SE™ BEGINNING LEVEL TRAINING EFFECT ON PROFESSIONAL AND PERSONAL LIFE OF STUDENTS

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Abstract

Students come to Associação Brasileira do Trauma (ABT) (the Brazilian Trauma Association, which is the organization that represents SE™ in Brazil) in order to study Somatic Experiencing® (SE) to learn a new approach or to add further knowledge to their skills.

The first part of the training is the Beginning Level, which involves 12 days of class. The present study was conducted with students; data collection took place at the end of the last day of the Beginning Level class. The students were questioned about the effect this particular SE Beginning Level Training had in their professional and in their personal lives. An open and closed question format facilitated a mixed research design.

The analysis of results indicate the SE Beginning Level Training produced beneficial effects that were perceived in professional and in personal aspects of the students' lives independent of age, gender, education level, profession, location of the training, and the teaching faculty.

These changes may be attributed to the transformative nature of SE as well as to the pedagogical way the training is done—theoretical concepts are combined with experiential participation of the students. The changes perceived by each individual are detailed in this study.

Keywords: trauma; SE™, Somatic Experiencing®; somatic therapy, SE™ training.

"Trauma is a fact of life. It does not, however, have to be a life sentence"
(Levine & Frederick, 1997, p.2).

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PREFACE

I became part of the faculty of the Foundation of Human Enrichment (FHE), also called the Somatic Experiencing® Trauma Institute (SETI), in 2005. I remember being amazed by the students' comments, even after only a few days of class, about how grateful they were and how this training produced positive changes in their lives.

This was pleasant to hear, but it also made me curious about what changes the students were referring to, in such a short period of time, and if this was also true for the trainings done by other teachers.

To explore this, I decided to use a mixed research design with the information obtained from the students of 5 different classes, each one in a different region of Brazil: São Paulo, Rio de Janeiro, Brasilia, Porto Alegre, and Bahia. Each class was taught by different faculty.

The objective of this study was to explore whether the SE Beginning Level Training influenced the professional and personal lives of students, and also to investigate what influences were perceived, and if these perceptions were produced in the different regions with different faculty where the training occurred. The study also included gathering demographic data on the people coming to the SE training regarding age, gender, educational level, and professional activities.

Cornelia P. Rossi

June 12, 2014.

CHAPTER I

NATURE OF THE STUDY

Relevance of the Treatment and of Trauma and Stress

When we speak about trauma, we speak about continuing states of stress. Stress is associated with the functioning of the internal organs as an immediate response of the body when facing events that activate, threaten, challenge, or are perceived as dangerous. When these stressful states remain for longer periods of time, they may generate emotional and somatic disturbances affecting health, relationships, emotional states, behavior, etc. When individual boundaries are ruptured, there is the establishment of a suffering that we call trauma. Therefore, trauma may be the result of an acute stress perceived as a life threat or as the result of cumulative stress (Levine & Frederick, 1997).

Trauma may result from a wide variety of stressors including the following: car accidents, assaults, kidnapping, wars, psychological or physical tortures, sexual harassment, natural disasters, wars, invasive medical procedures, emotional abuse, loss, birth trauma, ongoing fear, conflict, and more (Ross, 2008; Silva, 2011). According to Levine (2005), "almost all of us have experienced some forms of trauma, either directly or indirectly" (p.8). At least two thirds of the general population have experienced a significant traumatic event in their lives (Galea, Nandi, & Vlahov, 2005). Fifty to sixty percent of adults in the USA experience a trauma and 9% of Americans experience Post Traumatic Stress Disorder - PTSD in their lives (Kalish, 2013).

Contemporary society and the media contribute to stress and traumatization. Often we turn on the television, or we hear the news, we may come into contact with terrorism, crimes, school violence, tsunamis, hurricanes, and nuclear threats (Ginsburg, 2001; Ross, 2003).

Going through stressful or traumatic experiences may result in the development of anxiety disorders, which are correlated to health problems including but not limited to the following: chronic pain; fibromyalgia; gastrointestinal diseases; vascular; endocrinological and immune system problems (Lipp, 2010; Netto & Rossi, 2013; Scaer, 2001).

After experiencing or witnessing a traumatic event or a life-threatening situation, a person may develop post-traumatic stress disorder (PTSD). Problems associated with PTSD include alcohol and/or substance abuse, depression, difficulty developing and maintaining relationships, and trouble in keeping or adapting in a job (for in-depth details on PTSD related difficulties see discussion in Chapter II) (Teng, 2009).

Based on the preceding data and the reality that some of the effects of trauma and stress can be prevented or healed, it is desirable to approach the treatment of trauma as quickly as possible (Levine & Frederick, 1997).

Relevance of this Study and Personal Interest

Studies in psychophysiology and behavioral medicine have shown that traumatic events produce physiological and emotional imbalance. Stressful situations when repetitive may also produce physiological and emotional imbalances (Levine, 2010).

People often are not aware that some of their behaviors, attitudes, and emotional or somatic responses are adaptations related to past traumatic experiences (Levine &

Frederick, 1997). There is a tentative dialogue between the body and the mind that is often not perceived.

Levine (1997) developed an approach called Somatic Experiencing® (SE) where the sensory perception starts a process of healing. As the founder of the Somatic Experiencing Trauma Institute (SETI), he has made this approach available to health practitioners and to all those that work with or have the potential possibility of helping those that have been traumatized or gone through intense stressful situations. SETI organizes trainings in several countries of the world. The curriculum includes development of self-awareness and awareness of the other. It is expected that the students develop their perception and become more aware of their sensations and feelings during the SE training. The sensory awareness is essential for an integrated well-being and for processing the stressful or traumatic events in life.

Introduced through Dr. Levine's 1997 book entitled, *Waking the Tiger,* SE can be considered a recent approach to trauma treatment thus needing more scientific study and academic publication. The fact the students respond quickly to the usage of the SE method is something that may be associated with the efficacy of SE.

The SE Professional Training booklet presently in use (2014) includes the following statements: “Our expert faculty will help you develop skills to benefit you and your clients for life” (River, 2013, p.2), and “Many students find the SE training professionally and personally transformative” (River, 2013 p.9). These statements are based on personal, verbal comments by students; however, these statements were never submitted to scientific investigation. Questions that need to be addressed include the following:

1. When are these benefits perceived by the students?
2. What are the benefits from participation in SE training?

3. Are these benefits already perceived by those going through the Beginning Level Training?
4. How does this learning experience affect the professional life of the students?

These questions drove my personal interest to find out how students respond to the concepts taught in class and what impacts occur from the training in their professional and personal lives.

My personal interest is also related to the desire to make the classes as beneficial as possible, and to validate if the program and the teaching methodology in the SE Beginning Level Training prepares students for a quick response toward beneficial effects in their professional and personal lives.

Purpose of the Study

Stressful events and traumatic events may happen frequently in our daily life. The body responds to these events with neurophysiological and endocrine changes, which, after some time, may return spontaneously to balance. In other situations, the return to balance is not obtained and undesirable emotional, physical, and behavioral changes result in maladaptation followed by emotional and physiological disturbances. SE helps people recover their neurophysiological and endocrine balance and return to normal life (Levine & Frederick, 1997). The purpose of this study was to determine if the SE Beginning Level Training influenced the professional and personal lives of students by determining what influences the students perceived. This study also investigated the potential for geographical differences (comparing where trainings were given with student response) and potential differences based on the training faculty.

Objectives

The objectives are the ultimate reason for carrying out research. The study objective is an active statement about how the study is going to answer a specific research question (Farrugia, Petrisor, Farrokhyar, & Bandari, 2010). There were two objectives for this study. They are as follows:

Objective 1. To investigate if the students concluding the SE Beginning Level Training perceive any changes in their professional and personal lives that they would attribute to the training.

Objective 2. To investigate what professional and personal changes are perceived by the students while going through the SE Beginning Level Training.

Research Questions

Research questions arise from a perceived knowledge deficit within a subject area or field of study (Farrugia, Petrisor, Farrokhyar, & Bandari, 2010). The knowledge we wanted to investigate concerned the perceived effects of the SE Beginning Level Training on the professional and personal life of the students. Three research questions were examined. They are as follows:

Question 1. Is there any effect(s) in the professional and personal life of the students in the process of the SE Beginning Level Training?

Question 2. Can changes be perceived by the students while going through the first part of these SE Beginning Level Training?

Question 3. What are the effects that the SE Beginning Level Training have on the professional and personal life of the students?

Hypotheses

The hypothesis (plural hypotheses) is a tentative statement or explanation that must be investigated through scientific methods. The investigation implies that a relationship exists and then checks to see if the results occurred because of the intervention or by pure chance. The hypothesis is confirmed through statistical analysis to determine how likely is that the overall effect would be observed if no real relationship, as hypothesized, exists. The likelihood must be less than 1% ($p<.01$) to assume the existence of a relation (Adler & Mellenbergh, 2008, Farrugia et al., 2010). There was one hypothesis for this study. It is as follows:

Hypothesis 1 of this study: The SE Beginning Level Training is considered by the students as affecting their professional life.

Hypothesis 2 of this study: The SE Beginning Level Training is considered by the students as affecting their personal life.

Definitions of Terms

Some words will be italicized in the text of this study. The definitions will be found in a lexicon in Appendix A. The purpose of this is to support and clarify the reader about technical terms used in Somatic Experiencing®, physiology, neuroscience, and psychology.

CHAPTER II

REVIEW OF THE LITERATURE

Natural Responses to Threat

Part of Levine's observations and studies come from ethology. Animals in nature are submitted to many stressful situations on a day to day basis.

> *"Many of the situations that arouse fear in animal can be regarded as naturally occurring clues to events that constitute a potential danger to the species in question"* (Bowlby, 1973, p.124).

The awareness of the different stages of the natural responses to threat helps us to understand the onset of trauma as there is a great potential for disturbances in human physiology when these responses are incomplete (Levine & Frederick, 1997). The threat is perceived by the sensory organs, although different species have a more accurate perception through different senses: olfaction, vision, audition, somatosenses, etc (Carlson, 2007; Rosier & Langkilde, 2011). There is a hierarchy of responses that are triggered by the novelty in the environment:

***Arrest response*.** When an animal is surprised by a noise, a movement, or something that could be threatening, it immediately responds with an interruption of activities in order to better explore the situation.

> *"Survival depends on finding and incorporating sources of energy and on preventing all sorts of situations which threaten the integrity of living tissues"* (Damasio, 2000).

The posture in the arrest response is tense and alert, which allows better scanning of the threat. The head and neck are extended, and the eyes are wide open, and the head turns toward the sound to locate it (SE Manual, 2007). The information from the periphery can indicate a dangerous or a life threat that would require central attention.

Startle response. The startle response may happen almost simultaneously with the arrest response. The difference is that the startle response has a higher level of *sympathetic nervous system* (SNS) activation and the preparation for action is immediate. The body signals danger via heart rate perceived by extracellular fields within the cortex, which inform the *central nervous system* (CNS) of defensive needs. "These signals could bias cognitive operations without our awareness" (Baldwin, 2013).

Chemical and physical resources are mobilized for fight or flight, which are viable defensive options based on each different threat. If the environment is perceived as safe, the *parasympathetic nervous system* (PSNS) starts to direct the organism back to a less activated state. The energy that was engaged for the response should then be *discharged*. There would be a response via the social engagement system, which his mediated by the *ventral vagus nerve* (Porges, 2011).

The analysis of the safety of the environment is complex, and it happens in an unconscious way. A threat can be neutralized for an infant or child if a smiling mother comes to the rescue. . If there is support, the response may be in the way of social engagement strategies (smiling, vocal tones, facial gestures, verbal communication). Ambiguous facial expressions may be interpreted as danger when the smell of sweat or a sense of fear is perceived in the environment (Levine & Kline, 2008).

If there is confirmation of the threat, the *SNS* will prepare for fight or flight. Members of similar species may present social behaviors designed to minimize the costs and maximize the effectiveness for survival (Rosier & Langkilde, 2011).

Defensive orienting response. When the signs indicate danger, the defensive orienting response involves capturing more details about the threatening situation. The senses, head, and neck have the major role in this orientation. The *autonomic nervous system* (*ANS*) is immediately activated priming the body for fight or flight.

> "*. . . animals of every species are born genetically biased so to develop they respond with one or another form of fear behavior whenever they sense a stimulus situation that serves as a naturally occurring clue to one of the particular dangers that beset members of their species*" (Bowlby, 1973, p.125).

Fight or flight response. If the threat is perceived as real and imminent, the arrest-startle response and the defensive orienting response will move into defensive orienting fight or flight response. This reaction refers to the mobilization of brain and the SNS (sympathetic nervous system). Neurotransmitters of the brain and hormones from the SNS release important chemicals to relay signals from one neuron to the next, as well as through the blood stream to mediate the fight or flight response. Immediate physiological responses include increases in blood pressure, heart rate, blood to the muscles, and increases in blood glucose levels because it is needed as source of energy for the muscles. Studies indicate that the response to threat starts with the brain releasing a hormone called *corticotrophin releasing hormone* (CRH), which starts a chain reaction of activations that involve other brain structures as well as the SNS. This constitutes part of the 'adrenergic response', which is so called because of the neurotransmitters noradrenaline and adrenaline, also called norepinephrine and epinephrine (Friedman, 2001; Ginsburg, 2011). More details are given under the section heading, Physiology of Trauma, in this same chapter.

The response of fight or flight will depend on several factors including the following: the magnitude of the threat; the responder's gender and age; physiological condition; and the type of situation that aroused the fear. Females have the tendency of flight unless they have to protect their offspring. Males tend to fight. When animals are hungry or when they are trapped, their choice is fight (Bowlby, 1973).

Freezing response. When the environment is experienced as unsafe, it will evoke adaptive preparatory defenses mediated by the SNS and the PSNS. The PSNS is involved in regulating the *hypothalamic-pituitary-adrenal axis* (HPA axis) through the vagus nerve complex. The vagus nerve has two branches: the *ventral vagus* branch and the *dorsal vagus* branch. The ventral vagal branch is related to safety; its response is perceived as social engagement (Porges, 2001, 2011). The dorsal vagus nerve is the one engaged with life-threat; it instills immobility.

When fleeing or fighting are not feasible, freezing is elicited as an automatic response. Freezing is also called *tonic immobility* because the muscles get tense yet there is no movement. After some time, possibly when the danger is gone, a *de-freezing* happens and slowly the animal recovers its movements and it might escape.

The advantages of the freeze response include:

- Using less energy, so if the animal is abandoned by the predator, it still has energy to escape.
- Many predators are stimulated by movement and have greater difficulty detecting nonmoving prey. With the freezing response, predators lose interest, or another sound or movement could distract them leaving their prey untouched.

- ◆ Many predators will not kill and/or eat immobile animals. Immobility suggests death and the predator has the instinct of not eating dead or deteriorated material.
- ◆ When predators attack animals that are in a group, the collapse of one individual can distract the predator allowing the rest of the group to escape.
- ◆ Freezing provides an analgesic mechanism that may allow escape even for wounded animals.

When the animal returns from the freeze state, there are some natural movements of trembling and shaking that are called *discharges,* which help the animal to return to its activities prior to the attack. It is surprising that animals in wild recover themselves in such a way that they do not seem 'traumatized'. Human beings and animals who are captive or domesticated are prone to being traumatized (Levine & Frederick, 1997).

Trauma

Definition of trauma. The etymology of the word "trauma" indicates its origin is from Greek "trauma" meaning "wound", a "hurt", a "defeat", or from Latin "physical" wound. It has been used in medicine since 1690.

The Merriam-Webster dictionary defines trauma as:

"*a***:** an injury (as a wound) to living tissue caused by an extrinsic agent

*b***:** a disordered psychic or behavioral state resulting from severe mental or emotional stress or physical injury

*c***:** an emotional upset "

In 1920, Freud formulated the concept of trauma considering it as a breaking of the protective layer caused by the excessive activation involving a live organism.

> *"Such external excitations are strong enough to break through the barrier against stimuli we call traumatic. In my opinion the concept of trauma involves such a relationship to an otherwise efficacious barrier. An occurrence such as an external trauma will undoubtedly provoke a very extensive disturbance in the workings of the energy of the organism, and will set in motion every kind of protective measure"* (p.45).

Laplanche and Pontalis (1998) define trauma as: "A happening in someone's life that is very intense, that the person is unable to respond to it in an adequate way, and that causes long lasting disturbances and pathogenic effects in the psychic organization" (p.522) .

Trauma used to be defined in the past as an external event causing an unbalance of the system of the individual. The present concepts of trauma refer to the natural individual's psychobiological response to an overwhelming event (Friedman, 2001; Treleaven, 2012).

Potentially traumatizing events. When we think of trauma or a traumatic event, we imagine something extraordinary; however, traumatic events are part of daily life. Levine (1997) states, "Trauma is a fact of life. It does not, however, have to be a life sentence" (p.2). This means that essentially the trauma is not a permanent condition, and it can be healed or transformed.

The trauma resides not in the external event but in how the nervous system processes the event and stores it in the body (Levine, 1997; Levine & Kline, 2001). Upon a real or imagined threat, the amygdala, from the limbic part of the nervous system, gets activated. If the threat is recognized as real and imminent, a body-wide emergency response is triggered and stress hormones are released, shutting down non

emergency functions and activates for full body responses for fight or flight. If neither is possible, there is a freezing, an immobility that stores the potential energy that was to be used in fight or flight. Animals in the wild discharge automatically the freeze response when the threat is over, and do not get traumatized (Ross, 2003). Humans may discharge such energy as well by trembling, shaking, crying, etc. They may also receive support from friends, helpers, etc. who would bring them to security and facilitate discharge. The resiliency as a natural response or acquired from previous experiences facilitate the process (Levine & Frederick, 1997). However, humans may block consciously or unconsciously the release of such traumatic energy. The energy that was to be mobilized for survival stays trapped in the body as "uncomplete response and left un-discharged, leading to the de-regulation of our nervous system and to the development of symptoms." (Ross, 2003, p.24). According to Levine (1997), "The healing of trauma is a natural process that can be accessed through an inner awareness of the body" (p.34) and that it "can never be fully healed until we also address the essential role played by the body" (p.3).

Therefore, we know that trauma happens in a fast and unexpected way, it is so intense that the person cannot deal with it, but it can be healed or transformed under favorable conditions as just described, consisting basically on resiliency, support, and discharge. The storage and freezing of unresolved emotions triggered by adverse events create the long-term negative impacts of traumatic experiences as de-regulation of nervous system and development of symptoms (Levine & Kline, 2001; Ross 2003).

Trauma can result from events that are clearly extraordinary or catastrophic and from events that may be considered common place and ordinary, which means that they happen more frequently in daily life. It is estimated that two thirds of the population have gone through traumatic experiences (Galea et al., 2005). In the USA, it is

estimated that more than half of the American men (51.2% to 60.7%) are likely to be exposed to at least one catastrophic event during their lives (Kessler, Sonega, Bromet, Hughes, & Nelson, 1995).

- Extraordinary traumatic events include the following: war; repression by governments or political parties; religious and political persecution; terrorism; captivity; torture; homicides; assaults; rape; violence; and natural disasters.
- Ordinary traumatic events include the following: car accidents; falls; major injuries; medical procedures; illnesses; high fever in infants; exposure to toxic substances; violence that may be with the person itself or witnessed; sudden and unexpected losses; family separations, suffocation; drowning, pre and perinatal disturbances; and sexual violation (Friedman, 2001; Ross, 2008).
- Infants and children may, in an unguarded moment, fall from stairs, have spills from bicycles, experience near drowning or near-suffocation that may cause physical and emotional repercussions afterwards (Levine & Kline, 2001, 2008).

If we include ordinary traumatic events, we could say that almost everyone has gone through possibly traumatizing experiences.

If we include those with secondary trauma, that is, those who may be traumatized by witnessing traumatic scenes, we can state that the whole population is prone to traumatization.

Variables in trauma. Trauma affects different people in different ways. People often receive criticism for not recovering fast enough from the traumatic event they

experienced; this is an additional burden that the person has to carry. It is important to let the traumatized people know that their suffering involves both their emotional response but also a physiological response; no one should be judged based on their reaction in comparison to the reactions of other people. Also, the fact that they may have potentially been unable to help or rescue someone else can cause trauma experienced as guilt and emotional imbalance. People also need to understand that "freezing" (also known as tonic immobility) is not something they can voluntary control—the process is systemically activated to avoid additional stress.

