may assume this task by literally wresting care for the real mother away from the client. They comfort and protect the mother, while the client observes the situation from a safe distance. When the client feels an impulse to again take care of the needy mother, she may be held by the ideal parents who limit her from her archaic duty. The client in a standing position can struggle with all her force, testing the ideal parents, who will not let her go and minister to the mother. Another direction the structure might take is that she will be invited to fully give in to her inclination by physically expressing her tendency to take care of the mother. She may go over to the needy mother and embrace her, whilst her ideal parents hold her arms and give limiting counter-pressure. The ideal parents might say: "You *may* express your inclination to take care of your needy mother, but it is not your *obligation*." At this point the client may embrace the needy mother even with more intensity, but may suddenly encounter an unexpected feeling of fury and disgust for the sad and plaintive mother: "Go to hell with your sadness!" She now expresses the motoric impulse to take the mother into a stranglehold, whilst the ideal parents limit her by firmly holding her arms. The ideal parents now make it possible for her to express her ambivalent feelings of affection and disgust. She can give place to the hatred that has been hidden for so long, and at the same time, the limiting parents will take care that she cannot actually strangle the needy aspects of mother.

A further step for this client is to experience and test ideal parents who are equal and strongly attached to each other. She can see and feel a father who remains appropriately vital and autonomous, and a mother who relates to him as a partner sexually and separately to the child in a caring, tender way. The client can energetically confirm that she cannot divide, split, or separate these parents. It is important to pay attention to the fact that there are often some very mixed feelings that result when the client fails in the attempt to separate the ideal parents. Gain and relief appear, as she finally can abandon the parental neediness and play appropriately as a little girl. Loss and grief also result, as she loses her special position, and will tend to feels alone, useless, placeless, and meaningless. Considerable time is required to enable the client experience that she can now take her own place as close to the parents as she wishes, without separating them physically or emotionally. Now she can experience that these parents are equal and strongly attached to each other as peers and to her as a child (SAROLEA 1986).

Sexual abuse

Limiting figures can help the client to experience their own openness within safe boundaries. The client him/herself decides upon the moment and mode for openness, which is not forced by anyone as it was in the past. When the client becomes aware of strong impulses in the legs to trample, push, or close the legs tightly together, the client can then be asked if the role-figures might help keep the knees closed together. The being held serves as a symbol of protection against the external world. The child may experience openness and power without any danger of being exploited; the client may safely experiment while being reliably protected

against any aggressor. The purpose of testing the role-figures who hold the client is also to allow the client to feel the connection with their sexual energy, previously fantasized as almighty and irresistibly seductive. The client is enabled to re-assess the inclination to a reflex-like openness that resulted from the abuse but is now limited by the role-figures.
In principle here the knees are held firmly together. The client will test the protecting figures by trying to separate the knees and will discover that the limiters really do make an effective offer of protection and limitation. The client determines where the limit is, and indicates the moment at which the limiting figures should give more counter-pressure. Usually two role-figures are needed to keep the client's knees and legs together and at least two role-figure extensions to offer resistance at the hips. The intervention should carefully fit with the client's inputs to the structure; accurate preparation is essential. Caution is necessary because of the risk that the client may experience being held as another overpowering act in itself. Another risk is that the client, in spite of the therapist's explanation, may feel ashamed of the wish to be open and may therefore completely close off. Above all, a client who has been sexually abused must feel confidence and safety within the therapy group as a group of authentic and reliable people before the therapists even considers working symbolically in a structure that aims to protect and limit the client's openness. Initially and for a considerable period of time, an ongoing group should direct attention to the client's need for experiencing autonomy and control within the relationship between the therapist and group-members (Perquin & Pesso 2004).
The interventions just described are offered here in a simplified and abridged fashion. Due to their complexity, it is certainly advisable to first practice them extensively in an intervision context.

Possible 'Tricky Situations' and Pitfalls

The client or the accommodators get hurt

This will either quickly regress the client back into the role of a person who compulsively takes care of others, or their chronic feelings of guilt will be further consolidated. The client's fear is again affirmed: his/her power is essentially destructive.

The limitation is not strong enough

At the first physical testing, the client concludes that the role-figures are not strong enough to restrict him/her. The client has not mentioned this, the therapist has not noticed it, and the client has decided to restrict him/herself, which boils down to limiting him/herself and sparing the others, a classical example of what we call a negative reconstruction of the past.

The group-members cannot hold the client

If this happens, the client will be reaffirmed in their omnipotence. This is often accompanied by feelings of triumph that later – sometimes within a few days of the session – turn into

extreme feelings of guilt, abandonment, or depression. In later stages, an interrupted limit-structure can lead to heavy, unexpected outbursts of rage or ruthless and self-damaging behavior. Rage results from the fact that the client is still looking unconsciously for a safe limiting experience in his day-to-day life, the limitation that again was not given — "not even in therapy!"

The client starts a physical fight within the group

Here, the client starts a measuring of power in concrete, present reality without regard to the symbolic and therapeutic nature of the group. This is a pure and literal power game, devoid of any symbolic meaning. The correct historical circumstances and the age-level remain unclear. The client is fighting as a grown-up agent in the present. No historical reconstruction takes place, and there is no re-experiencing of the sequence of events and interactions that the child previously needed and missed. Therefore the new experience with the limiting ideal parent figures cannot be integrated and cannot serve as an antidote to the original history.

The client reaches strong emotions too quickly

Here, the client cannot sufficiently integrate new and unfamiliar experience. The client will stop the process, owing to shame, guilt, or fear. When a client who is unready experiences such strong expressions of power for the first time, shame is commonly the first conscious feeling. The client feels a strong impulse to hide the face and cover the eyes, or wishes to disappear into the ground. Such a person wants to become invisible, to cease existing, in order to escape the gazes of the observers. The small child doesn't want to be exposed to the 'shaming eyes of the world'. Shame refers to feelings of being too small, insignificant, being ridiculed, feeling naked. Shame can be the involuted anger that the self originally would have directed towards the people to whom the child was originally exposed. Instead of expressing the impulse to destroy the eyes of the people who look, the child deflects the aggression inwards.

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Correspondence address:

Dr. Lowijs Perquin, MD. PhD.
Psychiatrist-psychotherapist
Certified Trainer Pesso Boyden System Psychomotor Therapy
Department of Psychiatry, Free University of Amsterdam.
Frans van Mierisstraat 95
1071 RN Amsterdam, Netherlands
Phone: ++31 / (0)20 / 6735234 (home) ++31 / (0)20 / 5736666 (work)
Fax: ++31 / (0)20 / 5736687
e-mail: LPerquin@planet.nl

Jim Amundsen, North Central Psychomotor Society

What PBSP can teach psychoanalysis

Abstract

In this article, I will first be outlining the theoretical and historical features of psychoanalytic theory and practice which make psychoanalysts reluctant and even dismissive of any consideration of including bodily interventions in psychotherapy. In this section I will focus on the inter-related concepts of gratification, influence and neutrality. I will show how these concepts have been historically linked with the impulse-discharge model of the mind that Freud employed as his working model. I will then outline the shift in contemporary psychoanalytic thought from the impulse-discharge model of the mind to the information-processing, meaning-making model of the mind and the tension this shift has place on the traditional concepts of gratification, influence and neutrality. I will then outline what PBSP says about these concepts and how they could be useful to psychoanalytic thinkers as they attempt to redefine the notions of gratification, influence and neutrality.

(A version of this paper was presented at the 4th international PBSP Conference, in Oslo, Norway, 1988.)

Introduction

Contemporary psychoanalytic theory is in a period of intense growth and turmoil over some its basic concepts. There are many sources for these exciting developments, but for my purposes here I will argue that a primary cause of this turmoil is a shift in the basic paradigm of the mind from one of the mind as an impulse-discharge mechanism to the mind as a meaning-making, information processing system. This shift has meant that the way psychotherapy is thought of has undergone a parallel shift from an emphasis on "insight," or helping the patient to develop ways to control instinctual impulses, to an emphasis on helping the patient to gain new affect-laden relational experiences that allow the patient to understand him or herself, and the world, in new more self-enhancing ways. In this shift some long established psychoanalytic concepts, in particularly, the concepts of gratification, influence and neutrality, are now marked by a great deal of confusion and debate. Within this framework PBSP theory and practice can make a very big contribution.

Consider the following statement made by Heinz Kohut, who in his theories really helped open the doors of psychoanalytic theories beyond the rigid, dogmatic posture of mainstream psychoanalysis common in both the 1950's and 1960's in the United States. In this statement he is introducing the notion of pathological fragmentation, the terrifying experience of feeling like one is "falling apart." He writes:

> There are many people who, in going from adolescence into adulthood, make tremendous steps of adaptation. But they do not break down; they do not become depressed; they do not all turn to security measures like drugs, or touch therapy, or whatever may be involved in order to confirm the fact that they are alive, real, and worthwhile. There are many people who can suffer through normal process and pain of making change from one system of the self to another one. Why do some break down? (KOHUT, 1987, p.32, original work, 1971, emphasis added)

While we can't be sure what Kohut meant by "touch therapy," he does associate it with primitive attempts to hold a fragile sense of self together in a similar way to drug addiction. One doesn't get the sense that Kohut would in anyway welcome some form of touching into the psychotherapeutic process. This impression is buttressed by Kohut's (famous in self psychology circles) example, given some seven years later from the above quote[1], where he described working with a patient who was in a very painful state of despair and depression. Kohut offered his finger for this woman to hold and he said that he envisioned, "the toothless gums of an infant clamping down on her mother's breast." He gave this example to illustrate that armed with theory of self psychology, the analyst might even do things that are considered to be psychoanalytically "sinful" in order to stay empathically connected with a patient. And indeed, even to this day, self psychology is responded to with some scorn amongst some other psychoanalyst as overly gratifying, that is, that it tends not to be a "real" psychoanalytic process but merely masquerades as such while what is really happening is that the self psychologist is "just being nice" to his or her patients.

I say all this to give you some idea about what we are up against, at least in the United States, when it comes to talking about psychomotor therapy to the psychoanalytic community. The basis for its attitudes about touch, stem from its view of gratification, and a more or less related topic of influence in psychotherapy. I will say briefly the place these two concepts have had in psychoanalytic thinking about psychotherapy.