People often do not recognize that they suffer from trauma. The traumatic symptoms exist, but they are not associated to the traumatic event. It is surprising to hear reports of physical discomfort or symptoms that started about the same time as a traumatic event or loss, and the person does not make any relations among the events. "Traumatic memories can be stored at the implicit, unconscious level, embedded in the body, and not be explicitly, consciously remembered" (Ross, 2003). Some reminders can trigger the traumatic responses and symptoms that have been hidden for years. "The traumatic event cannot be hidden, it is as a wound unable to heal. It cannot be perceived but it is there, prone to open when there is any new external aggression directed to it or to any association" (Uchitel, 2001, p.20).

The trauma may be kept as a secret, which compounds feelings of guilt and shame. Trauma may make people feel worthless and diminished resulting in poor self-esteem. The need for secrecy and the feelings of guilt and shame are part of the traumatic experience; it is important to let the person know that.

Psychic numbing is one of the symptoms after a traumatic experience, as well as the opposite: overreaction. The maintenance of healthy relationships becomes difficult. Polarization and intolerance exaggerate the natural differences between people. There

is a direct impact on communication, understanding, and cooperation. The strained interpersonal relationship may lead to family disputes, breakups and divorce (Ross, 2003). Family members may also respond with vicarious trauma, that is, even though they did not go through the traumatic experience themselves, they witness the response of those who did, and present unbalance of their own emotional system, spreading the symptoms in the family as a whole.

There is a compulsion or attracting force towards repetition after a traumatic experience. It is as if the person is drawn to remain in the *traumatic vortex,* which will be further explained in this study. "It is as if there was a compulsive tendency for repeating, as a way of dominating the excess of activation caused by the trauma. The trauma, which could not be processed because of the high energy, gets stuck in a repetitive movement . . ." (Uchitel, 2001, p. 44).

Factors influencing trauma. A traumatic event has the potential of traumatizing; however, it does not always traumatize (Friedman, 2001). The capacity to rebound from overwhelming situations is possible according to the resiliency of the individual and his background in life experience. Even for children it is possible to prevent traumatization when there is appropriate support, when there is the development of calming presence, and by building resiliency (Levine & Kline, 2008).

The impact of trauma depends on various factors (Ross, 2008):

- Developmental stage

  The earlier the trauma, the fewer inner resources that have developed; therefore, the more damaging the impact.

- Length and severity of the event

  The more terrifying the event was and the longer the event lasted, increases the impact in the severity of the consequences.

◆ Personal resources

The more the person has successfully overcome difficulties in life and coped with previous traumatic experiences, the more effectively the person will overcome the new situation. Faith and religious beliefs can be helpful, as well as cultural responses to life situations.

◆ Support

The type and amount of social support and resources after the traumatic event.

According to Levine & Frederick (1979), "Trauma occurs when an event creates an unresolved impact on an organism" (p.128-129). The physiological response initiates the potential for trauma, and the resolution will depend on the capacity of the organism to recover its balance. An experience or happening becomes traumatic when it happens too fast, too soon, too intense, and the person feels helpless and unable to cope with it. When we say "too fast" we mean that the event happened unexpectedly or abruptly. When we say "too soon" we mean that it happens before the person has developed skills to deal with it. As an example is a childhood experience when the death of the little golden fish may cause an impact that would not cause in an adult. When we say "too intense" it means that is so intense that it is overwhelming and the person feels unable to cope with it. The person feels helpless and hopeless. The energy which was ready to be used in fight or flee yet there was no possibility in doing so at the time of the traumatic event, should be discharged through natural responses of the body as trembling, shaking, crying, etc. However, even if this does not happen immediately after the event, it may happen at later time when either individually or with the help of someone, the person is able to take time to pay attention to the sensations of the body (felt sense) which facilitates the discharge which could not happen earlier. "Resolution

is accomplished through working with this unresolved impact through the felt sense" (Levine & Frederick, 1997, p. 129).

Types of trauma. Many events can cause traumatic reactions soon after the event, or later in life. We can group the characteristics of trauma in three main groups: vicarious trauma, shock trauma, developmental trauma, and post-traumatic stress disorder.

Vicarious trauma. Vicarious trauma happens when there is an empathic engagement with traumatized people. The characteristic of the relationship is a 'merging'—an unconscious process where the person blends together with the other, losing their identity. This is also known as "empathic strain" or "compassion fatigue". It often happens with therapists, crisis counselors, nurses, physicians, social workers, clergy, health care providers, journalists, police, firemen, emergency and disaster workers, and so forth (Courtois, 1993; McCann & Pearlman, 1990).

Many of those in helping professions are secondary witnesses to trauma every day. "Anyone who comes in contact with a traumatized person is exposed to possible secondhand trauma" (Ross, 2003). During the process of listening to the people they are assisting, the professionals and helpers are in contact with violence, incest, rape, memories of childhood abuse, suicide attempts and losses. It is inevitable that some of this emotional pain stays with the caretaker. Pictures may stay in the mind or intense feelings may run through the body. It is as if they were witnessing these traumatic situations (Curtois & Ford, 2009; Ross, 2003).

It is important that the helping professionals receive support just like the victim. The warning signs when the helping professional has taken in too much is a fundamental skill taught in the SE Beginning Level Training. When perceiving activation, the professional should look for ways to discharge the energy or look for

peer consultation. A healthy balance between work and resourcing is necessary to avoid the invasion of trauma in the daily life.

Media people have to deal daily with challenges of meeting deadline pressures and intense competition. They have to grasp the information, expose themselves to the traumatic event, interview victims and perpetrators, without having time to digest or discharge their activation, they have to deliver the information. They may also be exposed to subtle moral and psychological dilemmas of reporting only what the entities (their superiors) approve. This repetitive exposure may produce vicarious trauma presenting often delayed reactions (Ross, 2003).

The vicarious trauma therefore, even though frequently does not get so much attention and care as the visible trauma and its effects, should be taken care of with just as much care because its effects may be felt by a much greater number of people with similar symptoms and consequences.

Shock trauma. Shock trauma is a sudden and unexpected horrifying event. It breaches our barriers against excessive stimuli and overwhelms our capacity to respond, triggering feelings of intense fear, helplessness and loss of control. It involves high levels of activation from the nervous system and the person reacts from deep, primitive instincts. Although the events responsible for shock trauma are very sudden and/or extremely severe, medical procedures even those that were planned, may have a traumatic effect. Included in this group are motor vehicle accidents, falls, plane crashes (or near), natural disasters, physical injuries, sexual abuse, violence, war, terrorism, political persecution, natural disasters, medical or dental procedures, miscarriages, terminal illness diagnosis, traumatic grief or separation.

The shock trauma creates a loss of faith and a feeling that there is no safety, predictability, or meaning in the world. The life after shock trauma is disrupted, and the

overwhelming experience often cannot be integrated or digested. Hyperarousal result in difficulty of sleeping and concentrating, irritability, agitation, panic, hypervigilance. There are intrusive memories, nightmares, numbing, depression, avoidance and withdrawal. (Figley, 1985; Margolies, 2010). Symptoms may evolve into illnesses including chronic illnesses extending for years. The incapacity of returning to life activities including to work represent a heavy financial burdon affecting economical, political, and social aspects of the government. When natural disasters occur, this impact is multiplied by hundreds and thousands of traumatized people. There is rupture of the functioning of a community with human losses, economical, and environmental consequences (Rossi, 2013). Any support, treatment, or preventive work is desirable to reduce the time for recovery and return to productive life.

Developmental trauma. Developmental trauma results from exposure of a child or adolescent to adverse conditions in their environment preventing the optimal development of their nervous system which is under development. Examples of developmental trauma include the following: emotional or physical neglect, continuous verbal or physical abuse, chaotic home environment, alcoholism and drug abuse in the environment, prolonged illnesses, abandonment, adoption (Schore, 2003a, 2003b, 2012).

Experiences of developmental trauma result in a lack of trust in the world, refuse to accept support, learning disabilities, withdrawal and lack of social engagement. The developmental trauma may cause a person be more vulnerable to later experiences of trauma (Figley, 1985; Margolies, 2010). .

Post-traumatic stress disorder. Post-traumatic stress disorder (PTSD) may be the result of either shock trauma and/or developmental trauma. It is an anxiety disorder resulting from an unresolved traumatic event and manifesting in intrusive flashbacks,

upsetting memories, dissociation, gaps in awareness and avoidant behavior (Peres, 2009; SE Manual, 2007).

There has been a general tendency over the last 10 years to consider post-traumatic stress disorder (PTSD) as having its specific characteristics related to traumatic stress. The American Psychiatric Association (2013) has recently produced the DSM-5 revision. This classification and nomenclature is widely accepted by clinicians and researchers for the classification of mental disorders. PTSD was classified as an "Anxiety Disorder" in the DSM-4 (2000), but in the DSM-5 revision (2013), it is classified as a "trauma and stressor-related disorders", which is more adequate.

Some nomenclature has been changed in the DSM-5, for example, "re-experiencing" has been renamed as "intrusion", and "numbing" is now defined as "negative alterations to cognition and mood".

According to the DSM-5 (2013), the triggers for PTSD are: the exposure to a life –threatening event, a serious injury or sexual violation. The diagnostic criteria include the following: exposure to an event potentially traumatizing; intrusive thoughts; avoidance; negative alterations in cognition and mood; and negative alterations in arousal and reactivity.

Exposure includes experiencing of a life threatening event, injury, or sexual violence. Repeated or extreme exposure to aversive actions also characterizes exposure.

Intrusive thoughts may begin after the traumatic event. They include the following: recurrent and involuntary distressing memories of the traumatic events; dreams; flashbacks; intense or prolonged psychological distress; and marked physiological reactions to internal or external clues symbolizing or resembling aspects of the traumatic event.

Avoidance is characterized by persistent avoidance of stimuli associated with the traumatic event. It could be avoiding conversations, thoughts, people, activities, objects, places.

Negative alterations in cognition and mood begin or worsen after the traumatic event. At least two of the following should be present to characterize PTSD:

1. inability to remember important aspects of the traumatic event
2. persistent and exaggerated negative beliefs or expectations about oneself, the other, or the world
3. persistent distorted cognitions about the causes or consequences of the traumatic event
4. persistent negative emotional state as fear, horror, anger, and guilt
5. intensive diminishing of interest or participation in activities
6. feeling of detachment of others
7. persistent inability to experience positive emotions.

Negative alterations in arousal and reactivity require two or more from the following list to characterize PTSD:

1. irritable behavior or angry outburst with no significant reason
2. self-destructive behavior
3. hyper-vigilance
4. exaggerated startle response; problems with concentration
5. sleep disturbance

(American Psychiatric Association, 2013).

When a traumatic stressor is experienced, people respond with psychological distress, which may be mild to severe and even incapacitating. Different people may

have different responses at different levels and in different time frames. These responses are the following:

Acute reaction to stress (ARS) or acute stress reaction (ASR), also called acute stress disorder, or psychological shock. This is the first response to a terrifying or traumatic event with the activation of the autonomic nervous system – ANS. There is a certain numbness, less consciousness and attention, an incapacity to cope with stimuli, and disorientation. Anxiety, despair, lack of hope, sadness, and anger might be present. Abundance of the hormones catecholamines at neuroceptor sites facilitates spontaneous or intuitive behaviors related to the fight or flight response (Carlson, 2007). After the danger is gone, these symptoms are generally reduced in a period of 8 hours, but sometimes they may continue during the two following days of the trauma and up to two weeks after the trauma. The symptoms include nightmares, avoidance of people and places and other stimuli associated with the trauma (Lambert, 2004). If these symptoms persist beyond two weeks to one month, it is characterized as an *acute stress disorder* (ASD), and if the symptoms persist beyond one month, the person may meet the criteria for PTSD (Ciarlo & Rossi, 2012; Kapczinski, 2003).

Combat stress reaction – CSR. Related to the acute stress reaction, the combat stress reaction is also called "combat fatigue" or "shell shock". When the stressor remains present for a longer period of time, the symptoms even so tend to decrease in 48 hours as if it were a response of exhaustion. This reaction happens with military, as result of the trauma of war, and the symptoms are a behavioral disorganization decreasing the combatant's fighting efficiency, fatigue, slower reactions, disconnection from surroundings. Combat stress reaction is generally short term although it can evolve to PTSD (Gleitman, Fridlund & Reisberg, 2004).

Acute stress disorder – ASD. If the symptoms of acute stress reaction persist beyond two weeks to one month, the acute stress disorder may be characterized. The symptoms are severe anxiety, difficulty concentrating, numbing, detachment, absence of emotional responsiveness, reduction of awareness, derealization, depersonalization, dissociative amnesia, avoidance of stimuli that arouse recollections of the trauma, irritability, exaggerated startle response, motor restlessness (McFarlane, 2010). To distinguish PTSD from ASD, beside the persistence of symptoms for over a month, the main symptom that characterizes ASD is dissociation, where normal mental functions such as memory, space, and time, and a sense of personal identity as a coherent entity might be severely distorted. PTSD does not present dissociations of such intensity

Post traumatic stress disorder – PTSD. PTSD is considered a significant health problem. Eight percent of Americans will develop PTSD at some point of their lives. Forty percent of those who develop PTSD will never recover (Kessler et al., 1995).

A great variety of somatic and emotional symptoms may be present besides intrusive thoughts, hyper-vigilance, and avoidance of situations and activities associated with the trauma. Insomnia, nightmares, irritability, and difficulty in concentrating are present, as well as migraines, fibromyalgia, irritable bowel syndrome, chronic pain, chronic diseases, cognitive difficulties.

The possibility of using advanced techniques of neuroimaging have contributed to the understanding of possible physiopathological mechanisms related to PTSD. Studies have shown that the size of hippocampus becomes reduced, the functioning of the amygdala is intensified, and reduced activity is shown in the medial pre-frontal cortex as well as the anterior cingulate gyrus (Ferreira-Santos, 2007). Children also show abnormal brain development when they have PTSD. They have smaller intracranial and intracerebral volumes than children without PTSD. Their hippocampus

is also smaller, and this structure is involved in information processing, learning, and memory (Bremmer, 1999; Debellis et al., 1999; Friedman, 2001).

There is a delayed variant of PTSD, when individuals exposed to a traumatic event do not exhibit or interrupt the symptoms of PTSD, and they show up months or even years after the traumatic event. The onset of symptoms of a childhood sexual abuse may be triggered by the starting of sexual relationships of an adult.
It has been registered the onset of symptoms 19 years after the traumatic event (Kapczinski, 2003).

The National Comorbidity Survey report that 80% of those that have or had PTSD had at least one other affective, anxiety, or chemical use/dependency disorder as alcohol abuse, drug abuse, dependence or conduct disorder (Kessler, 1995). It is therefore expected that the treatment of PTSD or the preventive care of traumatized people may result in decrease of drug dependence and conduct disorders.

Physiology of trauma. When the sensory organs perceive danger or a threat, highly evolved neurobiological mechanisms prepare the body for defensive response or escape (fight or flight reaction). In a simplified way, this is what happens (Carlson, 2007; Lambert & Kinsley, 2005; Randall, 2010; Scaer, 2001):

Sensory organs perceive the dangerous or stressful situation

Peripheral nerves, the cerebral cortex, and the limbic system send messages to the hypothalamus

The hypothalamus coordinates the stress response by releasing vasopressin and *Corticotropin Releasing Factor,* (CRF) also called *Corticotropin Releasing Hormone* (CRH)

CRH activates neurons in the *locus coeruleus*

The l*ocus coeruleus* stimulates brain centers that mediate arousal, emotional reactivity, and memory (hypothalamus, amygdala, hippocampus and cerebral cortex)

The *locus coeruleus* increases the synthesis of norepinephrine (noradrenaline) (Norepinephrine may also be released directly into the blood from the adrenal medulla)

The *locus coeruleus* neurons stimulate the *SNS*, which instigates the fight or flight response

The hypothalamus releases *CRH* in bloodstream activating the HPA axis (hypothalamic-pituitary-adrenocortical axis)

CRH in bloodstream reaches rapidly the nearby pituitary gland where it causes release of *adrenocorticotropic hormone* (ACTH)

ACTH is carried by the blood stream to the adrenal gland which releases cortisol (stress hormone)

The medulla of the adrenal gland secretes catecholamines. These are *epinephrine* (adrenaline), *norepinephrine* (noradrenaline) and *dopamine*

The release of epinephrine and norepinephrine are part of the SNS response (fight or flight) resulting in increased heart rate, releasing glucose from energy stores, increasing blood flow to skeletal muscles and increasing the supply of oxygen to the brain

Cortisol, produced by the middle area of the adrenal cortex, modulates such effects, and regulates the hypothalamic/pituitary/adrenal axis (HPA) via negative feedback loop

The hypothalamus and pituitary gland receive the regulation activity of cortisol

Multi-systemic effects of gluco/mineralocorticoids manage the body's defense to stress:

1. Sodium is retained and intravascular volume is increased

2. Hepatic glycogen is made available

3. Insulin secretion is increased

4. Calcium is mobilized from bone stores

5. Lipogenesis is increased

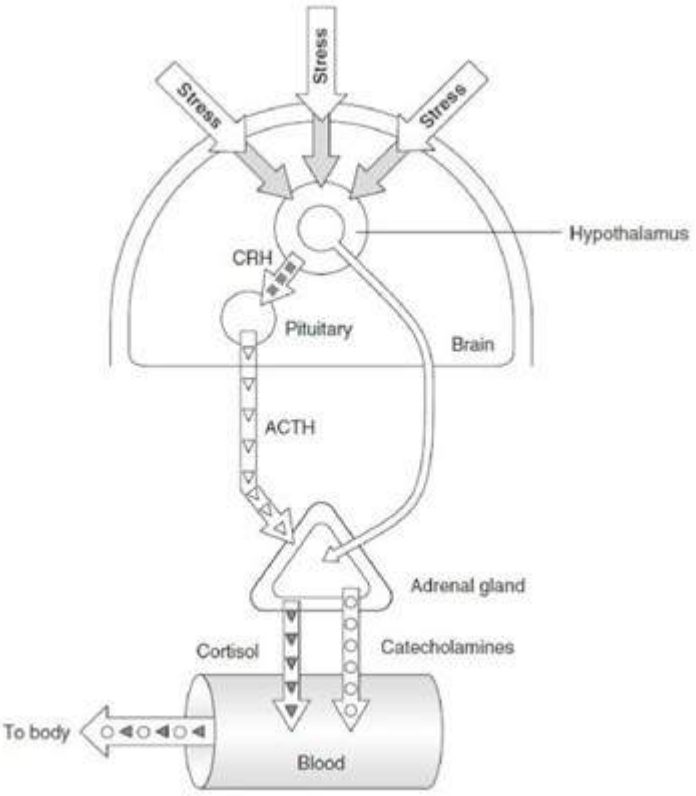
6. Peptic acid secretion is increased

7. Lymphocyte formation is suppressed

8. Cerebral cortex is stimulated

Figure 1

Schematic diagram of how stress affects the body (Randall, 2010)



Selye (1936) was the first to state that prolonged or excessive exposure to stress could develop specific diseases. Further developments show that the exposure to stressors result in complex neuroendocrine responses. When these are short term, it

makes possible the fight or flight response; however, if prolonged stress happens, it may result in damage associated with vascular, hormonal, immunological, neuronal, and degenerative diseases (Lambert & Kinsley, 2011; Scaer, 2001).

Early conceptions of trauma-related disorders were focused on physical signs of distress, while current studies consider the complex unbalance of the neuro-endocrino-imuno system. The consequences of a traumatic event may be perceived immediately and extend for years after the traumatic event or symptoms may become present after a triggering event years after the trauma. The treatment of those that went through traumatic experiences, either if they present symptoms or in a preventive way, may result in avoiding future manifestations of the trauma that was experienced.

Homeostasis, Allostasis, and Resiliency

In the twentieth century, the concepts of allostasis, homeostasis, and resiliency have taken an important role in the understanding of the regulatory systems of the organism, mostly following disturbances that happen after disease or after emotional stressful situations. Focus on these processes have been taking place because of the psychophysiology and behavioral medicine where homeostatic processes in the regulation of autonomic and neuroendocrine systems do not have a linear relationship. While homeostasis is the return to the original balanced situation following the opposite path that took the system out of balance, allostasis is the return to a balanced situation through an adaptive path. Resiliency is the capacity to obtain organization and balance after having gone through problematic situations. We are going to detail these concepts.