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[1] The example I'm giving here was part of Kohut's last public remarks he made, just days before he died in 1981. I had the privilege to be present at this talk, and in this example I am going by my own memory of it.

Gratification in psychoanalysis

Ghandi once said something like, "you can give a hungry man a loaf of bread or you or you can teach him to fish." Psychoanalysis, and with this PBSP has little disagreement, views the goal of therapy as teaching patients "how to fish." In psychoanalytic theory, "gratifying a patient" means that the therapist is passing out bread and ignoring the task of teaching the patient how to fish; the two processes are seen as mutually exclusive. In psychomotor language, the equivalent concern is that the therapist does not bypass the patient's pilot. The concern that psychoanalysis has over the therapist being simply gratifying is the concern that the therapist does not be simply identified in the patient's mind as the ideal parent with no consciousness of the symbolic nature of interaction.

Clearly neither the psychomotor therapist nor the psychoanalytic therapist wants to do this. In fact, I think a very sound argument can be made that almost everything about the methods of psychomotor psychotherapy is designed to avoid this possibility of confusing literal, contemporary interactions with symbolic historical interactions. Both systems would agree that bypassing the client's ego may feel good to the client at the time, but nothing therapeutic comes of it. What comes of it is establishing a dependence between the therapist and client or patient that is very difficult to break.

Where the very big disagreement takes place between PBSP and psychoanalysis is in the psychoanalytic tendency to define any sort of touching, or any sort of intervention except interpretation, as gratifying in the way I have just outlined. Nowhere is there any prominent provision in psychoanalytic theory of technique for carefully thought out and controlled, ego-enhancing, interventions involving touch of any kind.

The whole topic of bodily interventions remains largely undiscussed because of the old tradition which maintains that touch in psychotherapy is by definition "gratifying" in the sense of always bypassing the patient's pilot. Al Pesso's concept (1991, pp.43f) that touch itself can be ego building, remains the single most radical and challenging position that psychomotor can take from the perspective of psychoanalysis.

Influence and neutrality in psychoanalysis

The problem of influence in psychotherapy goes back to the very beginnings of Freud's development of his theories. Early on Freud stopped using hypnosis, replacing it with free association, in some part because not all patients could attain a hypnotic trance state, but also because Freud was concerned about simply replacing the influence of one parental figure for another. To put this matter very briefly, if a major cause of neurotic suffering is the overly harsh judgment of a superego, this means that a major cause of neurotic suffering is the patients' inability to exercise their own judgments on their own behalf. For instance, if the superego says, "You are a bad person for having such and such sexual desires," keeping in mind that content of the superego is largely inherited from the parent's superego, for the therapist to simply

counteract the superego messages with her own messages means that the patient will only have traded one set of parental messages for another without ever developing a capacity to make ones' own judgments.

Out of this concern, and others, Freud was concerned to limit the therapists' influence in the therapeutic process. This value of developing the patients' capacity of free-will choice on their own behalf is one of the important concerns behind the psychoanalytic concept of "neutrality." The doctrine of neutrality holds that the therapist should think of him or herself like an objective scientist, like a surgeon, as Freud put it once. In part this objective stance was to protect the patient from the subjectivity of the therapist so that the patient could develop his or her own pilot. In this light, any intervention that is directly gratifying, such as the therapist saying things like he likes the patient even if his patient's parents did not, or any intervention attempting to directly influence the patient, such as giving advice or stating what the analyst thought about something, is seen to be a non-psychoanalytic intervention that, more times then not, creates a regressive pull in the therapeutic encounter that at worst destroys the patients' ego and at best simply does not foster psychoanalytic goals.

Impulse-discharge model

Time will not allow me to elaborate on all the reasons for this psychoanalytic position, but certainly a primary justification for viewing any intervention other then interpretation with suspicion was the belief in an impulse-discharge model of the mind. This viewpoint is based on a model similar the operation of a steam engine. Instinctual needs, or drives, were seen to be like the energy of raw, un-captured steam. Like a steam engine, these forces had to undergo a series of transformations so that they could be used productively, which is to say, toward the end of maintaining both the survival of the species and of the individual. The term, "acting out," refers to behaviors that reflect the expression of raw instinctual energies that have not undergone transformation by first going through the structure of the ego. An adolescent, for example, who is angry at his parents and is arrested for shoplifting, would be said to be "acting out." In distinction to this would be the teenager who is angry with his parents and is able to "transform" the anger into something like a productive conversation with his parents, or who expresses the aggressive energy through creating, like composing music with angry lyrics. In this way of thinking the ultimate expression of maturity and mental health is the ability to suspend or sublimate the expression of raw instinctual impulses. The primary marker of this ability is the ability to put ones' impulses into words.

Out of this understanding psychoanalytic treatment entails two movements: One is providing a space where it is ok to reveal any and all desires, and second, the limitation that all desires will only be talked about and not acted on. Any therapeutic intervention that fosters action, or direct expression of instinctual impulses, is looked on as potentially dangerous. Likewise, any

interventions by the therapist that are not entirely verbal are thought to be dangerous in that they potentially foster direct instinctual gratification.

Meaning-making model

This way of understanding the mind, and the subsequent ways of understanding psychotherapeutic interventions, has been largely discredited within the current psychoanalytic scene. Through an explosion in knowledge about the brain, and in actual research on infant development, to name just two of the sources that have pressed psychoanalytic thought to change, the new psychoanalytic vision of the mind is that it is primarily an agent of meaning-making. In this model, the problem of an acting out teenager is not seen as an inability to control instinctual urges. Instead, the problem is seen to be the teenagers understanding, particularly their unconsciously held understandings, of whom they are and how they fit into the world. The shoplifting teenager, for example, might be seen as someone who has an underlying operating principle, or map, that says that the only way she can be heard and responded to is by doing something as drastic as breaking the law. The shoplifting, in other words, maybe an expression of a deeply held belief that the world is not interested in meeting her needs, and the subsequent anger and despair that she finds herself in such an impossible world. Such beliefs, or operating principles, are formed by affect-laden relational experiences. The teenager, for example, had repeated experience growing up that her parents were unable or uninterested in meeting her emotional needs when she very much needed them to be responded to.

Such learning is not bloodless, logical learning, like learning multiplication tables, but learning bound with a high degree of feeling or affect. For example, I can remember clearly the first time I was stung by a bee. My subsequent caution and fear about bees were not merely a logical learning that if some bee stings me it will hurt. The mere sight of a bee recalled the intense, alarming, unexpected pain I felt in my cheek when I was first stung. The sight of a bee subsequently inspired not only logical thoughts, but panic. It took many years of reassurance and examples from my father that in general if you don't surprise bees they have no interest in hurting you before I could remain calm at the sight of a bee.

Following this example, the learning of new meanings which serve as the underlying operating principles to our behaviors, takes place largely by the acquisition of new relational experience. To use the example of my experience of bees, after much risk taking, my map, or my memory images of bees, came to include images of my father reassuring me, while he himself remained perfectly calm, in the presence of bees. As these memory images became more firm, when I then saw a bee I had a different set of memory images to guide my behavior through the encounter. These new memories included not only being painfully stung, but also the memory of many experiences of my father admonishing me remaining calm, while he himself remained calmed, and not being stung. The new learning includes new relational experience, the experience of being calmed by my father's calming attitude.

Turmoil in psychoanalysis

Thus, in the new model of mind, psychotherapeutic interventions in a psychoanalysis have come to emphasize the acquisition of new relational experience. The current rub in psychoanalytic thinking is how to incorporate this new model within the context of concepts that are historically rooted in a totally different way of conceptualizing the mind. How does, for example, a psychoanalyst think about the problem of providing new relational experience within a conceptual framework of neutrality, which historically had meant trying to minimize the impact of the therapist presence in the therapeutic situation? How does the analyst provide new experience without influencing the patient? In short, how does the analyst throw out the bath water of conceptualizations steeped in an impulse-control model of mind, without throwing out the baby of very legitimate concerns also embodied in those concepts? It is at this very point that I believe psychoanalysts would benefit from an encounter with the methods of PBSP.

PBSP, gratification, influence and neutrality

PBSP and psychoanalytic thought agree in their concern that the therapeutic experience does not foster a therapeutic contract – conscious or unconscious – that promises that the patient can expect that the therapist, unlike anyone else in their life, will meet all their needs. Likewise with the other side of the coin, the therapeutic relationship is not about the therapist getting his or her needs met in the therapeutic relationship. KOHUT (1984) gives an excellent example of why a therapy that merely offers the gratification of needs cannot work. The German leader Bismarck had a life long sleep disorder; He couldn't sleep. Eventually he found a physician who cured him of the problem; His physician discovered that Bismarck could sleep if he slept in the same room with him. From the moment of that discovery, Bismarck's physician slept with him. The problem with such a cure is that even if it works, as it did in Bismarck's case, each therapist could only have one or two patients in their life time.

It is not enough for the therapist to identify that the patient is suffering from some need deficit and then simply meets that need. Such a move involves an implicit promise that if the patient needs something like support, nurturance, and so on, then the therapist will meet the need. The real problem is that the therapist is not in a position to honor such a promise. The first time the therapist is not available to meet the patients' need, the patient experiences the relationship as a "negative reconstruction" of their original unsatisfactory experience.

My first experience of this was with one of my first patients I ever worked with as a volunteer therapist in an inner city walk-in counseling-center. The patient's condition was what I would now recognize as a severe borderline personality disorder. His life was lonely and very bleak; no one loved him, he had no friends who truly understood him, he couldn't hold a job because his employers were against him, his parents, with whom he lived, hated him, and so on. One of the first things I offered him was that I could meet some of those needs by being available to him by phone. I gave him my home phone number and encouraged him to call me when

he needed to. Within a very short period of time he was calling me constantly and at all hours of the day and night. Naturally I had to rescind my offer, which met he then experienced me as being just like everyone else. His "old map" which offered him the operating principle that the world and he were such that he could not expect his basic needs to be met ended up being supported and confirmed by my well-intentioned attempt to be helpful.