Homeostasis. Coined by Walter Cannon (1929, 1939) from the Greek words, 'homeo' meaning 'same', and 'stasis' meaning 'standing', homeostasis refers to the biological processes responsible for the dynamic balance that maintains the constancy

(or equilibrium) of self-regulatory processes acting in response to physiological compensation for changes in the environment (internal or external).

The concept of homeostasis underlies an organism's biological tendency to resist change in order to remain in balance—it is a dynamic process whereby regulatory mechanisms work via negative feedback loops. Sensors (cells such as gland cells and neurons) detect changes in the system and effectors (muscles and glands) work to counteract the changes (Lambert & Kinsley, 2011).

Homeostasis is of particular importance in "psychophysiological and behavioral medicine because of the putative role of homeostatic processes in the regulation of autonomic and neuroendocrine systems" (Berntson & Cacioppo, 2007, p.433).

According to Berntson and Cacioppo (2007):

1. The autonomic nervous system is reflexively regulated for homeostasis
2. The sympathetic and parasympathetic branches generally exert opposing effects on end organs
3. The sympathetic and parasympathetic branches are subject to reciprocal central control

Homeostasis provides a framework to understand human physiology: it is the organism's way of detecting changes in its physiological set point values and responding (via effectors) to restore physiological variables to their optimal physiological range.

The human organism has set point values (e.g., deep body temperature, blood counts, respiration, and heart beat). There is a range of normal values that are dependent on external environmental conditions.

Set points can be reset. When the stressful situation is over, a resilient organism recovers itself easily. When the stressful situations are repetitive, or if the system is not resilient, the immune system is suppressed, which leads to increased vulnerability for sickness (Lambert & Kinsley, 2005).

Allostasis. Sterling and Eyer (1988) coined the term from Greek 'allos' meaning 'other' to describe the process of visceral regulation. According to their conceptualization, human regulatory levels (e.g., deep body temperature, blood counts, heart rate, and respiration) are not fixed; rather, they are flexible and constantly adjusting to meet changing demands (internal and external).

Allostasis is a more recent concept, and it refers to a more dynamic balance where an adaptation to the circumstances is obtained. It is known that after overcoming a traumatic situation, the person becomes better able to face other challenges. Allostasis extends the concept of homeostasis; it represents the adaptation process (physiological or behavioral) of complex physiological systems under pressure or stress from numerous sources—physical, psychosocial, and environmental challenges (Logan & Barksdale, 2008; McEwen, 2005; McEwen & Wingfield, 2003). It reflects an organism's "natural adaptive readjustments of regulatory levels in view of changing physiological demands" (Berntson & Cacioppo, 2007, p. 436) "maintaining stability through change, as a fundamental process through which organisms actively adjust to both predictable and unpredictable events" (McEwen & Wingfield, 2003, p.2).

Allostasis is considered the optimal stance to understand that alleviating stress-related disorders is not achieved simply by identifying and treating the pathology, but rather, the origins of the physiological dysregulation must be sought in central –visceral interactions (Thayer & Lane, 2000).

Allostatic load. On the other side, allostatic load may be the result of the cumulative or long term result of allostasis (failed adaptation creating wear and tear on the human organism) resulting in pathology and chronic illness (Logan & Barksdale, 2008; McEwen, 2005; McEwen & Wingfield, 2003). Then the organism may respond with an adaptive response which restrict some of the possibilities in real life. Four subtypes are noted in the literature (Seeman, McEwen, Rowe, & Singer, 2001; Seeman, Singer, Rowe, Horwitz, & McEwen, 1997):

1. Experiencing repeated/chronic stressors
2. Failure to adapt to the same stress
3. Failure to shut off the hormonal stress response
4. Inadequate hormonal stress response

Dynamic balance. The human organism is in a continuous state of motion, an internalized balancing process creating constant adjustments via regulation mechanisms to enable homeostasis. These dynamic balances occur in the context of stress, allostasis, self-regulation, and adaptation (Esch, 2003).

Adaptation. Adaptation is the process (morphological, physiological, developmental, or behavioral) used to maintain homeostasis by compensating for change in the system - how an organism copes with environmental changes and stress. Adaptation can occur at any level of organization. It can reference a trait (subjected to natural selection, evolved) or an actual process that occurred resulting in a trait that enables survival. There are short-term adaptations (behavioral or physiological) and longer-term adaptations, which may be developmental (environmentally induced changes in anatomy, physiology, or behavior) with the longest-term adaptations being of a genetic nature (programmed changes in anatomy, physiology, or behavior on an evolutionary scale).

***Resiliency*.** Resilience comes from Latin *resili* (*ēns*), which means to spring back. In physics it is "the property of a material that enables it to resume its original shape or position after being bent, stretched, or compressed; elasticity" (Morris, 1975 p.1106). In medicine or psychology, resiliency indicates the capacity to recover quickly from disease or misfortune, or to cope with stress and adversity. Resiliency is the capacity to overcome difficult situations through finding resources to overcome the difficulties and possibly getting out stronger from the situation (Araujo, Mello, & Rios, 2011). "The resiliency is a human potential which is present in the individuals of all cultures and of all times. It is part of an evolutive path and may be promoted from the birth" (Araujo, 2006, p. 85). Several authors have studied and reported on ways of building resilience in children and in adults (Benard, 2004; Ginsburg, 2011; Levine & Kline, 2008, Southwick & Charney, 2012). In cases of trauma, whether the person remains distressed or bounces back with resiliency will depend on what happens during and/or after the threat (Levine & Kline, 2008). The following themes are required to build resiliency in children: give them unconditional love; assure them security; connection to at least one adult; listen attentively to them; have the children gain confidence by taking small steps in their progresses (Ginsburg, 2011).

The simplified concept of "homeostasis", where reciprocal control would maintain set points with constancy of internal states, has evolved over the years towards more complex adjustments as the" homeodynamic regulation" where learned autonomic adjustments would minimize or preclude homeostatic disturbances from otherwise perturbing stimuli. The concept of "allostasis" went one step further recognizing that regulatory levels are not fixed, but may be adjusted to meet changing demands. The "adaptation" is a broad concept as it is present in all levels of organization assuring the survival of the species. All these concepts are important for the studies related to

trauma, its effects and its treatment. But, the last one we will be mentioning, the "resiliency", possibly is one of the most important concepts in the treatment and in preventing consequences of a trauma. The "resiliency", by being the capacity to overcome difficult situations with the possibility of getting out stronger from the experience has been the subject of many studies as to how develop resiliency, or recover it, in this world with so much unavoidable traumatic events.

Therapeutic approach for Trauma: Somatic Experiencing (SE)

SE™ is an abbreviation of Somatic Experiencing®, which is a psychobiological approach developed by Dr. Peter Levine for resolving trauma and its consequences, after having worked 45 years on the development of an approach to help people move through trauma. This approach has been used by psychologists and health professionals either by unique approach or in combination with the skills and approaches already in use by the health professionals (Levine, 1997, 2010).

"The SE model incorporates aspects of a systematic desensitization while including several other aspects of trauma theory, resiliency theory, and affect regulation" (Changaris, 2010).

SE is based in the natural behavior of animals, which go through stressful and life threatening situations almost every day; however, in nature, they do not get traumatized, recovering their capacity of living fully, without major changes in behavior. Different than animals in their natural environment, captive animals as well as human beings respond in a different way to traumatic experience. Such experience results in decreasing the adaptation capacities of the being and emotional or physical

disturbances become present, restricting relationships and other behaviors before the threatening event.

The capacity of going through potentially traumatizing events and still not getting traumatized could be explained by *resilience* of the individual as well as by the capacity of completing the response for the situation (Levine & Frederick, 1997). The basic premise for being able to respond to a threatening experience and return to balance is due to the innate self regulator capacity. The responses can be completed either by completing the unfinished movement or by *discharging*.

SE is the life's work of Dr. Peter Levine, resulting from multidisciplinary studies of psychology, neuroscience, physiology of stress, medical biophysics, biology, healing practices, together with over 45 years of successful clinical application (River, 2013). Publications have been made on the effect of SE in natural disasters, (Leitch, Vanslyke, & Allen, 2009; Leitch, 2007; Parker, Doctor, Slevam, 2008; Rossi, 2013), in chronic pain (Coutinho, 2013; Phillips, 2007; Scaer, 2001), in dermatological issues (Farhi & Franco, 2013), assaults (Pinto, 2013), phobia of driving (Fernandes, Guimaraes, Medeiros, & Chaves, 2013), anxiety states (Moraes, 2013), drug addiction (Meneses, 2013), in car accidents (Heller & Heller, 2001), and in developmental trauma (Heller & LaPierre, 2012; Souza, 2013).

The trauma evokes a biological response that keeps the body's reactions maladaptative. Reactions to life-threatening situations remain symptomatic until they are discharged and completed, which happens when responses are discharged allowing return to full vitality. "The SE process uses the felt sense or internal body sensations to unbind and free the energies that have been held in check" (Levine, 1997, p.66). It is the tracking of somatic sensations that is the key for healing trauma.

Studies investigating the use of SE with people who have survived natural disasters, where there is little opportunity to have more than one or two sessions, have proven SE to be effective. One to three contacts have been observed to produce positive results in the floodings of Sta. Catarina (Rossi, 2013) and in Thailand (Leitch, 2007). In Thailand, after 1 or 2 sessions, 67% of participants had partial to complete improvement in reported symptoms (physical pain, sleeping problems, headaxches), and 95% had complete or partial improvement in observed symptoms (flat affect, anxiety/agitation). At the 1-year follow-up, 90% of participants had complete or partial improvement in reported symptoms, and 96% had complete or partial improvement in initially observed symptoms, suggesting that that integrative mind—body interventions have promise in disaster treatment (Leitch, 2007).

Traumatic stress may cause significant and long-term psychological, emotional and somatic reactions leading to dysregulation patterns and illnesses (Bower & Sivers, 1998; Heller & LaPierre, 2012; Levine, 2010, 2011; Ogden, Minton, & Pain, 2006; Scaer, 2005; Solomon & Siegel, 2003; van der Kolk, 2002b).

"Trauma has a profound effect on human development and the ability to evolve emotionally and psychologically" (Hays, 2013, p.9). It is important to state that, "It is not the trauma that changes, but it's the way that it is being looked at it" (Uchitel, 2001, p. 10).

Organization: Somatic Experiencing™ Trauma Institute (SETI)

Dr. Peter Levine is the founder of the Foundation of Human Enrichment (FHE) or Somatic Experiencing™ Trauma Institute (SETI), which is located in Boulder, Colorado. The Mission, Vision, and Values of the organization are the following:

> **"*Mission of SETI***
> *Trauma is a fact of life. It does not, however, have to be a life sentence.*

> *The SE™ Trauma Institute is a 501(c)(3) nonprofit dedicated to resolving trauma worldwide by providing state-of-the-art professional training and public education in Somatic Experiencing® (SE). SE is a powerful psychobiological method for addressing physical and emotional trauma, PTSD, overwhelm, and stress-related conditions. Through our professional association we support the self-organization of a broad international network of passionate, skillful SE practitioners who serve individuals in need and communities in crisis around the globe.*
>
> ***Vision of SETI***
> *We envision a world thriving beyond trauma, a world at peace.*
>
> ***Values of SETI***
> *As an organization, we strive to be innovative, compassionate, inclusive, transparent, self-optimizing, inspiring, and professional."*
>
> (retrieved from http://www.seti.org/)

All of us have the potential of going through traumatic experiences at sometime in our lives. Studies have advanced towards the understanding of Trauma, its consequences, the complexity involving neurological, physiological, endocrinological, and immune system. Studies have been made on how to increase resiliency in order to have the least possible effects after a traumatic experience and how to overcome them in the fastest possible way. Somatic Experiencing (SE) is one of the approaches that have been developed in the 20th century and has shown promising results. Somatic Experiencing Trauma Institute is an organization from the United States, with representation around the world, that is dedicated to resolving trauma

CHAPTER III

SOMATIC EXPERIENCING TRAINING

Total Program of Training (36 day training)

The organization representing Dr. Peter Levine's work is the Somatic Experiencing Trauma Institute (SETI), located in Boulder, Colorado, USA. Several organizations have contracts with SETI in order to provide worldwide SE trainings and support an international roster of professionals trained in SE. One such example is Associação Brasileira do Trauma (ABT) (or the Brazilian Trauma Association), which is located in São Paulo, Brazil. These organizations have among their activities the teaching of the SE approach, the organization of workshops and scientific activities, the stimulation of research associated with trauma and SE, the membership association, the social clinics for treatment of people who went through traumatic experiences, the support for victims of natural disasters, and major accidents through Trauma Outreach Programs (TOP).

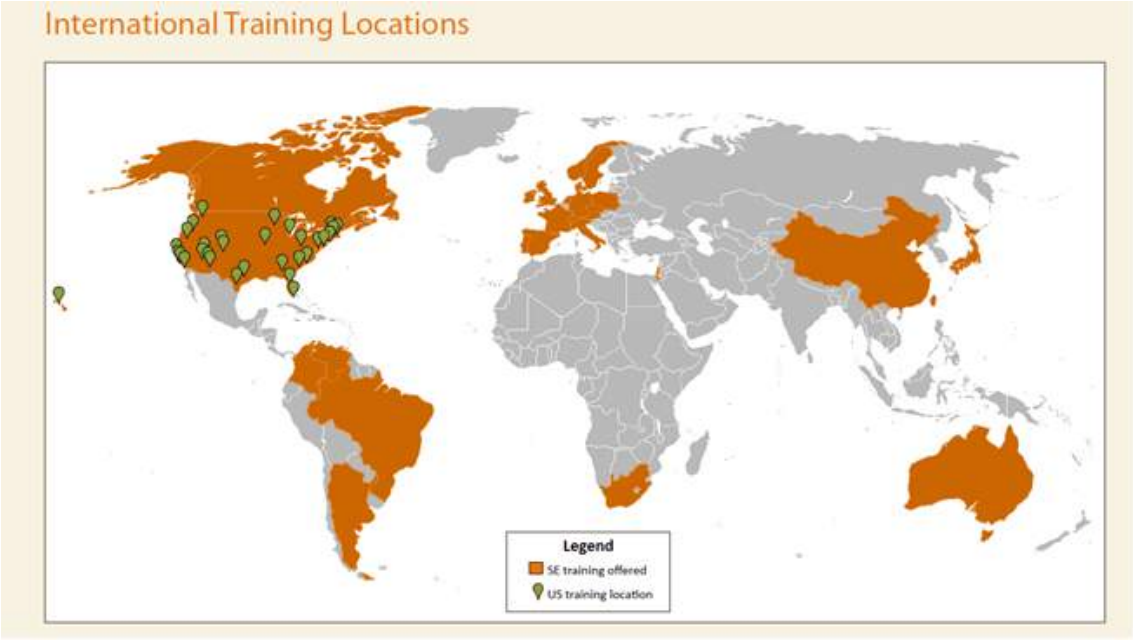
SE Professional Training is a continuing education program designed to enhance the skills of professionals working with somatic and mental health, as psychologists, psychiatrists, psychoanalysts, psychotherapists, marriage and family therapists, counselors, occupational therapists, etc. It is also designed for professionals who have the potential opportunity of working or having worked with individuals that have been traumatized or who have gone through stressful events like social workers, expressive arts therapists, medical doctors, nurses, midwives, and body workers.

The SETI faculty follow internationally established standards and receive continuous support and contact regarding new developments about trauma.

SE instruction adheres to an internationally established curriculum, with a standardized scope and sequence. A teacher's manual, which has been translated into several languages, specifies the material to be covered in each part of the training. Students receive one student manual for each segment of the training. SE, as a therapeutic approach to healing trauma, is a global institution with trainings conducted on all continents, in more than 25 countries, to more than 8,000 professionals (River, 2013).

Figure 2

Location of SE trainings: In brown are the regions where SE trainings are offered. In green are the USA training locations (River, 2013).



The SE professional training is done through three levels of classes: Beginning, Intermediate, and Advanced. Each level involves a 12-day training curriculum, totaling 36 days of class, with some space between each level. According to regional scheduling needs, the 12-day training might be divided into different combinations such

as two 6-day segments, or three 4-day segments. Typically, the entire SE training takes a year to complete. The students of the Beginning Level Training classes, who were the subjects of this assay, took 5 months to complete this level; they were organized in 4-day modules with a space of 2 months between each module.

The SE training is experiential—a combination of lectures and class activities. The students learn the theory related to SE, and they learn the theoretical framework for understanding and addressing trauma physiology. Exercises are done in class to develop self-perception and perception of the other. Live demonstrations are observed, and students participate in guided practice sessions with fellow students. The learning is augmented by the use of slides, films, and audio-visual case studies.

The curriculums for the Beginning, Intermediate, and Advanced trainings, as specified by SETI, are as follows:

> **"Beginning:**
> *Usually consists of three 4-day seminars.*
>
> - Understand the physiological basis of trauma.
> - Learn about containment, resourcing, and empowerment.
> - Study tracking skills, titration, and establishing continuity through the felt sense.
> - Practice establishing defensive orienting responses, completion, and discharge.
> - Explore coupling dynamics, the elements of internal experience Sensation, Image, Behavior, Affect, and Meaning (SIBAM), and integrating experiential polarities in order to restore creative self-regulation.
> - Be able to identify, normalize, and stabilize traumatic reactions.
> - Attain skills to avoid pitfalls of re-traumatization and false memory.
> - Learn to uncouple fear from immobility; re-establish and maintain healthy boundaries.
> - Investigate the transformative qualities of trauma.
> - Integrate trauma work into ongoing therapy.
> - Acquire short-term solutions to acute and chronic symptoms.

Intermediate:
Usually consists of three 4-day seminars.

Examines the different categories and causes of traumatic shock and approaches to treating each case including:

- Global High Intensity Trauma, i.e. surgery, electrocution, hallucinogens, drowning, suffocation, strangulation, fetal distress, traumatic birth, intrauterine stress, and invasive medical procedures in utero.
- Inescapable Attack, i.e. by wild animals, rape, war, bombings, physical abuse, mugging, incest, molestation.
- Physical Injury, i.e. surgery, anesthesia, burns, poisoning, hospitalizations, stabbing, gunshot wounds.
- Failure of Physical Defense, i.e. falls, high impact accidents, head injury.
- Emotional Trauma, i.e. severe neglect and abandonment, severe loss, ongoing abuse.
- Natural Disasters, i.e. earthquakes, fires, tornadoes, floods, social dislocation from the natural world and community.
- Horror, i.e. seeing an accident (especially with blood, gore), watching someone else be abused, raped, killed or tortured, killing or hurting someone yourself.
- Torture and Ritual Abuse, i.e. war torture, repeated rape in war, concentration camp, and systematic abuse (sometimes with the person drugged).

Advanced:
Usually consists of two 6-day seminars.

- Learn about the relationship of trauma to various clinical syndromes.
- Further integrate SE theory and practice into the specialty area of the therapist.
- SE bodywork in working with the different categories of trauma.
- Application of research in the psychophysiology of trauma.
- The 'art' of therapy."

(retrieved from http://www.seti.org/)

Complementary Activities

In order to become an SE Practitioner (SEP), the student must complete the Beginning, Intermediate, and Advanced Training levels. They are also required to receive personal SE sessions outside of class to deepen their experiential knowledge of the SE process and outcomes. A number of case consultations, or supervisions, are also required. The number of sessions required for each segment are as follows: the Beginning Level Training should include 4 hours of individual SE sessions and 4 hours of supervision. The Intermediate Level Training should include 4 hours of individual SE sessions and 6 hours of supervision. The Advanced Level Training should include 4 hours of individual SE sessions and 8 hours of supervision. The total requirement to become a SE practitioner (SEP) is 12 hours of individual sessions and 18 hours of supervision. The supervision might be done in a group format, with 3 hours of group supervision being equivalent to one hour of individual supervision; however, some individual supervision is required.

SE Beginning Level training (12 days)

The SE Beginning Level Training develops the basic knowledge and skills in the SE biophysiological model for trauma resolution.