In psychomotor structures this problem of providing new, truly gratifying experiences without the therapist being identified as the gratifier is worked with in a variety of ways. First of all is the framework of therapy taking place within a structure. By working in the framework of a structure the therapist is implicitly saying that the therapeutic work takes place in a symbolic arena rather then in a literal arena. Winnicott referred to this arena as "transitional space," or "play space." In my own mind I have taken to identifying this space as a "ritual space." Through the process of enrolling and de-rolling, by dividing accommodators into "negative aspects," and "positive aspects," and above all, by enrolling figures of gratification as "ideal" figures, structure space is established as a different order of reality from everyday reality. Obviously, ideal figures exist only on the plane of "as if." The therapist does not offer herself as a literal ideal figure in the life of the patient.

The ability to enter into this ritual space is a skill that if not possessed by the patient must be taught. We unconsciously employ this ability whenever we watch a movie or a theatrical production. I remember once watching the movie, "The Flintstones," with a 4-year-old friend. This friend was terrified by the movie and the video had to be turned off. The child could not view the "world" being created in the movie as a "pretend" world. The slapstick comedy could not yet be viewed as an "as if," "pretend" reality.

I don't often use the word "pretend" to describe this level of reality because it implies that the experienced reality is not really "real." The fact is, as human beings, we live in this so-called "pretend" reality all the time. When I look at an object and identify that object as a chair, I'm living in something of this reality that I've called ritual space. When we identify an object, such as identifying a chair, we are identifying the meaning of that object. The transitional, ritual, play space of a structure experience is the experience of entering into a set-aside psychic area of pure meaning and meaning-making. It's a space where a pillow or other accommodator can be imbued with the meaning of a hated person and destroyed without causing anyone actual harm, and yet the experience can be "real" for us.[2]

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2 What I'm trying to identify here is that we always exist and operate in a world of meaning. The experience of something as something, such as a "chair," is to identify the human meaning of the object. In a strictly scientific mode the attempt is made to describe objects as if they were devoid of human meaning, i.e., that is, as if humans did not exist. Thus, the chair might become a collection molecules bound together in a certain way. What science sometimes disowns is that its way of looking at things is also serving the needs of the scientist. In a sense, there is nothing "objective" about "objectivity."

The dimension that PBSP psychotherapy adds to this equation is that physical experience can happen on this symbolic ritual arena just as much, and perhaps more so, as verbal experience can. The fact that in structures symbolic meaning is carried by physical means highlights that it is the establishment of the ritual space that is important over any particular symbolic language in establishing such a space. In other words, it is not the verbalization per se which ensures the nonliteral ritual space that all therapy must occur in. Whether verbally enacted or physically enacted, or both, the important step is that a therapeutic, ritual space, be created by the two participants. The important part is that the symbolic ritual space is constructed by both parties and some degree of conscious understanding is established that the therapeutic relationship takes place predominantly within that space. Once this is established the concern that gratification leading to a non-therapeutic regression is very much minimized.

The second way that PBSP psychotherapy deals with the dangers of gratification is matching gratification with the correct developmental sequence. A large part of the problem of gratification is that the gratifications (the meeting of basic needs) that our patients crave are needs that the patient was taught very early in their lives, by experience with their care-givers, that they simply won't be met or will be inadequately met. These unmet needs then come to expression, in the mind, as the need of the original child at the time of the deficit. Young children are utterly dependent on their care-givers to meet their needs. If the parents don't come through the young child and infant has no choice but to cope with life in a state of need deprivation. This state is identified as reality. When this happens, the child is apt to identify their craving for the need as the problem. Everything would be ok if only they could get rid of this pesky need. Therefore, when the need emerges in the therapeutic relationship, the patient experiences their self as a helpless child who needs a parent to take care of them. The need, in other words, is experienced as a specific need for one or both of their actual historic parents to interact with them in a certain way. This means that even if the need is met, the image, or map, of the original need state is not transformed because the need is experienced as a need for a specific parental interaction. A therapist could meet the need for the rest of the patient's life, just as in the example of Bismarck, and it would not change the basic operating principle that, for example, "My needs will not be met because I am unlovable in my parent's eyes."

By creating a ritual space within which the therapeutic encounter takes place it becomes possible to place the new relational experience being gained in therapy "back in time." So, for instance, the experience of being loved by the therapist can become the experience of, "If I had parents who loved me like this when I was three I would have felt about myself and my needs something like I feel now." An experience like this can then become what Al Pesso has called, "a virtual memory." I believe that what such an experience does is open up a kind of pathway in the mind's eye; it allows the ego (the pilot) to identify, "this is who I would have been and what the relationship would have been between me and my needs if I had parents like this." This is similar to actual airline pilots who are taught how to fly a particular plane by first flying in a very elaborate flight simulator. Many of the actual skills needed are developed

in the flight simulator before any actual flying is done. The "as if, pretend" reality that occurs in the ritual space of psychotherapy works in the same way. Whether the need is being symbolically met by an accommodator or symbolically met by an empathically attuned analyst in the transference, by being clear that the needs being met in psychotherapy are the simulated experience of having the needs met when they were developmentally needed, the therapist avoids gratification from becoming literal.

Whenever the gratification happens on a literal level, there is a huge danger of what PBSP calls a negative reconstruction. Because the patient is not literally a child and because the therapist is not literally the patients' parent, any implied promise that the therapist will literally be the yearned for parent will fail. This attempt will not fail sometimes, but always. When the failure happens, it has the impact of strengthening the patient's dysfunctional operating principle (old map).

Influence and neutrality

The PBSP therapist deals with the problem of influence – the problem of helping the patient to become a relatively free adult who can fluidly adapt to changing circumstances in life by making their own judgment calls about what is needed – by making sure that the patient's pilot is always engaged in the therapeutic process. The pilot is that part of the person's self that is the final executer of all decisions. The topic of the concept of the pilot has many complexities. But in practical terms it means that the therapist does not operate from an assumption that he or she "knows what best" for the patient. Respecting the pilot of the patient is not so much a set of discrete techniques as it is an attitude on the part of the therapist. It means things like, the therapist does not say, "You need such and such." Instead the therapist says, "From the way you are gesturing, or the themes of your associations, suggest that you might need such and such, is this true?" I've heard Al Pesso speak to this issue by saying that it is important that the therapist always be one or two steps "behind the client."

The tricky part here is that because the patient frequently is in a mental state of a young child seeking a parent, they want the therapist to be a literal parental figure and tell them what to do. When the therapist succumbs to this pressure, several destructive things can happen: First and foremost is that it destroys ritual space; it implies a contract that the therapist will be a literal need gratifier. Second, more times then not it leads to what I think of as a sado-masochistic enactment. Here, the therapist is elevated, in both parties' minds, to the position of an all-knowing benevolent parent. The therapist then derives emotional gratification from successfully fulfilling this role. This means that the therapist can become frustrated and drained when they can't successfully fulfill this role. This leads to a kind of "force feeding"; "Here, you will eat what's good for you no matter what." The patient thinks of it as their sacred duty to fulfill the therapist by taking on whatever is offered whether it fits or not. The fact that things get worse simply solidifies the therapeutic relationship in these sadomasochistic terms. That is, the

patient feels more helpless and hopeless, and thereby needs the therapist even more and the therapist is further gratified by feeling how much the patient needs their benevolent wisdom. These dynamics occur in any long term therapy from time to time. The goal is to minimize them and not make them a defining characteristic of the therapeutic relationship. The "cure" is for the therapist to always track with the patient's pilot and always keep in mind it's development. A primary manifestation of this, among others, in PBSP psychotherapy is by insisting that the actions of the ideal figures come from the patient. This leaves the patient in charge of identifying what is needed. Where judgment is needed is that this is a skill and not every patient comes into therapy with fully developed pilot. When this is the case, the first order of therapeutic business is to help the patient develop their pilot capacities. Sometimes this can even mean risking a temporary sadomasochism enactment by being a bit more actively suggestive. However, I think that it's appropriate for the therapist to be anxious whenever they risk this because there are real dangers in taking such a position.

Finally, the PBSP therapist deals, above all, with the problem of influence by maintaining what is called, "the possibility sphere." The concept of the possibility sphere has struck me for a long time now as the functional equivalent of the psychoanalytic concept of "neutrality." Just as a country might maintain a position of neutrality in regard to the conflict between other nations in a state of conflict, so too is the psychoanalytic therapist to maintain neutrality in regard to the patient's internal conflicts. Should the patient express their anger or not? Should the patient feel guilty about certain desires they might have? In all such matters the psychoanalyst is to maintain an attitude of neutrality.

As I stated earlier, a primary motivation for this concept, historically, was to protect the patient from the analyst's subjectivity. The goal was for the analysis to help the patient attain a state where they could make their own decisions on such matters, relatively free of ongoing, painful intrapsychic conflicts. The problem with the concept of neutrality, in my view, is that it is based on a notion that it is possible to eliminate the therapist's subjectivity. In the contemporary psychoanalytic scene, it is widely acknowledged that such a stance is impossible to achieve. Even the so-called neutral stance is a subjective stance that influences the patient's therapeutic process. The problem is, again, how to throw out the bath water of the impossibility, and even desirability, of eliminating the therapist subjectivity, while retaining the baby of the necessity of maintaining that it is the patient's growth that is the focus of the therapeutic work. I believe that the whole problem is more easily solved by substituting the concept of the possibility sphere for the concept of neutrality. Briefly, the concept of the possibility sphere is attempting to describe an attitude on the part of the therapist whereby the therapist focuses her awareness on the needs of the patient. The possibility sphere is an interpersonal, emotional space created by the therapist that extends a kind of promise to the patient that "here your efforts to be all that you are will not be thwarted." It acknowledges that the therapist has influence, in fact a lot of influence, in providing an interpersonal setting that maximizes the patient's growth and healing, but also emphasizes the need for the patient to define what

growth and healing is. The concept of the possibility sphere is based on a metaphor of a womb. Just as a womb provides just exactly what the growing fetus needs for its particular developmental needs, so does the therapist endeavor to provide a psychological space that allows and fosters the growth of the patient. This space has to be a dynamic, responsive space to the unique needs of both participants. To mix metaphors, just as a master gardener would notice that certain plants do well in certain conditions while other plants do well in other conditions, so the therapist uses her capacity to influence toward the ends of the particular patient's needs. Likewise, certain gardeners also may require certain conditions to apply their craft. A successful therapeutic relationship requires a fit between the two participants. I wish here to suggest that as an image, the image of providing a womb-like sphere, designed to enhance the growth and potentials of our patients, strikes me as a more user-friendly image then that of an antiseptic scientist. It's an image that I think focuses the therapeutic task without the baggage of the impulse-discharge model of the mind which the concept of neutrality is burdened with. At the same time it preserves the cautions and limits, inherent in the image of neutrality, that the primary therapeutic concern, be that the patient and his or her needs are to be the focus of attention.