We are describing in the next items the topics that are covered during the SE Beginning Level Training. The topics, as listed, are not necessarily in the order that they are taught. They are being summarized in this manner so that the reader can have a sense of the material covered during the SE Beginning Level Training. The statements in this segments use the SE Manual as reference (SE Manual, 2007), unless otherwise specified. Further details on these topics may be found under Chapter II: Literature Review.

The Somatic Experiencing model. The basic premise of SE is that human beings are viewed as having individual characteristics but with a common capacity to heal. It is based on the ethological observation that animals in the wild have the innate capacity to regulate and neutralize high levels of arousal that happen as a routine in their daily life and that require defensive survival behaviors. Human beings have similar regulatory mechanisms, but they are often overridden by neo-cortical inhibition. The rational mind restrains the expression and discharge of highly aroused survival energies. "Unregulated arousal previously 'locked in' the neuromuscular and central nervous systems can be discharged and completed, thus preventing and resolving traumatic symptoms" (Levine, 2011).

Trauma. Trauma is considered a normal life event; however, some people overcome potentially traumatic experiences not only because of their innate capacity of healing but also because they have better capacities of resilience, that is, they can rebound from devastating experience as a strengthened and more resourceful person. The traumatic event overwhelms the ordinary human adaptations of life, and it produces immediate responses of helplessness, fear, loss of control, and threat of annihilation. "Trauma happens when the organism is strained beyond its adaptational capacity to regulate states of arousal" (Levine, 2005, p.8).

Human beings have the need to establish themselves in a personal, familial, and professional life, with a routine of well-planned and safe steps. When individuals cannot perceive safety or a basic organization in the environment, they are prone to respond with emotional unbalance. Participation in a catastrophe or even witnessing the consequences of a catastrophic event that are shown in the media can cause harmful psychological consequences because they induce the conclusion that human beings are

not responsible for their own fates and everything that they construct may be destroyed unexpectedly (Ross, 2003). This is perceived with a great feeling of impotency, which invades the life of the individual with anxiety (Thomé, Benyakar, & Taralli, 2009).

Statistical information indicate that in the years following a catastrophic event there is an increase in the use of use of alcohol and drugs, an increase in domestic and urban violence and suicides, and increases in other symptoms of emotional and psychic disturbances in the regions affected. Victimization is one of the responses that impedes the overcoming of the traumatic episode. It is important in the post-traumatic event to give support to the victims as well as to those that were involved with the rescuing, to avoid future pathologies.

Some of the symptoms that are perceived when the person goes through traumatic experience are expressed in behavior, somatic symptoms, and/or emotional symptoms. The behavioral symptoms may include the following: loss of interest in life; reducing activities; lack of energy; hyperactivity and incapacity to relax; difficulties in concentration; sleep disturbances; somatic feeling of compression in the chest or in the throat; flashbacks; and substance abuse (drugs and alcohol). Some of the somatic symptoms include the following: migraines; headaches; feeling tired; muscle tension; tachycardia or irregular heartbeat; loss of appetite; abdominal pain; nausea; and pain with no apparent reason. The most typical emotional symptoms include the following: irritability, anger, shame, fear, anxiety, feelings of helplessness, sadness, guilt, repetitive thoughts, emotional lability and suicidal ideation. There may also be symptoms observed in interpersonal behaviors including the following: disagreements; discussions; lack of emotions; excessive need for decision making; loss of interest in the environment; lack of interest in relating with groups that would usually relate with; and lack of motivation to return to work (Thomé, Benyakar, & Taralli, 2009).

Physiology of response to threat among animals and human beings. In order to understand the response to threat among higher animals and human beings, we would like to review the structures of the brain and their functions.

Brain structures and functions. The nervous system is divided into the *central nervous system* (CNS) and the *peripheral nervous system* (PNS). The CNS includes the brain and spinal cord; the PNS includes the autonomic and somatic nervous systems.

The brain itself consists of three regions: the brainstem, the limbic system, and the cerebral cortex. The brainstem is located in the posterior part of the brain, continuous to the spinal cord. It is connected to survival mechanisms including cardiovascular system control, respiratory control, pain sensitivity control, alertness, awareness, consciousness, sleeping, and eating. The following structures are part of the brainstem (Carlson, 2007; Cozolino, 2006; Kandel, Schwartz, & Jessell, 1997):

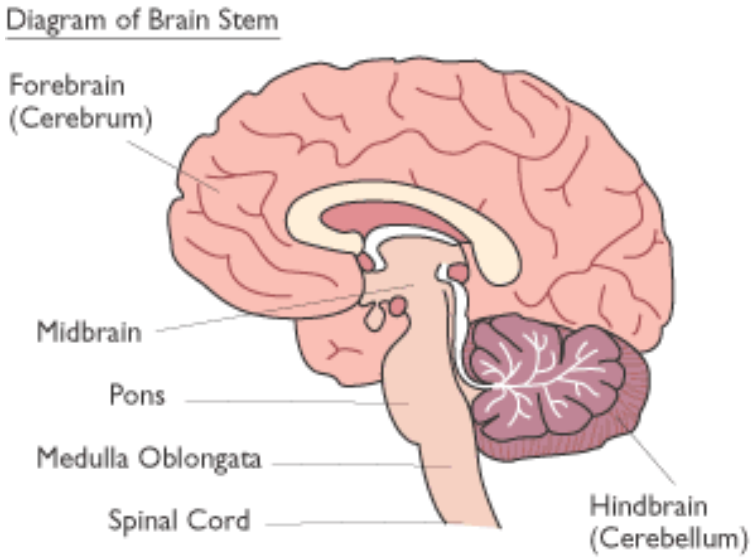
1. Midbrain (mesencephalon), which provides the main motor and sensory innervations to the face and neck via the cranial nerves. It has direct control of eye movements.
2. Pons (metencephalon), which has a large number of neurons transmitting information from brain hemispheres to the cerebellum.
3. Medulla oblongata (myelencephalon or bulb), which participates in the regulation of blood pressure and breathing.
4. Cerebellum, which is a structure wrapping around the brainstem. It receives sensory information from the spinal chord, motor information from the cortex, and information from the vestibular organs of the inner ear regarding the kinesthetic balance. It is involved in the planning and execution of the movement of skeletal muscles during movement. It is also connected to the postural shifts, movement of the head, eyes, and

balance as a whole. The activities of cerebellum are connected to the activity of pons.

The brainstem, together with the cerebellum, is considered part of the reptilian brain, which will be discussed further when we discuss the triune brain, under item 6. In SE these structures are considered of great importance because they produce the involuntary response to a trauma prioritizing survival.

Figure 3

The Brainstem



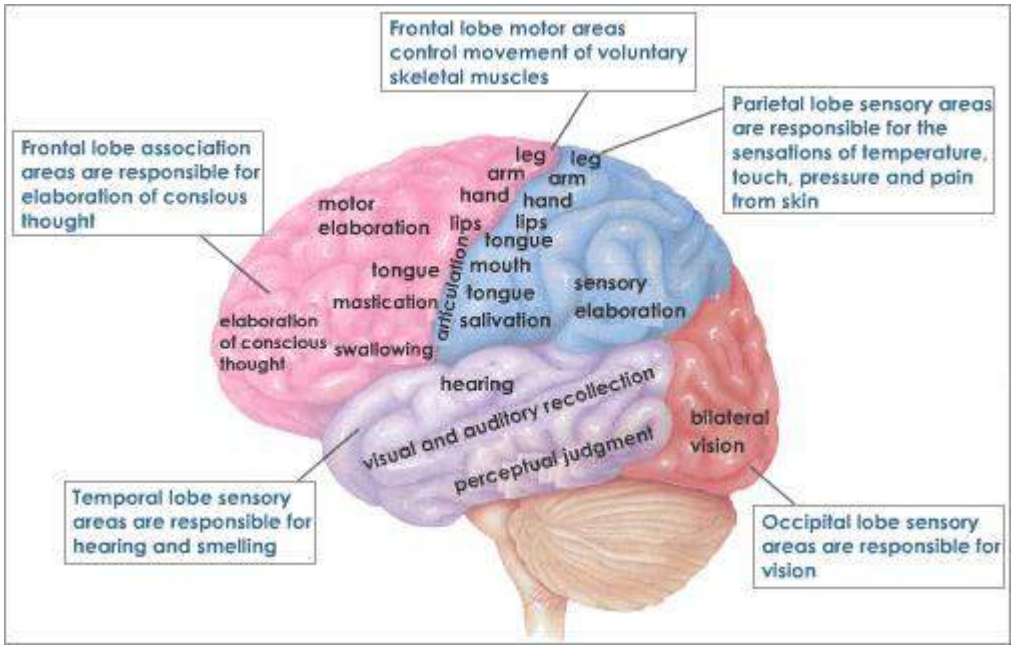
(Retrieved from http://corticalchauvinism.com/2013/03/25/key-players-in-autism-iv-the-brainstem)

The brain is composed of two hemispheres. Deep inside, not visible in the outer part of the surface of the brain, lies the limbic system; it is located on both sides of the thalamus and directly beneath the cerebrum. It is a complex collection of brain structures including the telencephalon, diencephalon, and mesencephalon. Within these structures are numerous structures such as the olfactory bulbs, the hippocampus, and the amygdala. The limbic system supports our emotional life and is involved with the formation of our memories, as well as involved with behavior, motivation, and long-term memory.

The cerebral cortex is divided into four anatomically distinct lobes—the frontal, parietal, temporal, and occipital. The frontal lobe is involved with planning our future actions and control of our movements. The parietal lobe is involved with our somatic sensations, forming a body image, and relating our body image to externalized spaces. The occipital lobe is associated with vision while the temporal lobe is involved with hearing. Through these lobes, the cerebral cortex organizes our sensory, motor, and conscious experiences, as well as our learning interactions with the world. Each of these lobes have their own specifications in order to interact with somatic responses (Carlson, 2007; Cozolino, 2006; Kandel et al., 1997). Any simple conscious behavior, like running toward an object, demands the reception of several pieces of information, as well as organizing the effectors (muscles and glands) to respond to the ground, space, and so forth; therefore, several structures are involved simultaneously.

Figure 4

The Cerebral Cortex: Its Parts and Its Functions

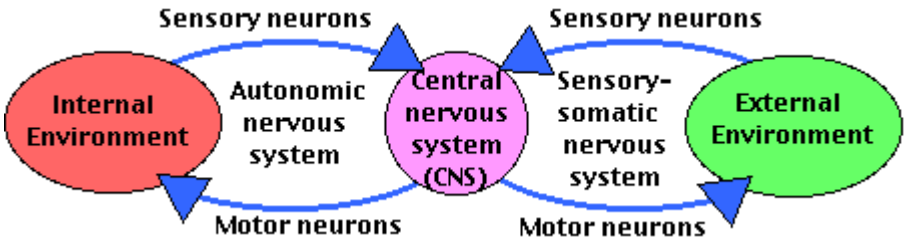


(Retrieved from: http://www.tutorvista.com/content/biology/biology-ii/control-and-coordination/central-nervous-system.php)

Through the sensory neurons, the PNS informs the CNS of the stimuli coming from the environment or coming from inside the body. Motor neurons run from the CNS to the effectors directing the body to take action.

Figure 5

Connection of the CNS with the PNS (Organization of the Nervous System, 2011).



The peripheral nervous system is subdivided into the

- somatic nervous system
- autonomic nervous system (ANS)

The somatic nervous system is associated with the voluntary control of body movements as well as sensing external stimuli. All five of our senses are controlled by the SNS. It is composed of spinal and cranial nerves and contains sensory neurons that transmit incoming sensory data from the skin, skeletal muscles, and sensory organs to the CNS. It also contains motor neurons that transmit messages to the CNS about movement in response to the incoming stimuli resulting in muscle contractions. If a threatening stimulus comes from the environment, the sensory neurons send the perceptive messages to the CNS, which responds through motor neurons with instructions for fighting or fleeing.

The autonomic nervous system (ANS) is associated with involuntary and

reflexive control of body functions. It also controls some muscles in the body: in the skin, around blood vessels, in the eye, in the stomach, intestines and bladder, and in the heart. It works to maintain normal bodily functions. The ANS responds to incoming stimulus spontaneously, without any conscious control, regulating visceral functions such as heart rate, respiratory rate, perspiration, and digestion. Some of the visceral functions work in conjunction with the somatic nervous system, which operates under voluntary control. It is divided into three branches: the sympathetic nervous system, the parasympathetic nervous system, and the enteric nervous system.

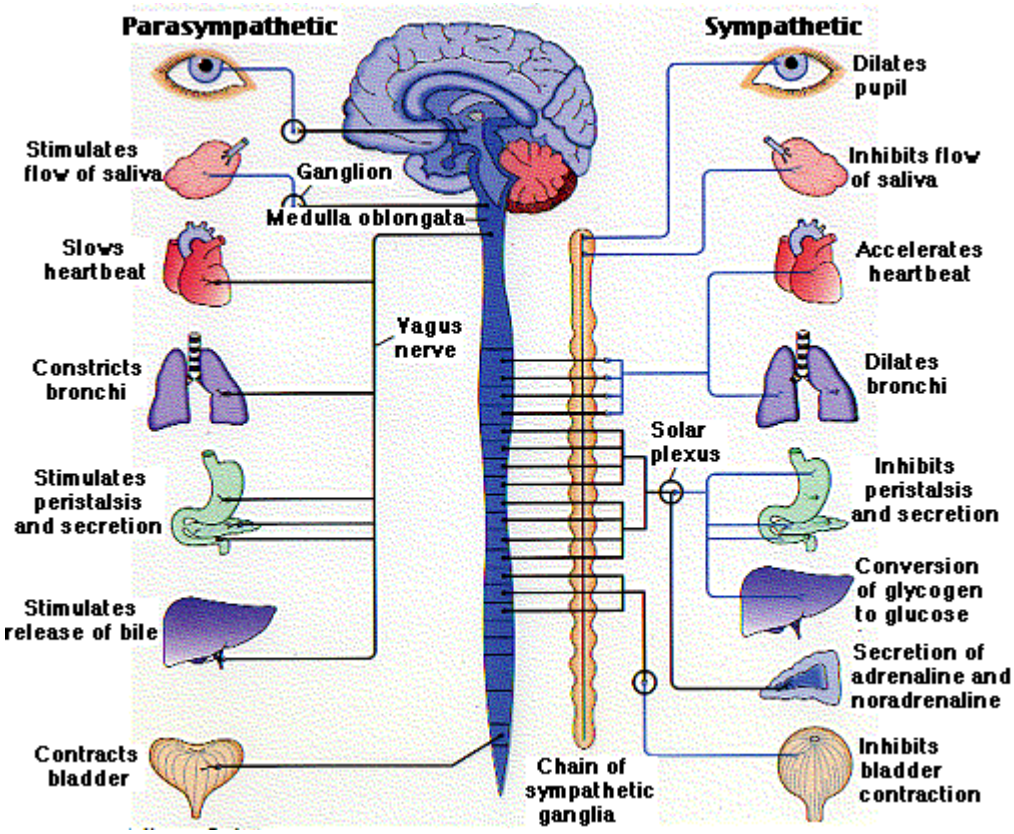
The sympathetic nervous system. The sympathetic nervous system (SNS) allows the body to function under stress. The sympathetic nervous system prepares the bodily systems for active defense through survival mechanisms. It controls the activation of the nervous system in response to a threat or other forms of motivation—fight or flight. The response includes the following somatic responses:

- Increasing heart rate and blood pressure in order to send blood to the muscles.
- Increasing respiration in order to have more oxygen available for the muscles, which is needed for either flight or fight.
- Constricting blood vessels and draining the blood away from the skin to protect from potential injury on the surface.
- Shifting blood away from stomach and kidneys to have more blood available in muscles.
- Dilating pupils and retracting eyelids for having a better peripheral view before focusing

From the point of view of SE, it is important to be aware that these responses are automatic; they may happen when there is an actual threat or when there is an imagined threat or memories of a threat that happened time ago. An example of this is the activation that is perceived (accelerated heart beat and accelerated breathing) when one remembers a scary or threatening experience they went through long time ago. It is part of the experiential activities taught in the Beginning Level Training program so that students develop a personal sense of awareness of these responses in their own body and in others as well. They observe the action of the SNS by watching a few moments of a film that is considered emotionally activating and thus triggers a SNS response. They are instructed to observe their SNS system being activated and then notice how they return to a PSNS balance a few minutes later. It is also part of the experiential activities to observe a class colleague respond to a memory of a threatening situation and follow the natural response of the system returning to equilibrium. They are instructed to observe autonomic somatic responses—physical indicators of arousal and return to balance— that include heart beat (observed by noticing a pulsation in the artery running in the neck region), sweating, cold hands, and becoming pale. Other autonomic somatic responses are possible as well (Cozolino, 2006).

Figure 6

The Sympathetic and Parasympathetic Nervous System



(Organization of the Nervous System, 2011)

The parasympathetic nervous system (PSNS) supports the conservation of bodily energy, the repair of damaged systems, and the immunological functions. It helps us to rest and to reorganize and regenerate after SNS arousal. Its actions are:

- Lower heart rate and blood pressure
- Make the blood return to skin, warming it and restoring a blush.
- Return the function of digestion
- Helps to release muscle tension
- Slows down and allows deeper breathing

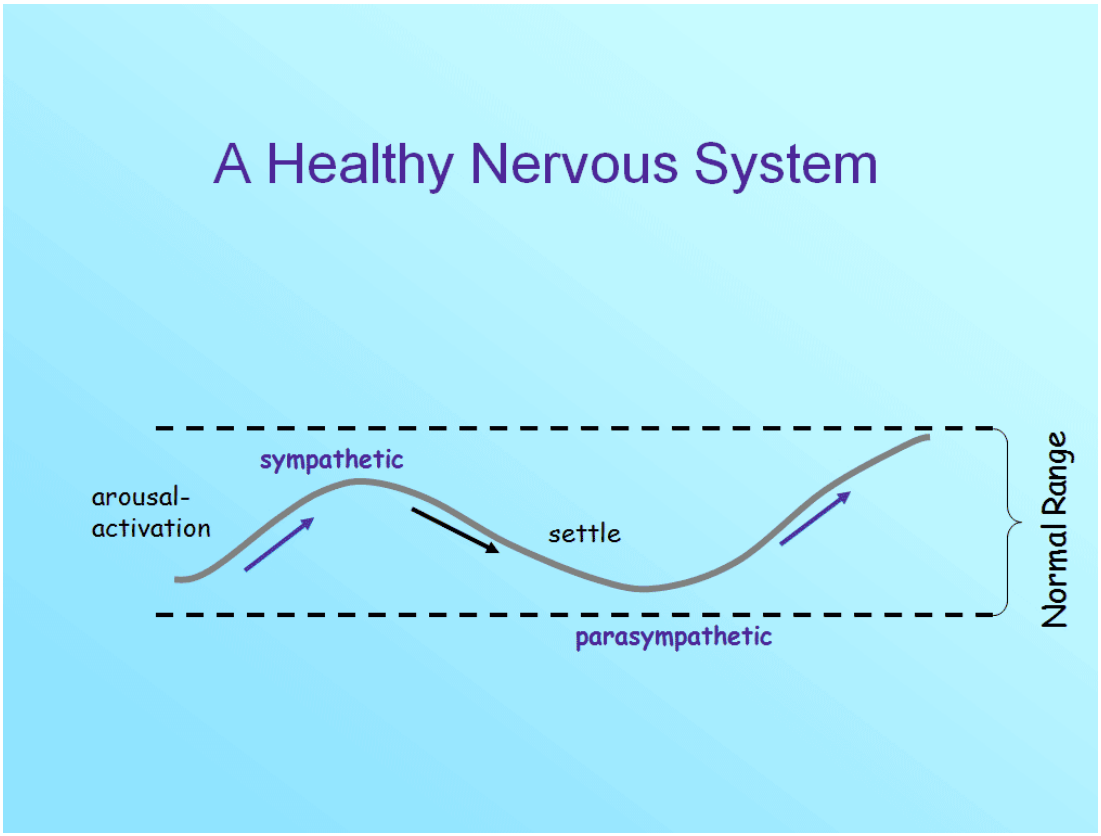
Both the sympathetic and parasympathetic nervous systems have influence in the immune system; therefore, the continuous or excessive stimulation of the SNS produces the shutting down or slowing down of the immune system, lowers the libido, and reduces secretions, while the parasympathetic nervous system helps the equilibrium of the above (Carlson, 2007).

From the point of view of SE, it is important to be aware that the responses of the PSNS occur once there is a reduction of the activation. This can be obtained by slowing down the speed of the activation, by bringing to awareness nice feelings or nice memories, and/or by perceiving small shifts in the system once there is a natural tendency to return to balance. The natural response of the PSNS is observed after interrupting a film that is slightly activating and perceiving the changes the system enacts to recover the balance. It is also part of the experiential class activities to observe a class colleague recover the heart rate and the smooth breathing after some time has been given for the PSNS to respond. Feelings of contentment, pleasure, happiness, relief, and so on indicate an effective parasympathetic response.

Healthy Nervous System Response. As stated before, situations of stress and activation occur naturally in life. The healthy nervous system is the one that easily *discharge*s activated states, alternating with relaxed or comfortable states, showing functional range and full spectrum of resiliency.

Figure 7

The Healthy Flow between the Sympathetic and the Parasympathetic System

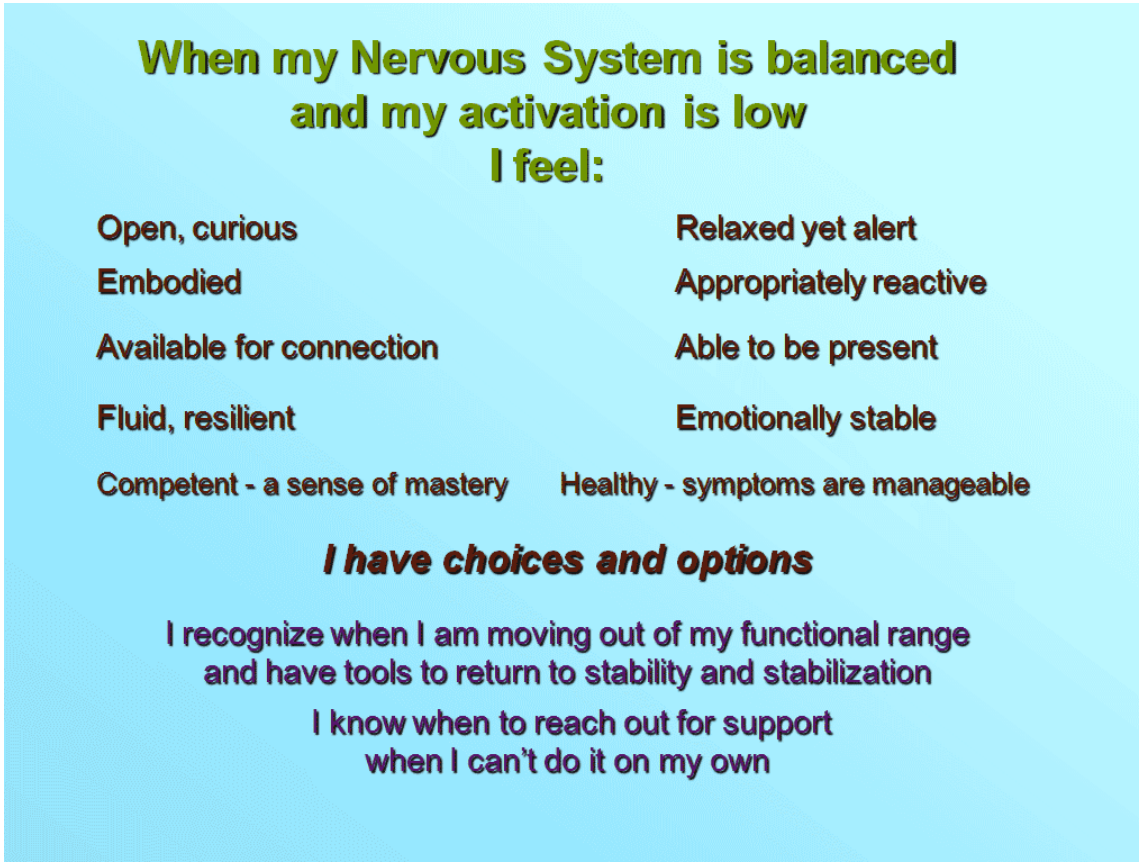


(Retrieved from http://www.traumahealing.com/somatic-experiencing-trainings/)

From the point of view of SE, it is part of the approach of SE to work with the charge and discharge of activation from the ANS. The energy of the arousal should flow through instead of becoming locked in the ANS. The perception of the possibility of discharge will make the next cycle to flow more easily. The student is invited to perceive the flowing through the sympathetic and the parasympathetic stages. When in parasympathetic phase, the body and the senses remain relaxed, yet alert, and the person feels embodied and present in physical, psychological, emotional, and spiritual aspects. There is an easy connection in this relationship, and the person experiences that there are choices and options (there are ways out).

Figure 8

Characteristics of a Balanced Nervous System



(Retrieved from http://www.traumahealing.com/somatic-experiencing-trainings/)

Traumatic Stress and ANS Dysregulation. When normal regulatory mechanisms are unable to effectively bring the system back to balance, there is an interruption of the normal flow of the process. The nervous system remains activated. This is energy consuming, and the symptoms are biologically predictable.

A person with constant, high levels of activation of the SNS is prone to have physical symptoms such as an increase in heart rate, the sensation of insufficient or inadequate breathing, muscle tension, cold sweats, exaggerated startle response, and chronic pain. In terms of mental and emotional symptoms, the person is prone to have

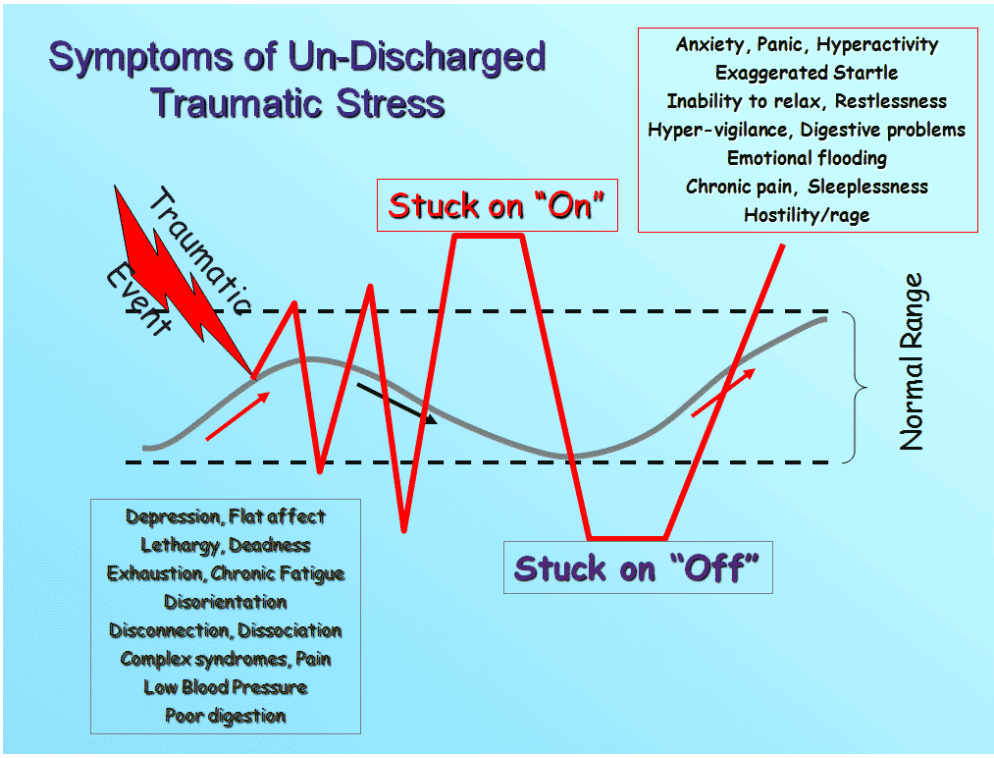
anxiety, mania, rage outbursts, hyper vigilance, panic attacks, racing thoughts, and so forth.

A person with constant high levels of activation of the PSNS tends to have the following physical symptoms: exhaustion, numbness, low muscle tone, low heart rate or blood pressure, and poor function of the immune system. In terms of mental and emotional symptoms, the person is prone to have depression, apathy, disconnection in relationship, and general under response.

When there is simultaneous over-activation of both branches of the ANS, there are symptoms of anxiety alternating with depression, muscle rigidity in one part of the body and low muscle tone in another, constipation alternating with diarrhea.

Figure 9

Dysregulated Nervous System after a Traumatic Event



(Retrieved from http://www.traumahealing.com/somatic-experiencing-trainings/

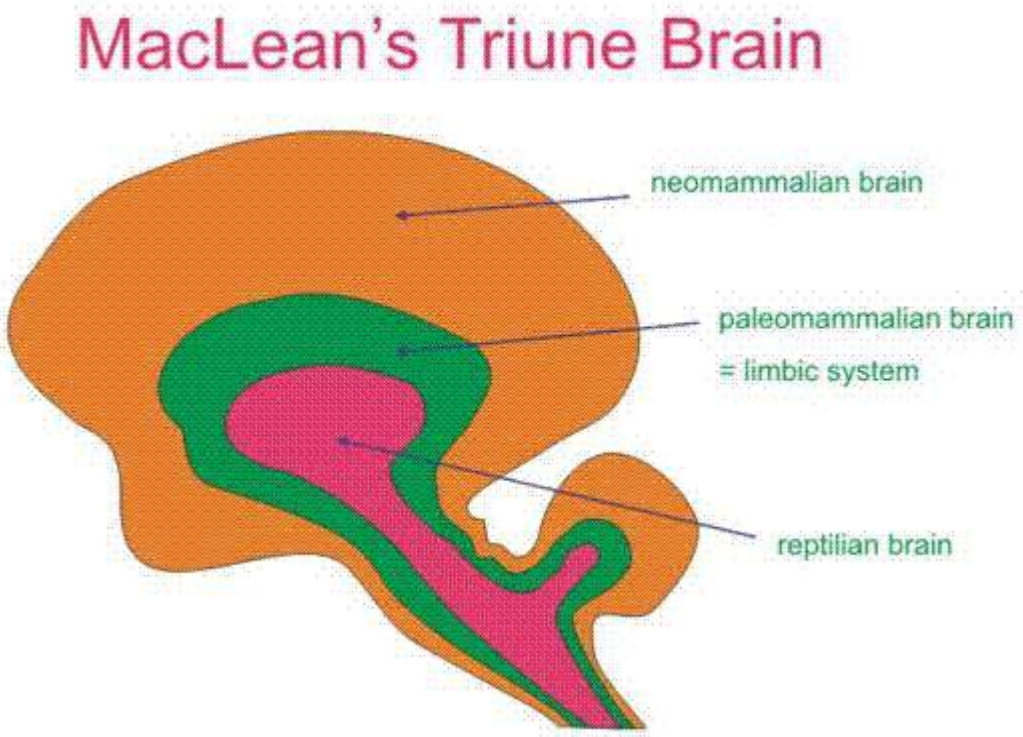
From the point of view of SE, it is important to develop the ability of tracking oneself, to perceive when one gets over-activated, and to know what is needed to return to center. These are important skills to be developed in life. For SE students, these skills need to be developed because the theme "trauma" is activating by itself, and this will be the daily theme to be dealt in the SE Beginning Level Training. Students are advised to be attentive to symptoms of irritation, anxiety, difficulty concentrating, and having low energy; these might be indications of increasing levels of activation. Excessive activation may happen when students are trading sessions, when they are observers in triads, when they are watching demonstrations, or even during lectures that might use examples similar to the unhappy experiences that the student had in its own life. It is important for students to be aware of which situations trigger their activation and which things calm them down. Exercises are proposed in class to develop the ability of self-regulation, including grounding exercises, taking time to settle, and understanding that responses may be delayed. Students are encouraged to assume responsibility for monitoring their activation level and to ask for and to accept help from assistants.

The Triune Brain. Paul MacLean, a leading neuroscientist from the Laboratory of the Brain and Behavior of the United States National Institute of Mental Health, developed the Triune Brain Model (MacLean, 1990). According to MacLean's theory, three different brains were established successively according to evolution and now they co-inhabit the human skull. They are: the reptilian brain or R-complex, the limbic system, and the neo cortex or new brain. These three brains influence one another through neuro-pathways (MacLean, 1990).

The reptilian brain is primarily concerned with survival. It includes the brainstem and the cerebellum. The brainstem orchestrates the body's vital functions such as the heart rate, breathing, and body temperature, while the cerebellum orchestrates movement and balance. The reptilian brain produces automatic behaviors, and these are highly resistant to change.

Figure 10

MacLean's Triune Brain



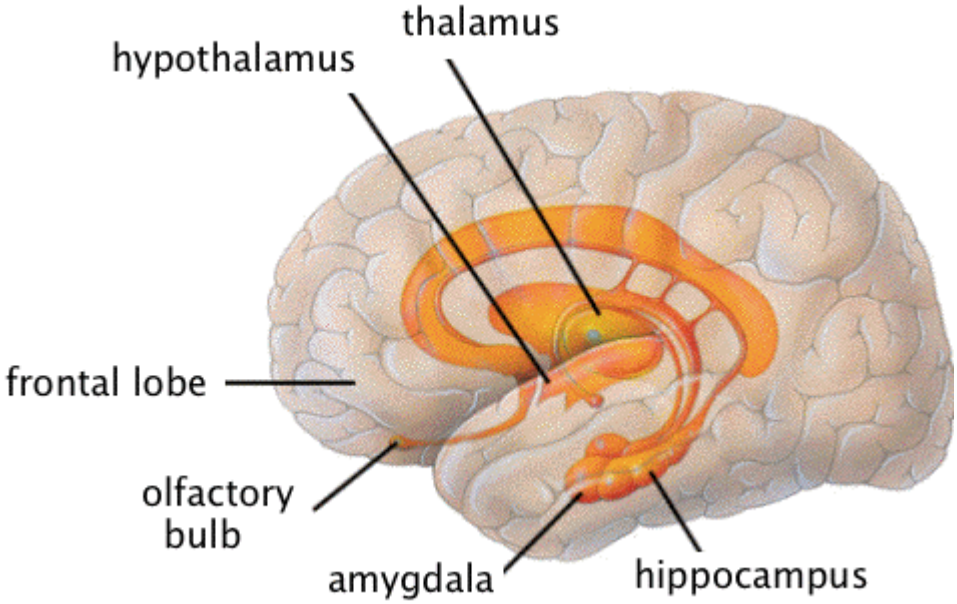
(Retrieved from www.betapersonalitatealfa.com)

The limbic system is also called "emotional brain" because it houses the primary centers of emotions. The limbic system responds to the extreme traumatic threat by releasing hormones that initiate the defensive action (Rothschild, 2000, 2010). The main structures of the limbic system are the *hippocampus*, *amygdala*, and *hypothalamus*. The

hippocampus enhances memory storage, possibly selecting the memories that are stored. The amygdala responds to feelings as fear, anger, and pity. Damage in the amygdala abolishes emotion-charged memories. Fear from a dangerous situation becomes extinct. The main function of the hypothalamus is to link the nervous system to the endocrine system via the *pituitary gland (hypophysis*) (Caine, R. & Caine, G., 1990)

Figure 11

The Limbic System



(Boeree, 2009)

The neo cortex, also called 'new brain', or 'thinking brain', constitutes five-sixths of the human brain. It has two hemispheres that are responsible for the development of human language, imagination, abstract thought, and consciousness.

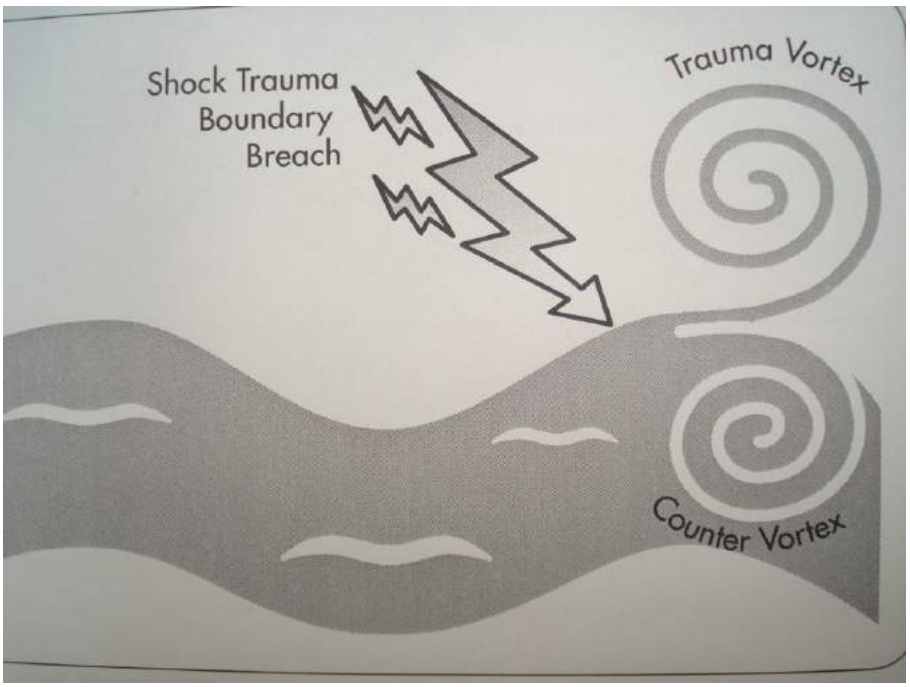
From the SE point of view, the knowledge of the reptilian brain may relieve guilt present for years due to an automatic response of survival instead of staying to help other people in a traumatic situation. Unresolved trauma reduces thinking processes

and problem solving abilities. The neo cortex needs to be re-engaged in order to heal from trauma, and this is done by using conscious awareness (neo-cortical function) to focus internal sensations (reptilian brain level). The limbic brain is over-activated in traumatic situations. It continues to trigger the defense that is no longer necessary. In case of unresolved trauma, the reptilian brain remains in a state of constant activation, resulting in impulsive, automatic reactions.

The Stream of Life Model. It is a tradition in SE classes to make a drawing of a river flowing freely and having well defined borders. Some rocks are shown in the midst of the river, which demand small changes in the smooth way the water runs. The picture offers an analogy to our stream of life and the minor obstacles that we have to contend with in our day to day lives. Then, a large branch falls from a tree into the stream. The stream's flow is partially interrupted, and there is an over flooding of the water temporarily changing the borders. The riverbank boundary is ruptured.

Figure 12

Stream of Life Model



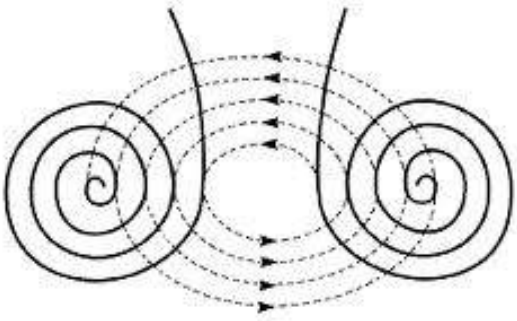
(SE Manual, 2007)

From the SE point of view, the analogy of the stream reflects the reality that small or medium obstacles happen daily, and we can deal with them. We can go around them, sometimes with difficulties, but often we can continue to flow ahead with victory. The stream contains our thoughts, feelings, and behaviors that are under our control. When the big branch falls in the stream, there are major changes, and the life cannot flow ahead as before. The responses of the system cause changes or loss in the boundaries. It is a simple metaphor, but it helps to remind the students of the difficulties they had to cope with and were in the process of overcoming or perhaps they still hope to overcome as the borders of the stream still have to be reconstructed.

Trauma vortex, counter-vortex and renegotiation. Following the fall of the branch and the loss of the stream's boundaries, a vortex is formed in such a way that if a leaf falls next to the vortex it keeps whirling around and around. The leaf's inability to get out of the vortex is easily seen in nature. After some time, a counter-vortex begins to form in the opposite direction, and this starts the possibility of shifts in the system. The leaf can get free of the original vortex flowing to the counter-vortex and then continue its way away from the branch.