To close this section, I have argued that in this time of theoretical upheaval in psychoanalytic thought and practice PBSP theory and practice can offer the psychoanalytic community some help in solving some of its thorniest theoretical dilemmas. First and foremost, PBSP psychotherapy demonstrates that the establishment of transitional, or ritual space does not have to be restricted to non-gratifying verbal exchanges. For example, if the ritual space has been established, even if the psychoanalyst does not employ explicit psychomotor techniques, they need not fear saying things like, "Yes, I love you," to their patients as long as both parties know that the exchange is taking place in a carefully crafted ritual space. Such a space has a kind of "as if" quality to it. The patient understands that if the therapist actually had been their parent the therapist would have been honored to love them in the manner they needed, but in fact she isn't literally going to be their parent. Secondly, the psychoanalyst need not fear their influence on the patient if he or she keeps an attitude of providing the patient with a possibility sphere and constantly monitors the therapeutic relationship for potential breaches in the possibility sphere. Specifically, that the therapist monitor the patient's material for signs that the patient feels like they need to take care of the therapist or that the patient show signs of not receiving sufficient interpersonal nutrients from the therapist to progress therapeutically. This need for therapeutic nutrients will vary from patient to patient. For example, some patients may be upset at any self disclosures from the therapist and others might desperately need such self disclosure.

There is much more that could be said, but for now I will give a clinical example that I think illustrates the points I am talking about.

Clinical example

When I've employed psychomotor techniques with individual cases, my employment of the techniques has happened fairly spontaneously, without much preparation for the patient. For example, one woman in her early 40's came back to see me after a break of eight years. I had seen her for three years, with once weekly sessions, conducted in a traditional psychoanalytic fashion. When she finished, neither of us had any expectation that we would be seeing each other again; that is, she felt finished. She returned because of acute distress she felt over perceiving that she might be parenting her 5-year-old son in a manner that was similar to her own hated upbringing by her own parents. At the same time, her father was terminally ill, and in fact died within a month of her return to therapy.

At the first session of her return she described the vicious inner circle that she had fallen into, which resulted in her feeling an intense fear for her son and intense self-hatred. Her father's work had necessitated that the family move almost once a year to a new location. These moves had been brutal on her and what was especially brutal was her parents' complete lack of empathy for what the moves meant to her. She grew up feeling like her emotional needs had no place in the hearts and mind of her parents and that she literally had no "place " in the world. She was forever being the "new kid on the block" fighting for a sense of acceptance. She adapted to her anxiety's about fitting in by becoming her image of what both her parents and each new school situation saw as a perfect child. In this strategy she was outwardly successful, but inwardly, she felt a perpetual panic that people would find out who she really was and hate her.

She was aware that she anxiously observed her son in school for any signs that he was not being accepted and if she saw any such signs would feel a panic that would result in her desperately attempting to get her son to be more conforming. She recognized that her panic for her son was actually her childhood panic for herself revived and tried as hard as she could not to subject her son to her perfectionistic demands but was frightened that she was not succeeding in this. At the same time her father's apparent impending death, seemed to kick off an intense rage and panic about being abandoned by her father, a state which she experienced in childhood as constant.

As she told me all this, in her first session, she was quickly swept up in her rage and panic. She started crying in a kind of helpless rage and panic both toward her father and toward herself for bringing her own son into the world and creating, she thought, the same conditions for him, that she had grown up with, because she couldn't control her own feelings. Her body, as she cried, started to shake violently, as if her body could not contain the emotions she was feeling. I stayed my traditional psycho dynamic course until she started having difficulty breathing and it was evident that she was descending into ego-less psychotic panic. At this point the PBSP therapist in me kicked in and I suggested to her that sometimes when people are feeling that much emotion that it feels good to have some physical contact and I wondered if she would like me to put my hand on top of her head (just above the forehead to give her resistance to

a rocking motion she was making). With some desperation in her voice she said, "yes, please," and I sat next to her and put my hand on her head. She calmed down just a little bit right away, and continued with a kind of anguished grief over how her father had never been available to her in any way except to make perfectionistic demands on her behavior. As she spoke, I notice that she was embracing herself with her arms. I said that she looked as if she was holding herself and that perhaps she was feeling a childhood urge to be held by her father. She agreed, and spontaneous grasped a pillow that was on my couch and clutched to it. She calmed down a bit more. I witnessed the fact that with my hand on her head and the holding of the pillow she seemed to be calming down, like she was feeling soothed. She agreed. I suggested that she might take the feeling of being soothed and imagine that if "somebody like me," had been back there then when she was little and felt so alone, that she would have been responded to like this. She regained her composure even more.

By the end of the hour she expressed amazement that such simple actions on my part could have such a profound effect. I explained that since the last time we had worked together I had trained in another form of therapy called PBSP and explained a bit about how it worked. That was our first session and in subsequent sessions, at about a once a month frequency, we have done simple pillow structures with me serving as an occasional extension of an ideal parent when she needed to hold a hand or feel some sort of resistance.

For me this single session is a great illustration of how psychomotor techniques can be ego enhancing. I offered both gratification of needs and was actively influential, I think, in response to what her body seemed to be wanting. And far from pulling into a dangerous regression, they pulled her out of a dangerous regression. That is, her pilot functions were in danger of being totally swamped by her intense affect. By offering myself as a containing figure and suggesting she put the feelings she had from my actions back into her memory of herself as a child, she was able to regain her considerable pilot functions. It was clear to both of us that while I was giving her the containment and comfort she craved, it was done on a symbolic or ritual level. She was giving her remembered childhood experiences a symbolic make-over. She was learning who she would have been if she had the parenting she desired.

To close, I have found that my psychomotor background helps me to visualize the shifting dynamics that occur in the conducting of more traditional psychoanalytic psychotherapy. If the therapeutic setting is established as a symbolic, ritual space, and if the therapist is sensitive to how the patient is enrolling the therapist, the way is made clear to safely symbolically gratify childhood needs and for the patient to feel helpfully influenced. When done within these parameters, gratifying and influencing serve to strengthen the development of the executive functions of the pilot. Under these conditions we can teach our hungry patients how to fish.

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Correspondence address:

Jim Amundsen, Ph.D
366 Prior Avenue North
Suite 101
St. Paul, MN 55104
USA
Phone: ++1 / (0)651 / 649 0984
e-mail: jamundsen@mn.rr.com

Lowijs Perquin, Free University of Amsterdam

Neuroscience and its significance for psychotherapy
An overview from the perspective of Pesso Boyden System Psychomotor

ABSTRACT

How neuroscience might contribute to our understanding of the underlying principles of psychotherapy is the subject of this article. After some arguments for psychotherapists to study the latest discoveries of the 'science of the brain', a description of the steps in a therapeutic session according to Pesso Boyden System Psychomotor therapy (PBSP) will illustrate the interconnectedness of neuroscientific and psychotherapeutic viewpoints. As a body-based psychotherapy, PBSP highlights the fact that body, brain and psyche function inextricably as one unit.

Key words: Neuroscience, Psychotherapy, Pesso-Psychotherapy, Pesso Boyden System Psychomotor PBSP, Body based psychotherapy.

How can studies of the brain support our understanding of the fact that memories of emotional events more than any other thought process determine our actions? How do we process physical information, emotions, memories and sensory input in such a way that we can say: 'I am aware. I am in the centre of my being. I am conscious.'?

In this article you will find a preliminary exploration of a selected number of subjects in the field of neuroscience. These are only sketches that do scant justice to the complexity of the subject matter and by no means provide definitive answers to the comprehensive questions they seek to discuss. The functional neuroanatomical perspective is the primary focus; neurotransmitters and hormonal processes are addressed only indirectly. Readers who wish to be inspired by the richness of these fields of knowledge can turn to the original sources: LEDOUX (1996), SCHACTER (1996), DAMASSIO (1994, 1999) and EDELMAN (2000).

The significance of neuroscience

No other part of the human organism communicates as intensively with the outside world as the central nervous system. Information finds it way at lightning speed in successive series of nervous impulses and chains of neurobiochemical and hormonal reactions. Sensory information is continuously selected and transformed into feelings, thoughts and behaviour: if you are

cold you turn up the heat; if a passage in a detective story is full of suspense, your skin crawls. Every perception is accompanied by a, usually unnoticed, physical response.
The brain mediates between the inner and the outside world, between body and mind, matter and non-matter, object and subject, concrete and abstract, self and other, past and present. Emotion is linked to cognition, perception to imagination, reality to fantasy. The brain of the 'naked ape' has evolved into an extremely flexible system that constantly adapts to ever-changing circumstances. In humans, unlike in any other animal species, a large part of the cerebral cortex is dedicated and alert to tasks that enable communication with others: language and implicit knowledge help us to understand the other person's perception of his environment. Just as the liver of an alcoholic has learned the simple lesson of metabolizing alcohol more quickly than normal to increase the tolerance level, the alcoholic's brain can invent a complex line of reasoning about why to drink four drinks instead of two. The brain is the most 'plastic' organ of the human body.
The brain's central task in communicating with internal and external realities, and its ability to constantly adapt, are good reasons for the psychotherapist to have some insight into how the brain works. Specifically, studying the rapidly increasing knowledge of neuroscience is an important challenge for therapists using Pesso Boyden System Psychomotor and other body-based methods, for in the apt words of neuroscientist ANDREASEN: 'The Mind is in the Brain, the Brain is in the Body' (1997).