Figure 13

Renegotiation (Retrieved from www.sustainablesonoma.org)



"Renegotiation" Between Trauma and Healing Vortex
The Third Possibility

Applications in the SE approach. The trauma vortex is a symbolic representation of the effect of trauma. The trauma vortex impedes the person to flow in his life freely. Instead, the person becomes stuck in repetitive behaviors, in intrusive thoughts and fears as if the threat is still present. With the innate healing capacity and with the help of time and support, a counter-vortex may be formed. In the process of going to the counter-vortex, traumatic energy is released, and there is the possibility of flowing forward and facing new situations and experiences of life. This can be exemplified in a simplistic way. The subject is requested to pay attention to the sensations of his body here and now and describe them. If sensations are unpleasant, there is the presence of a trauma vortex. The person is encouragement to include sensations, images, attitudes, emotions, and meaning. The perceptions vary immensely in each the subject, on the situation, on the moment. There is also the tendency of expanding the capacity for self awareness and the possibility of reporting perceptions. After spending some time with observation and reporting, the person perceives that shifts start to happen spontaneously as if there would be a flow. Unpleasant sensations li`ke tightness for example, are perceived as less tight and less uncomfortable. This often happens with the inclusion of a personal resource or a memory of something pleasant. There is a spontaneous discharge like trembling, sighing, tearing, and a spontaneous well being is felt. This is called *renegotiation:* it is the process of going from the trauma vortex to the counter-vortex opening up to new opportunities. This flow indicates coherence and continuity of past experiences with the present, opening possibilities for the future.

Tools used in SE approach

Some of the tools used in the SE approach are being reported as follows. The concepts will be explained, however, since some of these concepts are broad, a brief summary of the ***application in the SE approach*** will be presented.

Tracking is the most important tool used in the SE approach. When working with a client, the role of the therapist is to follow what is being reported by the client from his self perception, stimulating further perceptions. At the same time, the therapist observes all reactions and expressions of the client as additional tracking information. Also, the therapist must track its own reactions and sensations in order to identify if the perceptions are related to the client's process or his own.

Application in the SE approach. The tracking provide precious information regarding the client's activation states and releasing processes, and when further stimulus should be allowed or when to slow down in order to avoid excessive stimulus.

In the process of an SE session, there are several steps that are presented here but they are not necessarily in the order in which they are applied or perceived.

- Titration is the control of the smallest amount of activation. In SE procedures, the arousal should be broken down into small pieces that can be manageable and integrated.
- Resources are internal and external experiences that help to decrease activation. These could be anything that help in maintaining the sense of self and connect with a deeper capacity of organization.
- Pendulation is the shift from the trauma vortex to the counter-vortex. Moving in the direction from trauma vortex to counter-vortex results in more expansion, organization, and healing. If there is a spontaneous move in the opposite direction, this shows again the presence of the

trauma vortex indicating that unfinished issues still have to be dealt with. This moving back and forth is the reason for the name "pendulation".

- Organization is a movement that should be allowed to happen after the pendulation. This movement towards organized and coherent function happens spontaneously after the pendulation from the trauma-vortex to the counter-vortex. This is called self-regulation or self-organization and time should be allowed to have it perceived and settled.
- Integration is a spontaneous movement bringing the benefits of successful pendulations to permeate the entire system.
- Discharge is the release of the high-arousal energy bringing the system into a more balanced or resting state. Examples of discharge include the following: trembling, shaking, crying, and yawning. After the discharge, there is a shift from the trauma vortex to the counter-vortex.

Applications in the SE approach. These are practical tools to be used by the student when giving a session. These are also useful tools for gaining self-perception, for controlling the amount of activation so that it is worked with in manageable pieces, for being aware of the importance of resources in our life, for getting to know and expand personal resources, for being aware of the natural movement of the pendulation to avoid being stuck for too long on the trauma vortex side, and finally to respect and protect the time needed to organize and integrate the experience.

Orienting, defensive, and survival responses. The orienting, defensive, and survival responses are instinctive responses organized by the reptilian brain. They have already been covered in Chapter II, but we are referring to them briefly regarding the importance that they present in the SE approach.

The orienting response is a natural response to novelty in the environment. A healthy individual has constant curiosity toward the environment detecting information that can be related to feeding, mating, and potential dangers. The orienting response can be subdivided into the arrest response and the startle response. The arrest response is an instinctive response to interrupt activities in order to have a better focus on the environment. The startle response is a response to a sudden interference in the environment that is felt as threatening. The difference between both is that the startle response has a higher level of sympathetic activation.

The defensive response refers to the fight or flight strategies. If the limbic system and reptilian brain call for aggression, the individual will fight. If the challenge for fight indicates the probability of losing, the choice will be flight. The defensive responses are the result of the combination between the limbic system and the reptilian brain. When the fight or flight response is concluded, the residual energy is discharged by trembling, shaking, jumping, and/or other responses according to the species (human or animal). In the case of human beings, it is common to have trembling, shaking, and crying as soon as the danger has been withdrawn.

Freezing is a defensive survival response. Survival is the ultimate goal; therefore, when there is a life threatening situation there are no considerations or cognitive decisions to be made. If fighting or fleeing do not indicate a successful possibility, the organism will present the immobility response or freezing. Also, when there is an interruption or frustrated fight or flee, freezing may be installed. The significant advantages to the freeze response have been discussed in Chapter II.

Applications in the SE approach. Traumatic episodes often disturb the natural awareness and orienting responses. Often, instead of an appropriate orienting response, a defensive response or a freezing response may be presented when there is not actually

a threat. When the act of fight or flight was not concluded, perhaps there was an interruption for some reason, the energy prepared for the defensive response is stored in the physical structure of the body. The muscles present with the same tension necessary to react to a traumatic response, as if the movement still needs to be concluded. Often, when the SE student observes the partner and does the tracking, signs of small movements may be perceived. We call these 'pre-movement', and they should be stimulated towards completion; however, the process should take place in a slow and titrated way.

When a person presents with hyper-vigilance, hyper-responsiveness, or the extreme opposite indicating disrupted orientation and under-responsiveness, these might be signs of the defensive orienting responses being stuck in the 'on' position. A critical element in trauma recovery is the restoring of healthy and adaptive orienting responses.

Five components of our perceptive experience. For us to interact with the world, first we have to perceive it. Such perception is possible due to our external and internal sensations. Someone that has been traumatized becomes trapped between feeling too much (flooded or overwhelmed) or feeling too little (numb and shut down). (Levine, 2010). Developing our capacity to perceive ourselves may be an important tool both in daily life as well as in therapeutic situations. This is also called mindfulness, which means "paying attention to our experience: listening to ourselves, to our thoughts, to our emotions, and to our bodily sensations." (Heller & LaPierre, 2012, p.12).

The sensations are developed at early stages of life and they are useful for signaling action and guidance to activity, however, when someone is traumatized, the

sensations may not indicate effective action but result in paralysis, helplessness or rage. (Levine, 2010).

According to Levine (2010), **w**hat we experience can be classified into five components: sensation, image, behavior, affect, and meaning (known by the acronym SIBAM in SE terminology). They may not all be present in the same experience, but they should be considered as possibilities when we are expanding the perception around that experience.

1. **Sensation.** This is the perception that comes mostly from the self-awareness related to the body. Often it is called 'senso-perception' or 'felt sense' because it is about perceiving that which is related to body awareness. The term 'felt sense' was used first by Eugene Gendling (1982, 1998), who stated that it was a physical experience, a body awareness, not a mental experience. Usually the sensations are neglected by verbal psychotherapies. It is often difficult to express sensations using words, but it is important to have them described in the limit of present possibilities and to expand the experience (Fogel, 2009). When we access sensation, we are reaching into the activation, which means that we are touching a portion of the trauma. To engage the sensations, we engage the reptilian brain because we are not going through the cognitive process. The practitioner often resonates with the experience of the client, so the practitioner should track his own process in his body while checking the client's inner experience.

   The sensations change during the activation and de-activation cycle, and these should be followed. Nothing stays permanently as it is. The body pulsates; it has a flow that goes from contraction to release. It

goes from pain to relief. The sensations and the feelings move on a continuum, dialoguing between one level and the next. Individuals often describe their sensations as something distant or separated from themselves: "I feel my body," and "It is as if I were not here." This pulsation should not be blocked or resisted; its movement of expansion is part of the organizing of the system (Keleman, 1992).

The sensations come from:

- **Kinesthetic awareness.** It includes muscle tension, constriction, bracing, bound energy, and movement impulses.
- **Proprioception (self-perception).** It includes where one part of the body is in relation to the other, how fast the movement is, perception of the joints, perception where we are in space, what is our position, and informing the brain how to stabilize.
- **Autonomic nervous system**. It includes perception of temperature: warmth, flushed, sweat, chills; digestion: fullness, hunger, nausea, tension; heart-rate: normal, rapid, relaxed; viscera: gut feeling, tension, space; eye movements; respiration.
- **Vestibular**. It includes perceptions of the inner ear, balance; relationships: orientation to gravity; uprightness; sense of acceleration and de-acceleration. Vestibular disturbances may include nausea, dizziness, and vertigo. These often show up when there has been falls, car accidents, and skiing falls. Structural and medical problems also might present these symptoms; therefore, it is important to have the health care provider check vestibular dysfunction.

During an SE Session, the perception of the sensations is encouraged and they are requested to be reported. The clients may perceive uncomfortable feelings which often may be tolerated while describing them or getting more information about them. The capacity for modulating and tolerating sensations and feelings may be developed and results in control of arousal. The sensations help the therapist to perceive which part of the trauma vortex is happening at each given moment so that the process can be adequately monitored in a titreted way, that is, not to have too intense activation, or not for too long, Enough time should be always given for the nervous system to organize and integrate the experience.

An interesting aspect is how a sensation can couple with another sensation or with another emotion, image, and so forth producing more severe or intense symptoms. An example would be the sensation of pain: it is unpleasant when it is a purely a sensory experience, but it is much more unpleasant or intense when it is accompanied by an emotional sensation (Llinás, 2002).

2. **Image.** The image might be internal or external. The external image results from the input of the five primary senses. The internal image includes visions, dreams, metaphors, and symbols. Besides being visual (sights), the images might be auditory (sounds), tactile (touch), olfactory (smells), and/or gustatory (tastes). People usually find images easier to describe than sensations. When there is a perceptual image, there is also a sensory-motor experience associated with it. When the client describes

sensory input, questions can follow to determine what it reminds them of or what it looks like. These are ways of expanding the perception around a sensation.

3. **Behavior**. The behavior may be verbal or non verbal, voluntary or involuntary, conscious or unconscious, depending on the level of the brain involved. The types of behavior are:

- Voluntary movements, which include movements that are controlled by will such as gestures and rocking, and voluntary movements that become habituated and become unconscious (these are not exactly involuntary, but happen without volitional or cognitive recognition).
- Emotional expressions, which include facial and bodily expressions of anger, fear, shock, joy, relaxation, and settling.
- Postural shifts, which include intentional movements such as slouching, collapsing, bracing, and tilting of head. It also includes preparatory movements for fight or flight.
- Readiness, which is the intentional movement prior to the gross movement.
- Stiffening into freeze. Posture expresses affect. From gestures, the impulse may be inferred.
- ANS responses, which are observable: yawning, sweating, burping, tears, gurgling from the stomach, goose bumps, swallowing, change in skin color, shaking, trembling, acceleration of heart rate, shift in breathing pattern, pupil dilation, limp limbs, and stillness.

- Archetypal gestures and mudras. These are symbolic behavior that unfold organically, as if from the collective unconscious. These behaviors appear to be mostly involuntary. Often they reflect completion of renegotiation. Example, after several pendulations (journey from the trauma vortex to the counter-vortex), the subject presents some a discharge (tears and a sigh), followed by an expression of serenity and a spontaneous mudra with the hands and fingers indicating that the renegotiation has been completed. .

An example of expanding the experience around a behavior would be asking the client, "When you feel that, what would be your impulse to do?" The response could be "Run away." This could then be expanded to, "Where would you like to run away?" The sensory, the image, and the behavior experiences can also be expanded.

4. **Affect.** Affect or emotions have been studied by many scientists and different psychology schools have produced different theories about them (Darwin, 1872). The five categorical emotions concerning genetically determined aspects of behavior described by Darwin (1872) are: fear, anger, disgust, sadness, and happiness.

Figure 14

Darwin's Five Categorical Emotions

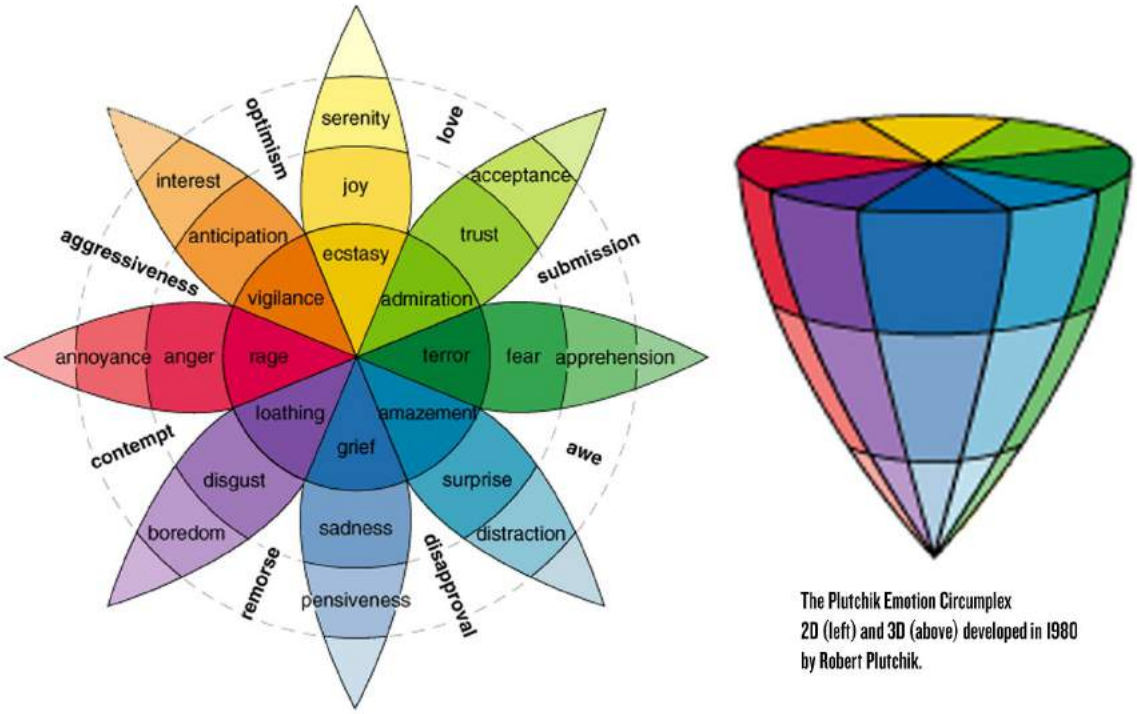
(Retrieved from http://www.psychologyofmusic.co.uk/emotionandphysiology.html)

In 1980, Robert Plutchik studied the emotions and developed one of the most influential classification approaches for general emotional responses known as the psychoevolutionary theory of emotion. He considered eight primary emotions—anger, fear, sadness, disgust, surprise, anticipation, joy and trust, which were then expanded into several subdivisions and combinations: joy versus sadness; trust versus disgust; fear versus anger; and anticipation versus surprise. Each emotion, according to Plutchik (1980), is a behavioral trigger with a high survival value. For example, fear triggers the fight, flight, or freeze response. He considered secondary emotions as combinations of primary emotions. For example, apprehension combined with acceptance become

submission. Plutchik created a two-dimensional wheel and a three-dimensional conical version as tools to understand his psychoevolutionary theory of emotion.

Figure 15

Plutchik's Wheel of Emotions



(Retrieved from http://www.feelguide.com/2011/06/07/the-plutchik-emotion-circumplex-and-the-8-primary-bipolar-emotions/)

From the SE perspective, we say that primary emotions are the ones that are new and spontaneous while secondary emotions are the ones that are repetitive. The emotions expand the possibilities of our felt-sense; there can be mixed emotions or feelings. The emotions result from our physiology and from our state of mind; therefore, the emotions are

spontaneous. However, they can be actively repressed by the cognitive brain.

> *Without exception, men and women of all ages, of all cultures, of all levels of education, and of all walks of economic life have emotions, are mindful of the emotions of others, cultivate pastimes that manipulate their emotions, and govern their lives in no small part by their pursuit of one emotion, happiness, and the avoidance of unpleasant emotions* (Damasio, 2000, p.35).

Positive emotions are thought to be related to the activation of structures of the frontal and lateral hypothalamus accompanied by parasympathetic response (Simonov, 1986). Negative emotions are connected with the posterior and medial part of the hypothalamus and are accompanied by sympathetic activation (Simonov, 1986).

Applications in the SE approach: the emotions are an important complement for tracking sensations, and it can be said that there is no emotion without somatic expression.

5. **Meaning.** The resolution of a traumatic experience may be impeded by the meaning attributed to the event. One example is the guilt that is felt by not being able to cope with sexual harassment of a child by an adult—if the meaning given by the victim is that children are supposed to obey the adults.

Applications in the SE approach. Traumatized people often are focused only in uncomfortable feelings, unable to get in contact with the universe of sensations nor with their own sensations that may present variations even if subtle. It is the task of the therapist to help the client to expand their perception and observe the natural range of

variations which are part of the pendulation process. (SE Manual, 2007). Small shifts of posture, pre-movement and physical representations of emotions may be useful tools for an attentive therapist. It is also desirable for the therapist to have empathic attunement with the client which will result in somatic resonance resulting in great benefits to the process. (Levine, 2010).

Time and trauma. The traumatized person lives in the past, unable to be fully present in the present. He will not sense or have expectations for the future except for the possibility that the traumatic experiences might repeat themselves. The flashbacks perpetuate the feeling as if the nightmare was not over yet. The resolution of the trauma involves re-establishing continuity of self, and the sense of accurate location and timing of present experience.

It is often difficult to approach the traumatic event that we will call as happening in T-0. The experiences prior to the primary traumatic event should be approached in a titrated way. We will call these T-2, T-1. The traumatic event is still a present event. It is too activating to talk about it, and it could lead to re-traumatization. In SE, the focus is on the present felt-sense; it is not necessary to report the traumatic event itself. Later, we could approach the experiences following the primary event T-1 and T-2. As the client completes past traumas, he will move forward in time to the present. The felt sense should always focus on the present time, being aware and describing the somatic responses when we contact those memories.

Applications in the SE approach. The resolution of traumatic stress results in re-establishing present time, the accurate location, and the coherence of the present experience. The world views induced by the trauma should be transformed to more resilient and creative perspectives. As past traumas are resolved, more vitality and

aliveness is perceived. These should be contained and stabilized so that the nervous system can adjust to a higher degree of organization.

Coupling in SE. Coupling involves something that joins two things together, it creates a connection or a link (Morris, 1975). In SE, coupling refers to an association between a stimulus and a response. It also refers to the dual relationship between sensations, images, behavior, affect, and meaning. In healthy coupling, there is flexibility, variability, congruence, and non-fixated relationships between arousal and activation. Healthy coupling dynamics may be uncoupled, deactivated, and discharged. After going through a traumatic experience, any stimulus may be perceived as similar to a prior traumatic experience, and the nervous system responds as it were again a threat. Even something not presenting any threat in the present tense may be generalized and trigger activation leading to traumatic symptoms. There is no flexibility nor variability in response to the stimuli. The responses are not congruent with the stimuli. An example is of someone who was sexually abused by someone wearing a cap. Any person wearing a cap might be perceived as a threat and induce arousal, activation, and symptoms. What triggered the response was seeing someone wearing a cap, which became a cue of danger and was perceived as threat.

Triggers are cues perceived through the five basic senses: sight, sound, gustatory (taste), olfaction (smell) and touch. They might immediately couple with conscious or unconscious memories, images, thoughts, and beliefs, producing arousal.

There are two different types of coupling that should be considered in SE: over-coupling and under-coupling.

In **over-coupling** there is a fixated pattern or a sequence of two or more elements that become bound together. A stimulus may lead to a whole series of reactions. The

over-coupling may happen between any combination of sensations, images, behaviors, emotions, and meanings. An example of over-coupling of two images would be someone saying, “Every time I see that school, I see all those kids running desperately from the murderer.” An example of over-coupling between a sensation and behavior would be someone saying, “Every time I feel anxiety, I eat a whole box of chocolate.”

Over-coupling patterns become fixated and predictable, but they usually happen so fast that one does not perceive the over-coupling when it happens. In an SE session, the perceptions and the reporting should be slowed down, which causes an increase of the activation that can then be released.

The signs of over-coupling may be perceived as constriction, multiple responses or symptoms, limited differentiation of one feeling and the other, and fixed thoughts or associations.

Under-coupling implies in lack of connectedness. In order to handle an overwhelming experience, the elements must be placed away from each other. An example would be when someone says, “When they give me a test, all of a sudden I can’t even read the questions.” Often people feel parts of their body dissociate and say things such as, “it is as if I did not have legs.” Dissociation is a form of under-coupling. In under-coupling the person may look calm, but there are extremely high levels of bound energy that cannot be released. Under-coupling sometimes is preceded by over-coupling as an unconscious attempt to not fragment and hold oneself together. Also over-coupling may be a process on the way out of under-coupling.

Bessel van der Kolk has extensively studied trauma, and the biological responses and its consequences (van der Kolk, 1984, 1985, 1987, 1996a, 1996b, 2002a, 2002b; van der Kolk, McFarlane, & Weisaeth, 2006; van der Kolk & Sapora, 1992. He considers that the intense arousal of under-coupling interferes with information

processing and memory storage (van der Kolk, 1984, 1985, 1987, 1996a, 1996b, 2002a, 2002b; van der Kolk, McFarlane, & Weisaeth, 2006; van der Kolk & Sapora, 1992). The lack of sensory integration may lead to PTSD.

Three levels of dissociation or under-coupling may be considered: the primary level, the secondary, and the tertiary (van der Kolk, 1996b). The primary level of dissociation is when the elements of experience separate. As an example we may observe a person who remembers the traumatic experience but reports about it with no affect or emotion. Trauma survivors often have under-coupled or absent memories, and these are expressed sometimes as flashbacks or strange body sensations.

The secondary level of dissociation has the characteristic of depersonalization, the sense of 'not me'. The person feels like leaving the body and observing it from a distance. Hearing is distorted, and the perception of others is distorted. The perceptions of the surroundings seem unreal, and the observations are perceived as coming from a spectator. The dissociation might be closer to reality at times and sometimes farther out. It is as if this is protects the nervous system from the full emotional and physical impact of the event.

The tertiary level of dissociation occurs when distinct ego states contain the traumatic experience. It is more of a fragmented state of dissociation resulting from the failure of the attempt to prevent fragmentation. It is extremely disorganized and presents with a dysregulated state of the ANS.

Under-coupling is perceived when there is physical or emotional numbness—the person seems spacey, foggy. There is no coherence. Uncomfortable feelings or pain can jump around in different locations. There might be energy in the body but an impulse to flee is not perceived or unavailable. There is disorientation in time and space. The boundaries are poor, and social cues are read inaccurately. Whole body or

parts of it seem to have a lack of tone or are completely collapsed. Cognitive presentation may be confused and difficult to follow (SE Manual, 2007; Baldwin, 2013).

Applications in the SE approach. Students become more aware of habitual patterns of coupling. By noticing their presence, possibilities for new options are also perceived. These perceptions may affect the professional and personal life of the students. The over and under coupling dynamics start to be perceived not as a disease or as a deficiency but as a way the nervous system is trying to cope with such strong challenges.

The gentle approaches of SE are adequate to deal with the different states of coupling, which are different than some therapies where continuous and intense contact with the trauma story may overburden the system and cause re-traumatization.

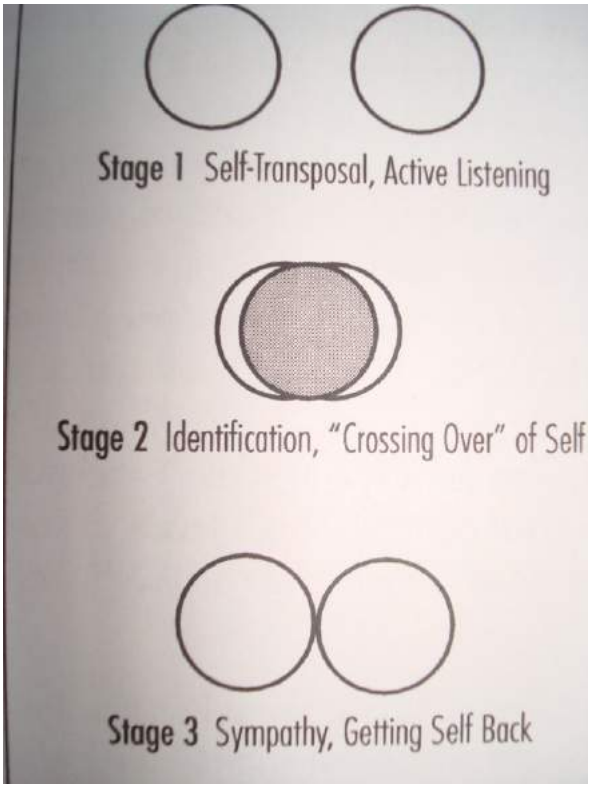
Joining and Merging. Joining is 'to put or bring together', or 'to bring into close association or relationship', while merging is 'blending together so as to lose identity' (Morris, 1975). Merging is an unconscious process. In therapy, merging has to do with counter transference, or the emotional entanglement of the therapist with a client. One of the characteristics of trauma is the loss of boundaries, so the therapeutic relationship with someone who has been traumatized has to be carefully regarded. The therapist's awareness of attunement will enrich the work, but the therapist must protect himself as well as the client from merging (Pearlman & Saakvitne, 1995).

The natural flow of a therapeutic relationship includes three stages. In the first stage, there is self-transposal of the client and active listening of the therapist. In the second stage, there is identification and crossing over of the self. In the third stage, there is sympathy, but both the therapist and the client get their 'self' back. In the first

stage, there is interacting or attuning with the client. In the second stage, there is merging. And in the third stage, the client and the therapist are joined but not merged inappropriately in a sympathetic state.

Figure 16

Empathic Process during a Therapeutic Session (Davis, 1998)



Merging is prone to happen with clients who: have been severely abused and have lost their individual boundaries; come with tremendous needs and are not aware of boundaries; transfer the responsibility of recovery to the therapist.

The therapist must be in continuous alert following the attuning and merging responses. There are some signs that should be perceived as possible merging situations including the following: decrease of contact with own felt sense; unsettling feelings; unclear; tired; or not in the present. Other signs to be alert for include the following: thinking about the client outside of sessions more often than is comfortable; feeling the need to prove that one is doing a good job; feeling uncomfortable when thinking of a

particular client coming to a session; going overtime; having difficulty in differentiating a client's issue from their own.

Applications in the SE approach. With the SE approach, we must be more attentive about merging and continuously guide ourselves and our clients. While studying SE, one must be aware of tendencies to merge with a specific client or in a specific relationship. As therapists, we must honor that the victory over trauma is achieved by the client upon the recovery of the inherent qualities that the person had that were ruptured because of the traumatic event.

Using touch in SE. Even though the use of touch will be more extensively taught in the Advanced Level, some initial concepts are taught at the Beginning Level. The therapists does the tracking of the client through the observation, questioning, and listening to the reports about sensations, feelings, images, behaviors, and meanings. These observations help to understand and follow the healing process of a traumatic experience. Several non-verbal expressions like gestures, postures, breathing, and trembling, also help us to track the client in his process. The tactile sense is just one of the tools to be used in perceiving the client's process. Although the SE approach does not require touch, it is found useful not only as tool of perception but also for the following purposes:

- Containment. Touch can help to stabilize the client. Touch can help to define body boundaries. One example of this is when the therapist places his foot on the top of the client's foot. This gives a sense of grounding as well as a containment.

- Listening. The therapist's hands can have a better perception of the body systems.

- Directing. Direction of movement or facilitation of movement might be intentionally directed by the therapist to facilitate the process, mainly when the desire to move is present but the energy to flow has not returned yet.

- Following. The therapist might be spontaneously inclined to touch a particular area or structure. The touch might give feed back of the pattern of movement or constriction.

- Stimulating. Touching can bring awareness and facilitate sensory input.

- Inhibition. Intensive movement or escalation of a process may be inhibited by touching in a way that slows down or invites the stopping of the movement.

- Integrative. Touch helps fragmented aspects of awareness cohere into more organized attention to the whole.

Caution should be taken to the adequacy of the touch and the way the client receives it as support for the process.

Applications in the SE approach. Touch can be an additional tools used by a therapist. It is a fascinating experience to explore how a simple touch, without movement, can capture and transmit feelings, emotions, and a whole range of responses that go through the system. Touch is mostly valuable when words cannot be used as forms of expression, such as when working with early shock trauma that happened during the pre-verbal development phase. The perception of the power of the touch and the many different expressions that may be transmitted through touch are enriching possibilities for the development of non-verbal expression.

CHAPTER IV

METHODOLOGY

Research Design

Research methods are divided into two main types: quantitative and qualitative. This is a mixed study—it uses both quantitative and qualitative methods.

Quantitative research explains the phenomena by collecting numerical data and analyzing it using statistics or mathematically based methods. In quantitative research, we collect numerical data. The measurement is central to quantitative research because it provides the essential connection between empirical observation and the mathematical expression of quantitative relationships (Creswell, 2007, 2008). A quantitative researcher asks a specific narrow question and works with the null hypothesis—that no statistical significance exists in a given variable set, that is, any difference that occurs is due to chance. Numerical data are collected, and the analysis is done with the help of statistics. In this study, we used the quantitative method when asking the students if they had noticed any change in their professional and personal life while doing the SE Beginning Level Training.

In qualitative research, broader questions may be asked and word data is collected from participants. The researcher looks for themes and describes the information exclusive to that set of participants. Qualitative methods produce information only on a particular case studied, and general conclusions are only hypothetical (Creswell, 2008; Given, 2008). The most common analysis of qualitative

data is the impression of the observer (Given, 2008). One example of this is noted when we asked what changes the students perceived in their professional and personal life while doing the SE Beginning Level Training.

When the phenomena doesn't naturally exist in quantitative form and cannot be presented in quantitative data that can be analyzed statistically, the researcher examines the data, interprets it via forming an impression or grouping, and reports the impression in a structured or quantitative form. Thus, qualitative information may be transformed into qualitative data (Given, 2008).

Quantitative methods can then be used to seek empirical support of the research hypothesis. An example of this in our study is the observation of the responses to the qualitative question about what changes were perceived in their personal life during the SE Beginning Level Training. The qualitative responses were in fact multiple responses from each person such as, "I perceive trembling when I get overwhelmed" and "I perceive I become aggressive when . . .". The researcher at this point grouped the responses given by all participants into five categories, counting how many responses were given in each category. Therefore, the qualitative data could be applied to a quantitative method.

Participants

The participants were 54 students who spontaneously enrolled in the SE Beginning Level Training in Brazil during the period of August 2013 and December 2013. The students were in one of the five classes that were organized by ABT (Associação Brasileira do Trauma – Brazilian Trauma Association). The classes were held in five different cities located in different states and taught by different teachers. The characteristics of these students are as follows:

1. **Age.**

The participants varied in age between 24 and 78 years old.

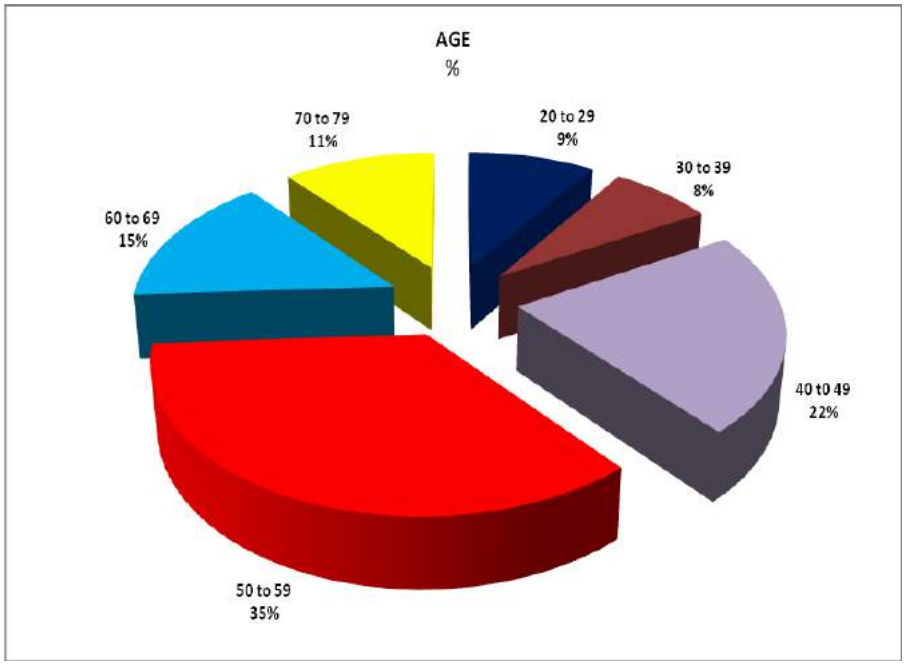
Table 1

Age Distribution

Age	Frequency	Percent
20 to 29	5	9.3
30 to 39	4	7,4
40 t0 49	12	22,2
50 to 59	19	35,2
60 to 69	8	14,8
70 to 79	6	11,1
Total	54	100,0

Chart 1

Age Distribution

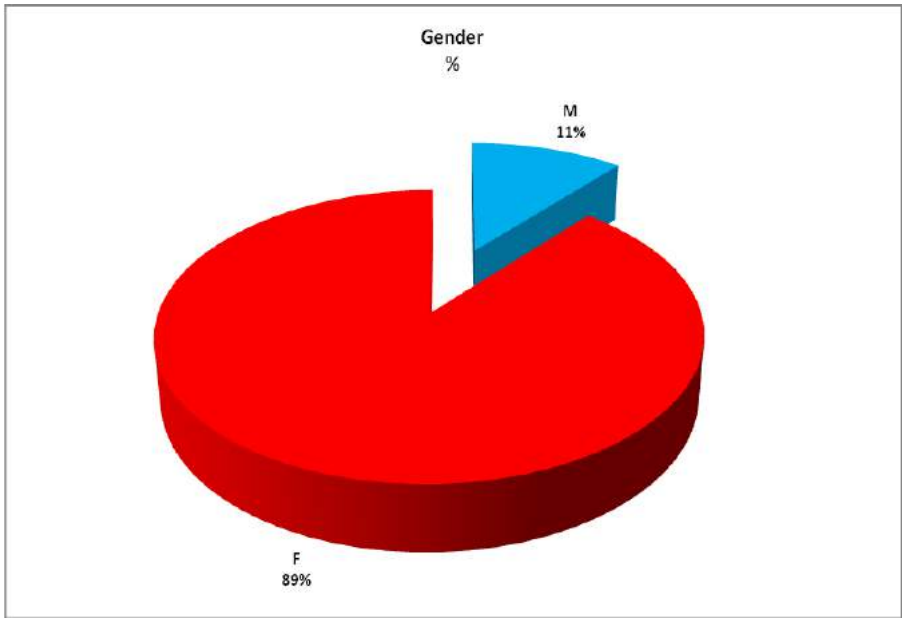


2. **Gender.**

The sample presented mostly female 89% and 11% male.

Chart 2

Gender Distribution

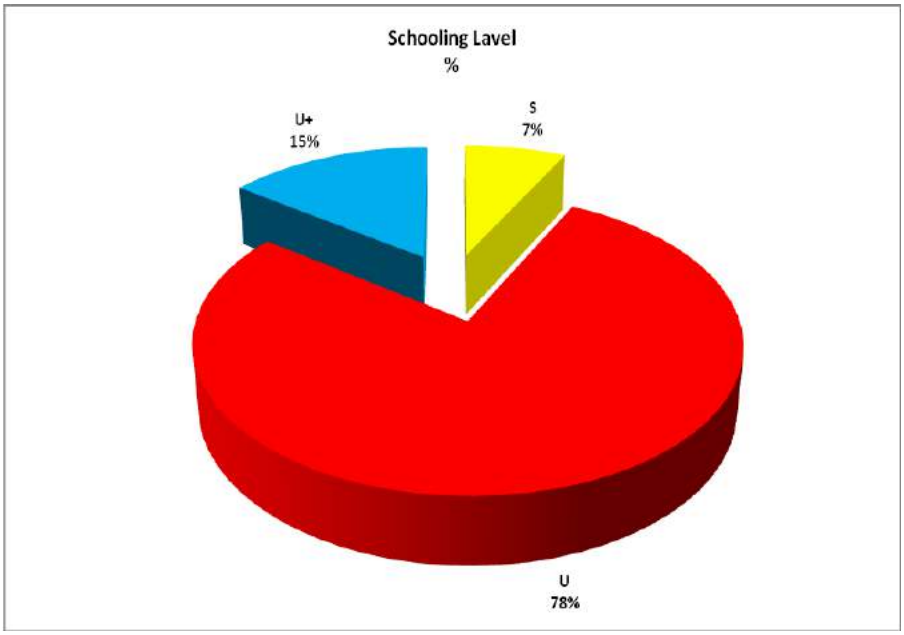


3. **Schooling level**.

The schooling level had the following distribution: 78% had university level (including undergraduate and graduate), 15% had PhD or post graduate studies, and 7 % had secondary school level or technical studies.

Chart 3

Schooling Level Distribution



4. **Graduation**.

Regarding their graduation, we observed a large number of specific graduations that we decided to categorize for easier visualisation.

These are the categories we established:

PSYC – Included Psychology

HEAL – Sciences connected to Health. These were: Biology, Medicine, Nutrition, Physiotherapy, Odontology, Physical Education.

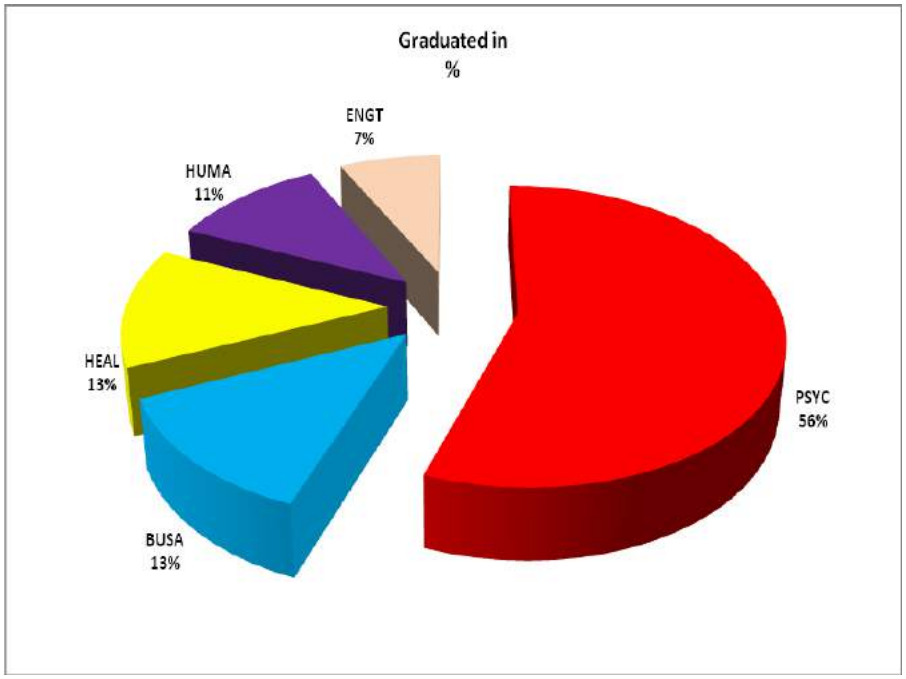
HUMA – Included Humanities, Arts and Social Sciences. These included those with graduation in Anthropology, Art, Phylosophy, Theology, Journalism, Geography, Social Sciences.

ENG – Engineering, technologies, and electronics.

BUSA – Business – Law, which included Accounting, Finances, General Business, International Business, Management (Administration), Marketing

Chart 4

Graduation Distribution



The largest group was Psychology (PSYC 56%). Since Psychology is also associated with health sciences (HEAL 13%) if we added both, we would have a total of 79 % of people with health related graduations.