Neuroscientific studies of the dynamic relationship between brain, environment and behaviour, and of the biological foundation of emotions, memory and consciousness constitute an extensive field of research. Thousands of neuroscientists are building a better understanding of how the human mind functions. Neurophysicists, neurologists, neuro-anatomists, biochemists, ethologists, physiologists, endocrinologists, pharmacologists, psychologists and psychiatrists are developing research techniques to make our thoughts, memories and emotions visible, much as an X-ray does for the skeleton (CARTER 1998). As their research progresses they are putting behind them the Cartesian dichotomy in which medicine is concerned with material diseases and medication of the brain, while psychology focuses on problems of the immaterial mind; in the longer term the distinction between body and mind will be a purely semantic one. Evolving research is showing that what we refer to as the psyche is also the sum of the activities in the brain at the cellular, chemical and molecular levels. The brain reflects the activities of the mind: perception, memory, mood, emotion, thoughts and behaviour. This can be vividly seen nowadays through the use of the fMRI (functional Magnetic Resonance Imaging) scan, which shows how an unpleasant memory can literally light up a particular area in a subject's brain.
So the latest neuroscientific views, in which brain and mind are approached as an integrated unit, are developing at such a pace that in the long run it will be unthinkable that questions about psychological problems and treatment methods could be addressed without referring to brain studies. In time, the neuroscientific study of consciousness, emotions and memory will

help us gain a better understanding of how psychotherapy can help and which interventions will be effective.

As a body-based psychotherapy, PBSP highlights the fact that body, brain and psyche function inextricably as one unit. Brain research seems to offer a retrospective validation of several principles of PBSP, a therapeutic approach founded by Al Pesso and Diane Boyden 40 years ago which has been developed during the last decennia into an articulated psychotherapeutic method. In his lectures of recent years Al Pesso has been devoting more and more attention to three themes: consciousness, memory and emotions. In this article the following questions are central:

- How are consciousness, memory, sensory perception, physical information and emotions connected?
- How can knowledge of the organization of the brain explain that memories of emotional events influence our daily actions to such a high degree?
- How is a Pesso-Boyden therapy session to be described from a neuroscientific perspective?

As unity of experience is a central characteristic for the psyche, there is no classification that can do justice to this wholeness. Thus, consciousness, memory and emotions are addressed in three separate paragraphs only for purposes of clarification. Each refers to the others, and implicitly attests to this interrelatedness. For each subject you will find some references to the practice of Pesso-Boyden psychotherapy.

1. Consciousness

Clients in search of psychotherapeutic and psychiatric help expect, apart from a decrease of symptoms, insight into the nature of their problems. They want to understand what is going on. This contemporary wish corresponds with the ancient ideal of the Stoa: 'Gnoti seauton', 'Know thyself'. The goal of psychoanalytical treatment as formulated by Freud: 'Wo Es ist, soll Ich werden', corresponds closely with this Greek ideal. Wanting to understand oneself and the world, wanting to be conscious of one's existence and its meaning, is characteristic of human beings. For the person in psychological distress who has lost emotional and social orientation, it is essential to gain control over his or her physical wellbeing and to be able to redefine the purpose and meaning of life. And most of all, to regain a sense of identity and reclaim control of one's own existence.

Halfway through the 19th century, John Harlow's description of the damage to the frontal brain of construction worker Phineas Gage was a first lead for the scientific study of the 'localization' of consciousness and personality in the brain. Before his accident, Gage's task was to tamp down dynamite between two rocks with an iron bar. An unforeseen explosion propelled the iron bar through his left eye socket at enormous speed, and it exited through the crown of his skull. Miraculously, all his mental and motor functions remained intact after the accident: he

could walk, talk, think and remember. Yet he was not the same person he was before. The highly esteemed foreman, who had been praised for his work ethic, lapsed into unpredictable, capricious behaviour. For no apparent reason he left employer after employer, and women were no longer safe around him. Eventually his life went completely off the rails. His condition, the result of the damage to his pre-frontal cortex, was characterized by the inability to make motivated decisions, and to develop, execute and evaluate plans.

Longitudinal research has revealed that emotional neglect in early life predisposes men to anti-social and criminal behaviour. We also know that the success rate of the treatment of violent offenders is disappointing. The neurons of the frontal cortex that are available to curb the activity in the lower brain centres as the brain matures in the first years of life develop in a less differentiated way in children who are not cuddled. PET-scans (Positron Emission Tomography), used to measure the glucose metabolism of the brain, show that the frontal lobes in repeat offenders display less brain activity than those of normal people (RAINE ET AL 1994, BLAIR 2003).

The following test illustrates the importance of the frontal brain structures. Raise the index finger and middle finger of your right hand for a period of three seconds. This task involves language centres and parts of the motor cortex. Now raise as many fingers as you like and choose which hand you want to use. A functional MRI-scan of your brain might reveal that this task, in which you make your own decisions, also activates parts of the pre-frontal cortex. These parts are less active in the first task, where you simply carry out an instruction. These areas of the brain, in which a conscious exercise of one's will is generated, were damaged in Phineas Gage's case and they showed reduced frontal activity in the PET-scans of repeat offenders.

1.1 Brain and consciousness

The frontal brain has the following functional structures.

The *orbito-frontal cortex* inhibits inadequate, impulsive action and curbs the immediate satisfaction of needs. We can postpone satisfaction or consciously learn to sublimate it. Whereas the orbito-frontal cortex is hyperactive in patients with obsessive-compulsive disorders, it probably has an average level of activity in people whose needs as children were met sufficiently, who were guided when they experienced anger and frustration if satisfaction of needs did not occur, and who were given responsibility for their actions not too late, and not too early (HARRIS 2003). A client in a Pesso Boyden therapy group must be able 'to count on this part of his brain' to some degree when it is not his turn for a therapeutic session, when he is only available as a role player for the other client, and he must postpone his own needs. In other words: empathy, the ability to identify with another person's feelings – vital for the survival of mankind– cannot exist without this part of the brain (MITCHELL ET AL. 2002, GALLESE 2003).

One of the functions of the *dorsolateral prefrontal cortex*, located at the lower end of the side of the frontal cortex, is to retrieve information stored in the emotional and autobiographical

memory. Also things are 'kept in mind' here, formed into plans and ideas, and decisions are made about behaviour to be carried out.

At the lower front end of the frontal brain lies the *ventromedial cortex*, where emotions are consciously experienced, interpreted and understood, while the *cortex cinguli anterior* plays a part in focusing the attention and tuning external input to our own thoughts and distinguishing between external and internal stimuli.

During the preparatory exercise phase of a Pesso Boyden therapy group, exercises with 'consciously controlled movement' appeal to the above mentioned frontal functions of the brain: focusing attention, planning and control. The participants concentrate on one arm, in order to lift it slowly according to a predetermined plan. Afterwards the therapist asks the participants to evaluate whether the movement was an accurate execution of the plan. The exercise is used as a metaphor for how the participant generally handles planning. One might say that the (pre)frontal brain is the seat of what Albert Pesso calls the 'Pilot Ego': 'The Observing and Executive Ego'.

In patients with a schizophrenic disorder, the cortex cinguli anterior and the dorsolateral prefrontal cortex are hypoactive. This reflects the frequently observed symptom of reduction of spontaneous and planned behaviour and the inability to distinguish between voices that come from outside and inner voices (hallucinations). In depressive patients the ventromedial cortex, the area that registers emotions, is hyperactive, whereas the dorsolateral frontal cortex, which is involved in planning tasks, is repressed. The depressive patient is unable to act, is abnormally fixated on his own emotional condition and cannot stop brooding. Research by POSNER ET AL. (1994) shows that when a person is asked to think of something sad, the same areas are activated that are also activated in depression. This finding brings the pathology closer to everyday life. When women are asked to think of something sad, they exhibit more brain activity in the emotional brain centres than men, which suggests that women have a stronger emotional response to thoughts and conscious memories they generate themselves (NYSTRAND 1996). Perhaps it explains why women are more aware of the need for therapeutic and medical assistance and seem to be more empathic than men. What is not clear is whether this effect is innate or learned.

1.2 Consciousness as 'working memory'

One non-comprehensive but useful model sees consciousness as the *'working memory'* or the highest information processing system of the brain (LE DOUX 1996). The frontal cortex areas described above have a central role. Information from different cerebral systems becomes interactively available in the working memory. Three incoming information flows are central: sensory information (1.2.1), memory information (1.2.2.) and physical information (1.2.3).

1.2.1 Sensory information

Human consciousness cannot exist without external sensory stimuli – seeing, hearing, smelling,

tasting and touching. Sensations of temperature and pain, and sensorimotor input such as joint position sense, sense of balance, sense of posture and sense of movement are less conspicuous sources of information, but no less important for consciousness. Via the thalamus, which is located in the midbrain and the reticular formation in the brainstem, the cortex is activated and kept on standby. An alert cerebral cortex waiting for whatever is about to happen, shows relatively little brain activity, but is ready to respond immediately to new stimuli, whereas during a dream the entire visual and auditory cortex are active and light up on a brain scan, probably preventing the sleeper from being awakened by outside stimuli.

Experiments with *sensory deprivation* demonstrate how necessary sensory information is to consciousness. A healthy subject who floats motionless in a darkened swimming pool with warm water and breathes through a tube, sees, hears and smells nothing, and experiences almost no tactile, temperature or movement stimuli. After a few hours the subject loses his sense of time, place and person, and has a strong urge to start moving. Even the prospect of a high reward will not be enough to persuade him to stop moving his 'piano-playing' fingers. These attempts at self stimulation still cannot prevent a delirious mind-state from developing: reduced consciousness with hallucinations, delusions, disorientation, loss of ego-sense and motor unrest. The person will become seriously upset if the brain does not receive sufficient exogenous stimuli. To stay awake and alert the brain needs constant sensory stimulation.

Less striking, but more common is the change in ego-sense as a result of a slight lack of normal sensory stimuli, for example after a long car trip. After hours of driving and straining the eyes, the driver is suddenly on the balcony of the holiday cottage. The wonderful view of the lake looks unreal: 'it's like a painting'. The long, intense concentration on the monotonous visual stimuli of the motorway, and the constant traffic noise, has suppressed the normal processing of sensory and sensorimotor information, kept it 'outside consciousness'. The sense of self has diminished – depersonalization – and the new environment is perceived as unreal – derealization. In other words: the quality of the perception of consciousness is strongly influenced by sensory input.

More extreme forms of depersonalization and derealization occur in people who have been traumatized. A simple cause, a trigger, can suddenly reactivate fierce emotions such as panic, anger and despair, and set off related behaviour. To the traumatized person, emotions have become enemies that always lie in wait to confuse or take over. Often the person in question develops, almost automatically, a technique for physical control: agonistic and antagonistic muscles are flexed at the same time. The resulting perpetual state of slightly elevated muscle tension in the throat, neck, chest and abdomen ensures that physical sensations which are related to the emotion are kept below the threshold of conscious perception. The 'contract-intervention' in a Pesso-Boyden therapy session is an attempt to restart, in a safe and structured environment, the physical movement connected to the emotion so that the client's awareness and understanding is supported. The client is asked to flex all muscles around the area of physical tension 'to see what will emerge, for example movement, sound or inner images'. The

established balance between agonistic and antagonistic activity is temporarily disrupted, so that the original movement of the agonistic muscles and the related emotion can re-enter consciousness.

Whereas a short run is enough to bring the driver out of his temporary state of alienation, sexually abused and chronically depersonalized clients frequently report that they try to re-establish contact with their own body by inflicting pain on themselves. The act of self-mutilation is directed by implicit memory centres that reproduce the original scene: in the act of auto-mutilation the client is perpetrator and victim *at the same time*. In a Pesso-Boyden therapy group protective role figures can, with the client's consent, physically limit the inwardly-directed anger by holding the client's hand, so that the impulse of self-hatred can be expressed without the client hurting himself (Perquin 2004). Through the 'central communications room' for sensory information - the thalamus - the re-experienced physical pain activates the emotion centre: the amygdala. The amygdala in turn stimulates the frontal centres where meaning is attributed to the experienced emotion (ventromedial cortex), and attention is focused (anterior cingulate cortex) on the hippocampus, the explicit memory centre. The tendency to direct the hatred inward in response to information from the implicit memory now connects with memories from the explicit autobiographical memory. Doing justice to the original outrage, the anger can now be directed outside the subject towards the original object, the perpetrator, represented by another group member in a role, who will act as *if* being hurt.

1.2.2 Memory information

As indicated above, the sensory and emotional information that is temporarily stored in the working memory connects with information that is retrieved from the *long-term memory*. With lightning speed the new input is compared to the old information, which makes it possible to interpret the current sensory input. Everything we perceive is constantly assessed against the background of what we have stored in our memory. Without our memory, any understanding of the situation around us would be impossible. Normal consciousness feels like a stream, a movement in time. Each moment consists of a series of perceptions that only acquire meaning within the context of that stream. If one could experience a single moment without any information about all previous moments, the moment would be totally meaningless. Even our identity requires knowledge of who we were a moment before.

The brain has many separate and partially connected memory circuits. On the one hand there are associative areas and networks we need for example to recognize faces, which enable us to pick out a relative on the other side of a football field. On the other hand there are areas and pathways through which emotional stimuli pass.

In a famous case study GAZZANIGA (1992) presents an example of how the implicit, emotional memory works. A subject who, as a result of brain damage, had lost all ability of visual recognition, always greeted the researcher with the same enthusiasm. Each time they shook hands as if it was the first time. One day, Gazzaniga had a drawing pin in his hand. When the

subject shook it, he pulled back indignantly, a painful grimace on his face. The next time they met, the subject was as cordial as ever. Yet when the researcher held out his hand in greeting as usual, the patient pulled his own hand back hesitantly, without being able to explain why. Apparently a memory of the negative emotional stimulus, caused by the researcher's outstretched hand which was now associated with pain, had been stored in an independent memory area. Partly as a result of this experiment, further research was initiated into the anatomy of visual and emotional memory formation, and its significance for consciousness. The different memory systems will be addressed in more detail in the section on memory.

1.2.3 Physical information

Apart from communicating with the outside world and the experiences, knowledge and memories stored in our memory, the brain also communicates with other systems in the body through complex regulating mechanisms. These interactions take place almost completely outside our conscious perception. A soon as a sprinter thinks of the start of a 100 metre race, the frequency of his heartbeat and the muscle tension in his legs increase immediately. If the visual associative cortex interprets the projection of an irritated boss on the primary visual cortex, within a fraction of a second the hypothalamus will secrete the hormone that stimulates the pituitary gland, which in turn activates the adrenal cortex to release an extra dose of adrenaline and stress hormones such as cortisol: the body is being mobilized.

One can imagine the complexity of the physical information control circuits to some extent by thinking about what it takes to perform a musical task, like playing a violin. The motor cortex activates the striated muscles, the cerebellum takes care of coordination, posture and modulation of locomotion and the basal nuclei of the extra-pyramidal system regulate tempo, power and smoothness of the movements. The sense of touch makes accurate placement of the fingers possible, joint position sense registers tempo and amplitude of the vibrato, the corpus callosum synchronizes the movements of the left hand and the bows of the right hand. The entire process is constantly adjusted by means of the continuous feedback of visual, kinesthetic (sense of movement), proprioceptive (sense of joint position) and auditory input and emotion-modulating centres: this is how the seemingly simple movement that characterizes the pure, poignant tone of the master violinist comes into being.

Every external stimulus is judged more or less consciously as positive or negative, which can subsequently result in *physical reactions and sensations* such as turning pale, perspiring or having palpitations. According to ARNOLD (1960) and FRIJDA (1986) these reactions and sensations can be viewed as action tendencies, preparations for potential behaviour such as fight, freeze, flight or appease. The process is accompanied by contractions of skeletal muscles, which are often not noticed by the person in question, and are not visible to an outsider. In Arnold's view, the physical sensation or action tendency *precedes* the formation of a feeling or emotion:

stimulus assessment → action tendency – physical sensation → feeling

A particular stimulus can be assessed in different ways and be accompanied by different physical sensations and feelings. An insulting remark can be regarded as an invitation to fight, and be physically manifested in a clenched fist which expresses the feeling of anger. In another situation it can be seen as a signal to withdraw (flight) and it evokes feelings of fear. Depending on the stimulus and how it is assessed, abdominal tension, palpitations and sweaty palms can indicate either fear or infatuation.

Recent neuroscientific research confirms Magda Arnold's above hypothesis from the 1960s. Conscious emotions develop directly through signals from the amygdala to the frontal cortex, but also indirectly. The indirect route goes through hormonal messages from the hypothalamus to the body, which generate, among other things, increased muscle tone, higher blood pressure and heart rate. Subsequently these changes are passed on to the somatosensory cortex. This then sends the information to the ventromedial area of the frontal cortex where the stimuli are interpreted and experienced as emotion. Physical sensations, therefore, are confirmed to precede conscious emotions.

In an individual session in a Pesso-therapy group, 'Microtracking' is the therapeutic technique to carefully observe and name the client's physical messages, facial expression in particular. The therapist follows, from moment to moment, what the client expresses with his facial musculature. By observing subtle contractions in the mimetic muscles, changes in the eyes and intonation of the voice, and reporting it back to the client as affective information, the therapist feeds the client's consciousness (Pilot) with information on his affective condition as reflected by his physical action tendencies.

The motivation for focusing attention mainly on facial expression and less on body posture and movement can be understood from a neuroscientific perspective. Two systems direct the mimetic muscles independently of each other:

1) Without interference from the frontal or motor cortex the *limbic system* directly innervates the motor nuclei of the mimetic muscles in the brainstem; this results in uncensored, spontaneous, emotional mimetic expression.
2) Social, learned mimetic expression is innervated from the *motor cortex* that operates in a consciously random manner. There lies the difference between the polite – 'cortical' – and the friendly – 'limbic' – stewardess, between a strict and an angry superior, between whining and genuine sadness.

The ability to understand facial expression is a complex and very important social function, characteristic of the species and necessary for orientation to other humans. There are generally recognized facial expressions for curiosity, surprise, disgust, delight, anger, sadness, fear and shame in all cultures. Most of these are expressed by the baby from the day he is born. A child does not need to learn these expressions, they are part of the behavioural options of each member of the human species, and are recognized without training or explanation. People who have trouble interpreting emotional expression in others due to a minor brain dysfunction, are

disabled in even a simple conversation. The following passage from 'Eccentric and Bizarre Behaviours' by Franzini and Grossberg can illustrate this: "I have learned to watch the mouth of the person I am talking to and to pay attention to when he shows his teeth. That tells me he is smiling. Then I try to remember to smile back. I also watch the eyes. When people smile they get small wrinkles around their eyes. The problem is that it takes a while before I have noticed everything. Meanwhile the conversation has continued, so I am always a little late with my smile. People don't like that, they think my mind is on other things. Because of this I find that dealing with people is a strain. Sometimes I feel so tired that I withdraw. It can be very lonely."

Recognizing and being recognized in affection are both essential to emotional development in early childhood. Some clients have experienced an emotional vacuum during the first years of their lives. A depressive, neglectful or aggressive parent is not sensitive to the emotions of the child. The child does not learn a language for his most individual affective experiences. This may be a reason why he or she will have trouble as an adult connecting with his or her emotions or the emotions of other people.

2. The Memory

First we had to learn to remember what is edible. A 16 month old child will put a piece of mud pie in its mouth. A two-year old will not. Monkeys that eat a large number of different tree-fruits have a large visual memory capacity and a correspondingly large brain area. In humans the estimated memory capacity is 100 trillion bits of information, which corresponds to a billion one centimetre high modern office computer hard drives. Stacked they would make up a tower some 100 kilometres in height. Each one of us carries along a gigantic private library. Without the long-term memory the interpretation of current sensory information would be impossible. Everything we perceive at this moment is influenced by data gathered before. 'We observe and experience the present through the lens of memories of the past' (Pesso 2000). Life without memory is a life with no past and no future.

A person walks through a dark alley at night and feels goose pimples and a sensation of tension between his shoulder blades. The echo of his own footsteps is unconsciously associated with a mugging that happened ten years ago. Sensorimotor and kinesthetic stimuli and experiences, like auditory and visual stimuli, are stored in the memory. Every time we detect a physical sensation, it connects with previous physical sensations and experiences gained in the past.

The awareness that we can only perceive and understand everyday reality thanks to the availability of the memory motivates the Pesso-Boyden therapist to embark on a search with the client for the basic patterns in his history that, recorded in his memory, still determine the interpretation of events in the present.

There are several ways to classify the memory. We have already mentioned the distinction between short-term and long-term memory and working memory. Insight into how the

memory functions has consequences for psychotherapy. Experiencing a therapeutic session as pleasant – 'a good talk' – in itself does not guarantee change. One can only hope that the information that goes into the client's short-term memory during the session is eventually stored in the long-term memory. That is the only way a therapeutic experience can contribute to the long-term generation of alternative, more satisfying reaction patterns in familiar as well as unfamiliar situations.

A second, much used division of the memory functions is the division into semantic, procedural and autobiographical memory. Knowledge of the world is stored in the *semantic* memory, for example the meaning of words (semantics) and visual patterns. The *autobiographical* or episodic memory stores memories of events (episodes) you have personally experienced. In the *prodecural* memory we file learned, behaviour patterns (procedures), such as the steps required to use the gear stick of a car, but also reaction patterns in relation to other people. Mother-child interactions are stored in the procedural memory from birth, especially in the case of procedures which involve primary emotions, such as fear. If the child cries because mother has left the room, and mother then comes back every time and picks the child up, this action sequence is stored in the child's memory as an interactive procedure. The ability to cry and the mother's instinctive reaction turns the helpless baby into a 'competent infant', who takes the initiative and has an effect in a chain of mother-child interactions, whose basic patterns are genetically embedded and enable the species to survive (Dornes, 1993).

Young rats who went without their mother's care and who were not licked on the back by her for only twenty-four hours in the early weeks of life, proved to have a permanently increased susceptibility to stress at a later age, unlike rats who were not separated from the mother. Once they are adults, these rats have an increased concentration of the stress hormone cortisol in their blood, fewer receptors in the hippocampus to regulate stress hormones, and their learning and memory functions are less developed. However, if during the separation the researcher regularly strokes the baby-rat across the back with a wet paint brush – imitating the mother's licking – the rat will be as immune to stress as its brother who was not separated from its mother. Apparently there is a minimum need for stroking, and it is possible to replace the mother's touch.

An example of the interaction between genetic predisposition and procedural knowledge stored in the memory is given by Suomi (1991). He describes permanent changes in rhesus monkeys who were separated from their mother. They exhibited a form of social anxiety, which they could overcome if they were placed among stable peers that were raised by their own mothers. However, the higher level of the adrenocorticotropic stress hormone (ACTH) remained elevated the rest of their lives. Monkeys that had an inborn increased stress reaction when taken away from their mothers were adopted by extremely caring 'super-mothers'. As adults, these monkeys ended up at the top of the hierarchy. This suggests that these mothers helped their sensitive adoptive children to apply their inborn sensitivity and to learn to use it for a higher level of social adaptation. The excessive genetically determined increased ACTH reaction disappeared in this group.

In psychological terms the young child absorbs the experience of being touched. He derives from it a positive sense of self and trust in caregivers, and as an adult he will feel comfortable relying on other people. Thus his experiences in the world are pleasurable, satisfying, meaningful and connected. Being touched lays the foundations for the development of personal individuality and assertiveness (ANZIEU, 1989). Early parent-child interactions are reflected in similar complex processes of emotional regulation that are recorded in the procedural memory.

3. Emotions, Feelings and Affects

Feelings colour our perception and our behaviours, consciously or unconsciously. We can talk about our feelings and this enables us to manage them more freely and also to some extent become free of them. However, in a person whose brain does not recognize feelings due to a neurological disorder, rationality founders (DAMASSIO 2000). This person is unable to take emotions into account when making decisions. This fact supports the Pesso-Boyden therapist in the joint search with the client for physical sensations and emotions, and related feelings and meanings. Consciousness is 'The *feeling* of what happens' (DAMASSIO, 2000).

LE DOUX (1996) defines *emotions* as the basic mechanisms to escape danger, passed on through the genes, which drive us towards what we need to survive. With some variation, most researchers consider the following to be 'primary' emotions: disgust, fear, curiosity, anger, joy and (parental) love. Emotions occur in all mammals, are accompanied by strong physiological changes and first develop without interference from the neocortex. Primary emotions do not require consciousness. They can cause us to turn away from something, or go towards something without any conscious decision. Feelings can be viewed as complex, compound emotions that are variegated and furthermore consciously experienced. Feelings develop through a complex interplay between higher brain centres and the limbic system located deeper inside the brain.

Tests carried out on people with a so-called 'split brain', where the connection between the left and the right hemisphere – the corpus callosum – is severed, illustrate the priority the human brain assigns to emotional information. If a stimulus is offered to the right hemisphere, the *literal* meaning does not go to the language-forming left hemisphere. When the person sees the picture of a devil, he does not think of the word 'devil'. However, the *emotional* meaning of the stimulus can be conveyed and understood, and is subsequently transformed into language. The subject reports to the researcher: 'evil'. The brain turns out to be able to make an emotional assessment and form language without knowing which object is observed.

Without feedback from the body, emotions cannot be distinguished from thoughts (CARTER 1998). A patient with a high spinal cord lesion who has no physical sensations below the neck can *reason* that he should become angry in an unjust situation, because 'I have *learned* that people will take advantage of me if I don't', but he feels almost none of the authentic indignation familiar to him before he had the accident.

3.1 Amygdala and hippocampus

Neuro-anatomy offers four different starting points that help explain why emotions are able to temporarily gain dominion over the brain. The nucleus amygdala, the storage and regulation centre of general, mainly negative emotional memories, plays a central role here.

- The nerve bundles that go from the amygdala to higher centres are much more numerous than those in the opposite direction. The objective memory information of the hippocampus, the substantial knowledge of the semantic memory that contains general facts about the world, and the neocortex, the location of sensory and cognitive integration and interpretation of data, are easily overrun by the emotional centres, which can foul up social behaviour. GOLEMAN (1995) calls this 'emotional highjacking'. Conversely, the ability of thoughts to chase emotions off the mental stage is limited: the thought alone that the fear or depression should go away has very little effect (Le Doux, 1996).
- Via special networks (arousal networks), information from the amygdala can directly mobilize the entire cortex. When we are confronted with danger or other emotional situations, the whole person becomes involved. Such 'arousal networks' play a part in post-traumatic stress disorder. Emotions generate a general, non-specific mobilization and synchronization of the activities of the brain. Thoughts have no such influence. In combination with the point made above, this constitutes a functional neuro-anatomical argument for a psychotherapy with a cognitive and emotional focus.
- The amygdala has direct connections with networks that control behaviour specific to the human species, such as freeze, fight, flight and mimetic expression, the autonomous nervous system that regulates heart rate, blood pressure, perspiration and peristaltic movement, and, finally, with hormonal glands that produce, among other things, adrenaline, cortisol and peptides.
- There are two different circuits, a fast, 'low' road and a slow 'high' road, that process the perception of emotional stimuli, for example seeing something that looks like a snake when you are walking in a forest. In the low, short circuit, the retina sends impulses through the optic nerve to the thalamus, which sends the stimulus directly to the amygdala. The visual cortex is ignored, resulting in a rough, not-so-accurate representation of the stimulus in the amygdala: the sight of the 'snake', which is only the shiny root of a tree, makes you jump back. So the short, more primitive road, in the lower parts of the brain, enables us to respond to potential danger even before we have had a chance to interpret the stimulus in the visual cortex. When the visual stimulus subsequently sends a more accurate representation to the amygdala, the initial primitive flight response can be adjusted. With a slightly elevated heart rate the walker, slightly ruffled, continues on his way as if nothing happened.
- The *hippocampus* processes *explicit* images and memories of emotional events, so-called episodes, for the long term. In a child, this area has not yet matured. In the *amygdala*, *implicit* emotional memories are stored. This extremely important small area is ready to store information from the time of birth. A baby can 'remember' abuse and neglect as physical,

nameless and indefinable information. The baby will start to look, move and talk, based on this information, without having any concrete memories. The events have not left a concrete memory trace in the cortex, because the immature hippocampus couldn't yet process the information. The events can no longer be retrieved *as facts*, they can only be felt as an experience. Freud's discovery of the unconcious was much more accurate than we realized.

4. The Therapeutic Session in PBSP from a neuroscientific Perspective

We will now outline a therapeutic session (*structure*) in Pesso-Boyden therapy in order to bring the subjects discussed above together.

In a structure, a client stages a visual and auditory representation, a reflection of his emotional-cognitive state of consciousness in the actual scene of the session. The information activated in the client's working memory is also visibly and audibly represented outside the client in the actual situation (True Scene) as a 'replica' of his present consciousness. This generally involves three role figures: the witness figure, a negative voice, and a potentially positive figure.

Witness statements reflect the emotions unwittingly displayed in the facial expressions of the client. These are at first observed and identified by the therapist and secondly verbalised by a *witness-figure*, a member of the group in a stylized role. These emotional signals run parallel to the client's story and are transmitted by the limbic system to the facial musculature, *un-censored* by the cortex. The external naming of these affective expressions by the therapist and the witness figure supports the client's 'Pilot Ego'. The ventromedial cortex of the frontal brain is activated, the location where emotions are consciously experienced and interpreted. Because the therapist checks the accuracy of the naming of each affect with the client (therapist: 'Disappointed, does that fit?' Client: 'No, I feel bitter that he reproached me'), the client stays in control. By continuously checking whether the witness statements offered by the therapist correspond with the client's inner experience, the 'highest level of consciousness', which is located in the frontal cortex, remains active: recognition of the named affect makes 'the right neurons light up'. These in turn stimulate the brain centres associated with feelings: explicit memories of emotional events in the past will be aroused.

Internalized convictions about his current reality ('How can I possibly defend myself against my boss?'), distilled from the client's life history ('My father did not respect my opinion') and recorded in the procedural memory, are articulated by a *negative voice* outside the client in the form of an injunction, a prohibition or a pessimistic prediction about the future: 'There is no way to protect yourself'. The combination of witness statements, fitting exactly to the affective state of the client, and the pointed, critical words spoken by different voices, make the client aware of his inner conflict and its historical foundation. His automatic behavioural pattern

ingrained in his procedural memory does not correspond with the reality of daily life or with his basic human needs. This awareness might mobilize indignation, protest or even anger. Now associative networks that have generated the negative message are stimulated: connections are activated between the limbic system (basic needs and primary emotions), the procedural memory (automatic behaviour) and the explicit memory (biographical information). In a state of emotional arousal and lucid awareness, the client sees in his mind's eye situations from his past, which still affect his everyday behaviour, and which were produced in the past in action, movement and physical contact. These experiences have led him to develop the conclusions and response patterns that he normally 'throws into the fray'.

Now a *positive role figure*, one for example with validating, supporting or stimulating qualities, can be brought in. As a precursor of the good parent he can also convey the good parent's message in an interactive-physical way. The client recognizes the past lack of validating contact and his own underlying desire for recognition, appreciation, support and protection. The client checks whether the physical contact that would have been appropriate for the child 'fits', and if necessary adjusts the physical touch until it is exactly right.

Guided by the therapist and with the aid of role players, the client constructs an alternative memory-script: new experiences that can provide emotional compensation for the implicit and explicit memory traces from the past. These positive interactions, exactly opposite to the original events, offer a concrete, physical experience, at the memory-level of the yearning child. One might say that the new experience is incorporated as an *alternative* explicit, emotional memory. The physical contact with group members symbolizing people the child needed in the past, who now offer exactly what fits, will enhance the image of a new memory, the client being consciously in contact with all his senses: visual, auditory, kinesthetic and motor information. In this new script the client experiences joy of movement and sensory input from behaviour that has never before or rarely been executed, and from physical contact that has never previously been received. This alternative opposite to the old experiences is recorded in the episodic memory as a New Map. It offers a more optimistic experience of oneself and others, which counterbalances the Old Map - the negative conditioning of the procedural and implicit memory. As described earlier, memories are subjective 'imprints' of interactive events that are coloured by emotions. They are not definitive or static, they can be changed. They can be 'rewritten' in a brain that actually still knows what its owner needs.

5. Neuro-imaging and PBSP: Preliminary Results of a fMRI Pilot Study

A pilot study with functional Magnetic Resonance Imaging (fMRI) was performed at the department of Neurology at Charles University in Prague with the following two *objectives*: 1) to identify the brain regions that were activated (or deactivated) by emotional stimulation related

to psychological trauma; 2) to measure the effect of PBSP-therapy sessions on the activity of different brain areas in traumatized people (HORACEK ET AL. 2004).

According to the *study design* each client (9 clients, aged 18-65 years), underwent a pre-treatment series of eight fMRI scans. The next step was to let the client participate in two individual PBSP-sessions of one hour with Albert Pesso in a three days-workshop group meeting. One week after the first series of scans, a second series of fMRI scans was performed after treatment.

Before the study started, each client had to bring a photograph that would awaken his or her individual traumatic history, as well as a neutral photo which had a calming effect on the individual. Watching the monitor inside the fMRI-scanner while being scanned, the client was first exposed to the trauma-awakening photograph. The neutral photograph was showed in the subsequent rest period of the same pre-treatment scan series. Statistical Parametric Mapping-software (SPM99) for fMRI Studies (voxel-to-voxel analysis) was applied to analyse which brain areas would show diminished or increased activity during emotional stimulation, in comparison with the neutral stimulation. The second analysis comprised a paired comparison between pre- and post-treatment findings. Clients' own reports of their post-treatment emotional states were also measured with the 14-item Hamilton Anxiety Scale (HAM-A), the 17-item Hamilton Depression Scale (HAM-D), the 21-item Beck Depression Inventory (BDI) and the 15-item Impact of Event Scale (IES) for posttraumatic symptoms.

The *results* showed that trauma-awakening photographs were activating brain areas involved in processing emotionally loaded pictures and images. The trauma-activating photographs provoked a kind of 'looping pattern' in these areas. This pattern is typical for patients with obsessive compulsive disorders and is also associated with the invasive thoughts and images (intrusions) of clients with posttraumatic stress disorder. The neutral photos did not show this looping activation. There was a significant contrast between emotion-awakening pre- and post-treatment conditions: after PBSP-treatment the fMRI-scans showed *diminishment* of the pre-treatment looping pattern, while stimulation by the neutral photos did not differ between pre- and post-treatment. In line with this result clients reported to feel less overwhelmed by their emotions after the second session, as was confirmed by the results of the four above mentioned symptom scales.

These findings were consistent with the observed *increased* activation on the fMRI-scans of some frontal brain areas which may contribute to the handling of intrusive thoughts and images: the cingulate cortex (e.g. focussing attention) and the inferior frontal anterior lobe (e.g. decision making).

The preliminary results of this pilot study suggest positive effects of PBSP-sessions on brain activity associated with posttraumatic symptoms. The therapy sessions seem to result in a reduction of brain activity in areas generating repetitive intrusive symptoms as well as an increase of activity in brain areas playing a part in enhancing mastery over overwhelming emotions.

6. The Almighty Brain?

An enthusiastic argument on the significance of neuroscientific knowledge does not automatically mean that the complexity of the unique and subjective personal experience can be reduced to the anatomy, chemistry, and physiology of the brain. It is not very likely that 'La Condition Humaine' will ultimately be understood when we know 'everything' there is to know about the brain. The brain of one human being is probably incapable of totally overseeing its own functioning (DAMASSIO 1999). In the foreseeable future neuroscientists, not unlike the philosophers of past centuries, will be raising more questions than they can answer. A second point against the case for the supremacy of the brain lies in the fact that the increased understanding of how the brain works does not automatically mean that future treatment of the psyche will involve direct manipulation of the brain. However, in the long run, we do expect to gain a better understanding of how the processes in the brain can be influenced with psychological and social methods. The plea for a bio-psycho-social life science is still totally relevant: mind, brain and body constitute a whole, are in constant interaction with the environment, and will have to be included in future psychotherapeutic research as an indivisible unit. This is an argument in favour of further research into psychotherapies that use a systematic and integrated approach of Body and Mind, of which Pesso-psychotherapy, or Pesso-Boyden System/Psychomotor Therapy, is an outstanding example.

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Correspondence address:

Dr. Lowijs Perquin, MD. PhD.
Psychiatrist-psychotherapist
Certified Trainer Pesso Boyden System Psychomotor Therapy
Department of Psychiatry, Free University of Amsterdam.
Frans van Mierisstraat 95
1071 RN Amsterdam, Netherlands
Phone: ++31 / (0)20 / 6735234 (home) ++31 / (0)20 / 5736666 (work)
Fax: ++31 / (0)20 / 5736687
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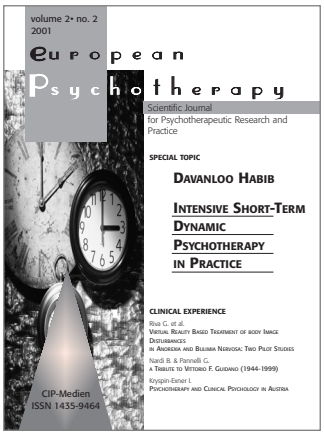

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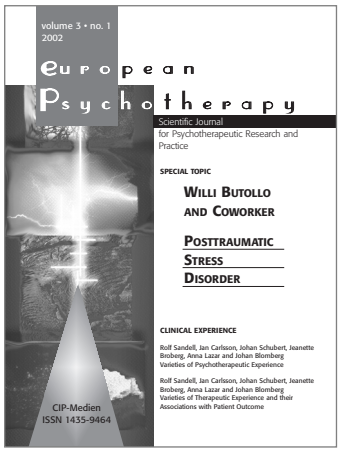

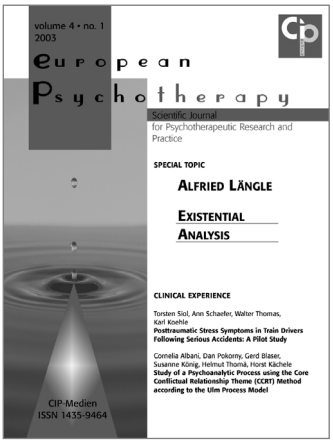

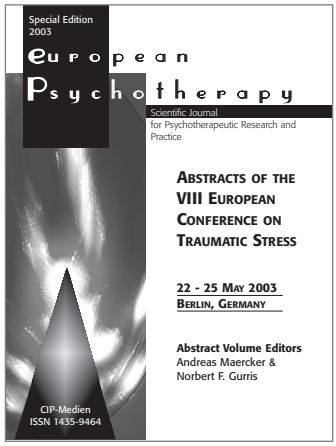

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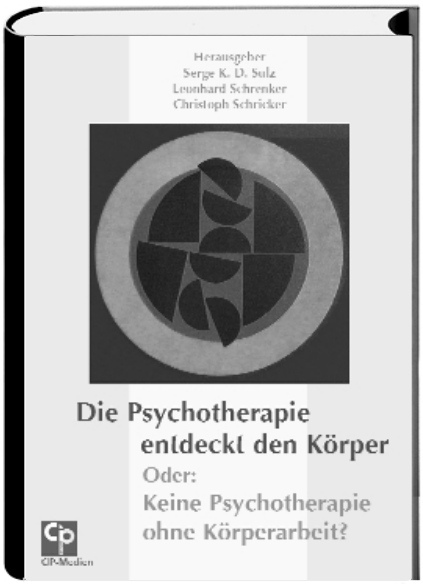

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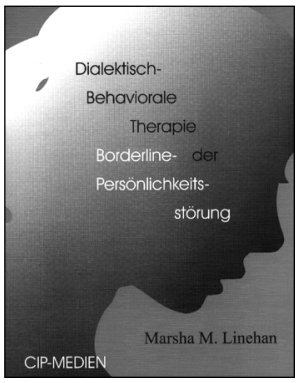

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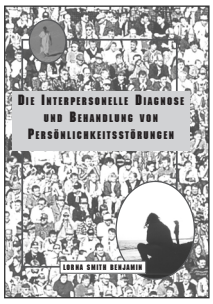

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