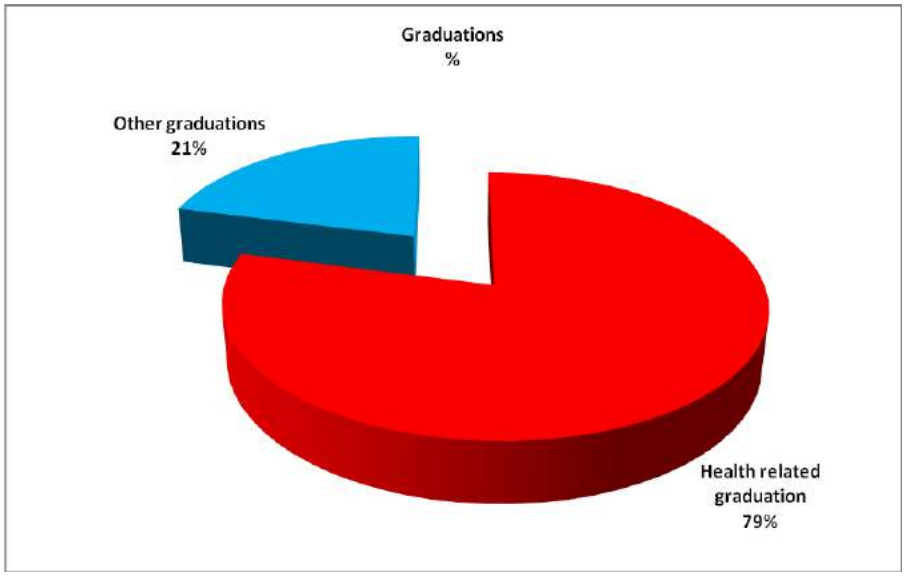
Table 2

Graduation Distribution

Health related graduation	79%
Other graduations	21%

Chart 5

Field of Graduation Distribution



5. Professions.

The item professions also had many different responses; therefore, it was decided to group them in order to not have too many subdivisions.

These are the groupings that we considered for this work:

PSY – Psychologists, psychotherapists, therapists, coaching

HEA – Other health professions except the above. MDs, Emergency medicine, holistic therapy, physiotherapist, body therapist, personal trainer, homeopathic MD, dentist.

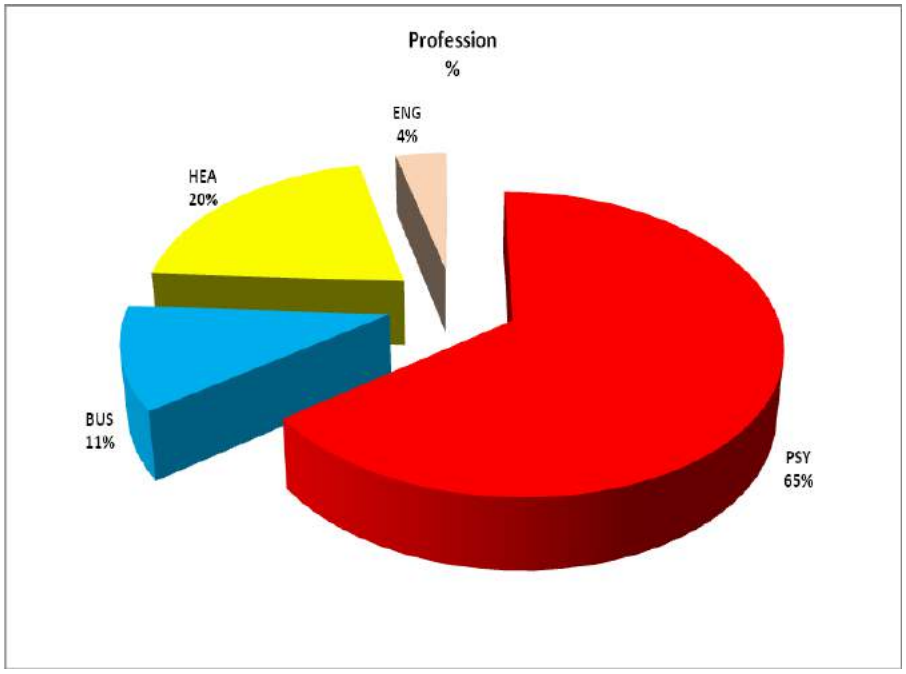
ENG – Engineering, and associated

BUS – Business, administration, lawyer, economist.

CLS – Clerical support work

Chart 6

Profession Distribution



The most frequent profession was the one related to Psychology (PSY 65%), followed by other Health professions (HEA 20%). Since both are professions connected to health, if we added both, calling them PSY+HEA, we would have 85% of the subjects with Health related professions.

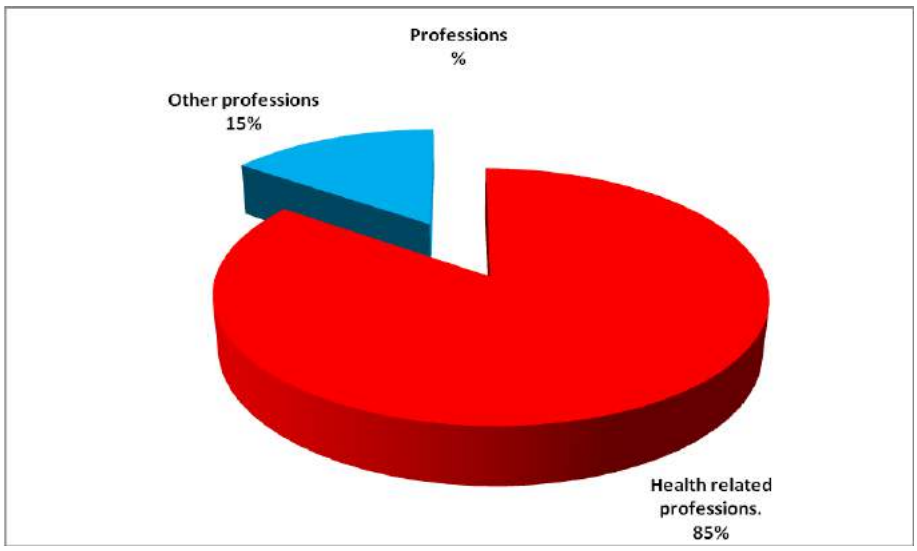
Table 3

Profession Percentages

PSY+HEA	85%
Other professions	15%

Chart 7

Profession Distribution (health related and other)



These participants went through the SE Beginning Level Training modules consisting of three, 4-day live trainings that were spaced two months apart. The SE Beginning Level Training took 12 days over a period of five months to complete.

Characteristics of the Classes

This study included five classes that were held during the period from August 2013 to December 2013. The classes were held in different cities of Brasil, located in different states: São Paulo (State of São Paulo), Rio de Janeiro (State of Rio de Janeiro), Brasilia (in Distrito Federal), Porto Alegre (State of Rio Grande do Sul), and Salvador (State of Bahia). They were taught by different faculty.

The number of students per class varied from 8 to 12 students per class. In total there were 54 students. The distribution was the following:

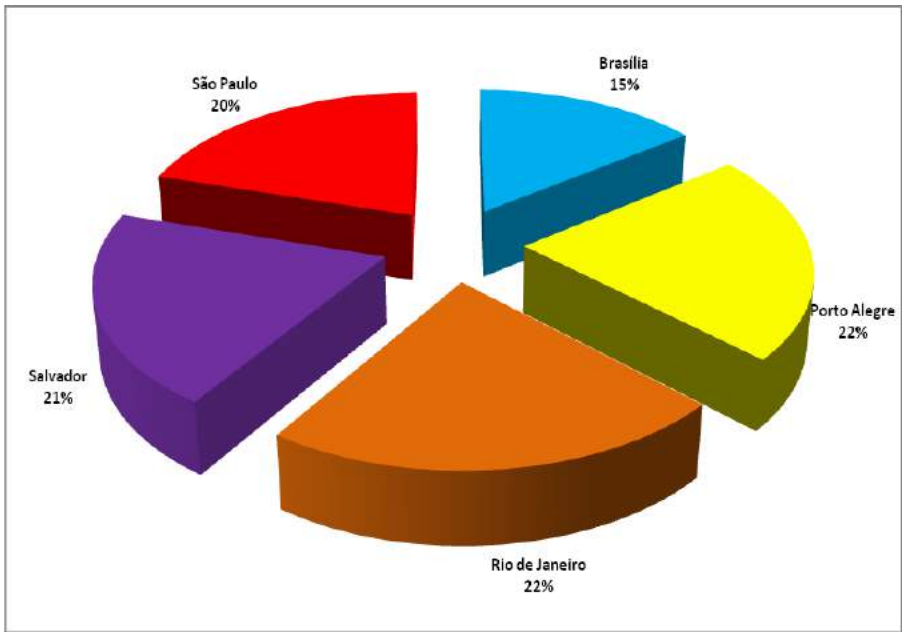
Table 4

Regional Distribution

Cities	Frequency	Percent
Brasília	8	14,8
Porto Alegre	12	22,2
Rio de Janeiro	12	22,2
Salvador	11	20,4
São Paulo	11	20,4
Total	54	100,0

Chart 8

Regional Distribution (cities)



The variation of the number of students was from 12 to 8. Rio de Janeiro had the biggest class (12 students) and Brasilia had the least (8 students). The classes therefore were small.

Instruments

A formulary with six topics was used (see Appendix B)

Three of these topics were closed questions. The students were instructed to mark either Yes or No for their response. The following questions were asked:

1 - Have you ever had trauma in your life? (closed question)

2 - From your point of view, did this SE Beginning Level Training have some influence in your professional life? (open ended question)

3 - From your point of view, did this SE Beginning Level Training have some influence in your personal life? (open ended question)

If they answered yes to the open ended questions (from your point of view, did this SE Beginning Level Training have some influence in your professional life and in your personal life), they were requested to describe in detail the ways in which the SE Beginning Level Training had influenced their professional life and their personal life (empty lines were provided on the questionnaire).

The sixth topic was not specifically a question but a space left with an invitation to fill in the next empty lines. It was noted as: "Any additional comment you would like to make."

The language used was Portuguese, the natural language of the students. Attached is the formulary in Portuguese (see Appendix B) as well as its translation in English (see Appendix C).

As instruments, we had a HP Laptop computer. We used the Word and Excel programs for making the charts and registering the data of the study. We used SPSS.20 (Statistical Package of Social Sciences) for the statistical analysis.

Data Collection

Contact with the students occurred only once. This was considered an anonymous one-time contact. This contact was immediately after the conclusion of the last day of class of the SE Beginning Level Training so that there was no involvement with the evaluation process or interference with the normal class procedures.

The assistants invited the students to participate. The assistants verbally discussed the formulary (questionnaire) the students would receive. The students were given verbal informed consent: the assistants explained that the questionnaire's purpose was for research; that it was optional to respond; and that at any time they would be allowed to interrupt their participation (end the process of filling out the questionnaire). They were assured that the responses would be kept anonymous.

According to IUGS IRB standards for informed consent and confidentiality, it is not required that the subjects sign any forms. However, because of local standards in Brazil and attending local requirements, an informed consent and confidentiality form was signed in the natural language of the participants. These are attached as Appendix D in Portuguese and Appendix E in English. The students wishing to participate (all students chose to participate) received an authorization sheet with informed consent and confidentiality statement. The written consent form was immediately separated from the response sheet so that the responses were anonymous for data analysis. Upon collection of the information, the researcher proceeded with the analysis.

Analysis of Data

The data collected from the students was analyzed in the following way: the closed questions went through the quantitative procedures, which included registering the results and proceeding to statistical analysis. The open questions were registered as

qualitative responses. They were then grouped according to similar wording and meaning and then proceeded with quantitative analysis.

Commonalities that seemed interesting, or that would be meaningful, were established.

Statistical procedures. The research data were processed through the program SPSS.20 (Statistical Package of Social Sciences). The statistical test applied was the Chi square, because the variables involved were nominal. The level of significance was 1% ($p<.01$). To illustrate this work the Excel program was used.

CHAPTER V

RESULTS

Presence of Trauma in Life

In response to the question: "Have you ever had trauma in your life?", 49 students responded 'Yes' (90.7%) and 5 responded 'No' (9.3). The conclusion that most of people had trauma in their lives is valid (Chi Square = 35.85185; $p<0.001$).

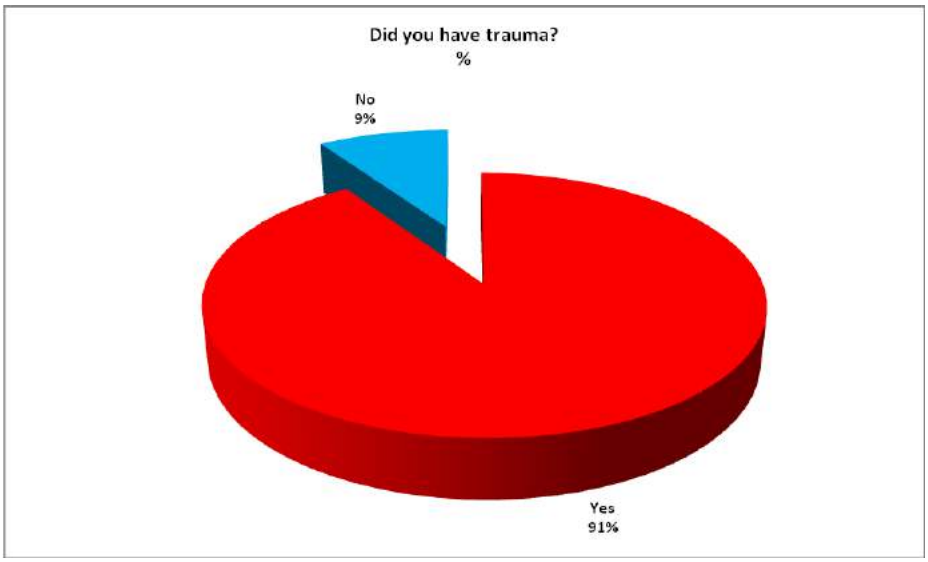
Table 5

Response to Question: "Have you ever had trauma in your life?"

Did you have in your life trauma?		
	N	%
Yes	49	90.7
No	5	9.3
Total	54	100

Chart 9

Response to the Question: Have you ever had trauma in your life?



Influence of the Training in Professional Life: Yes or No

In response to the question: "From your point of view, did this SE Beginning Level Training have some influence in your professional life?" 49 students (90.7%) marked 'Yes', and 5 students (9.3%) marked 'No'. Therefore, the conclusion that the SE Beginning Level Training did influence the professional life of students is a valid conclusion (Chi Square =35.85185; p<0.001).

Table 6

Response to the question, "From your point of view, did this SE Beginning Level Training have some influence in your professional life?

Did this training influence your professional life?		
	N	%
Yes	49	90.7
No	5	9.3
Total	54	100
	Chi Square =35.85185	p<0.001

Chart 10

Response to the Question: Did this training influence your professional life?

Influences in Professional Life: Describe the Influences?

The question, "From your point of view, did this SE Beginning Level Training have some influence in your professional life?" had two tiers of response. First was a 'Yes' or 'No' response. The second tier was to explain the influences in detail. The responses had many variations, so we had to group them according to their meaning.

Five categories resulted from this:

1. Getting or adding new tools
2. Use these new tools to better help the other
3. Ability to amplify the perception of the other
4. Deal better with my job
5. Direct professional activities towards SE

Some of the student responses covered several different topics. Thus, 60 responses were included in the results even though there were only 54 students in total.

Table 7

Distribution of Responses: Grouping of Influences Perceived in Professional life

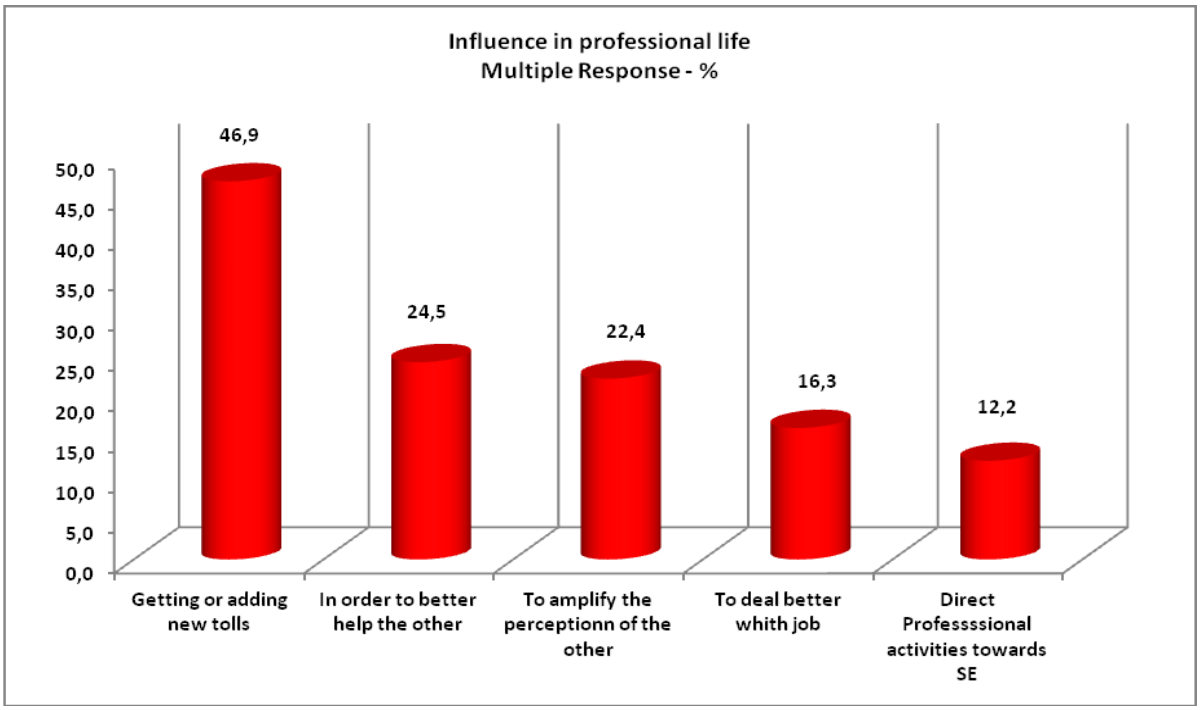
Professional Frequencies

		Responses		
		N	Percent	%
Influence in professional life(a)	Getting or adding new tools	23	38.3	46.9
	Use tools to better help the other	12	20.0	24.5
	Ability to amplify the perception of the other	11	18.3	22.4
	Deal better with my job	8	13.3	16.3
	Direct professsional activities toward SE	6	10.0	12.2
Total		60	100	122.4

Note: (a) = dichotomy group tabulated at value 1.

Chart 11

Response to the Question: What were the influences of this SE Beginning Level Training in your professional life?



In order for the qualitative responses to have a quantitative representation, the responses were grouped into categories that we established in order to group the phrases that had similarities. There is, however, a richness in the details of the qualitative responses where the students could freely express their perceptions. We are reporting them under the categories that were established by the researcher.

1. **Getting or adding new tools**
    - "I have more things to add to my previous knowledge."
    - "SE is the tool that I was missing."
    - "SE is a nice complement to my work."
    - "It is an additional tool in my box of thoughts."

- “I have new possibilities of intervention in the practice with my patients.”
- “I am beginning to use the new learnings and practices in my therapeutic sessions.”
- “I have included SE in my work as psychotherapist and as teacher of neurobiology.”
- “I understand the maintenance and dynamics of stress – it’s about perception of activations and discharges.”
- “The inclusion of the body in psychotherapy amplifies the possibilities for healing and transformation.”
- “I was able to improve my work. I am able to have a greater sensibility.”
- “I have more reflection in my clinical work.”
- “It was a discovery in my therapeutic languaging and the learning about sensibility in therapy – great therapeutic tools.”
- “I have been getting new tools.”
- “Through this new tool I can generate changes, and I can have enrichment of my clinic.”
- “I have improved the capacity to efficiently deal with traumatic situations.” “I have added this approach in my private office with children and with groups and very good results were obtained.”
- “I am more attentive and open in my private office – and I am also deeper.” “It is a new tool to be used in therapy with my clients, helping to understand and explain them about their systems and the issues that they bring to the session.”

- "It was an expansion in the area of somatic therapy."
- "I will add SE approach with the patients I see."
- "I have added this knowledge to my working with homeopathy."
- "It was about getting new abilities to act as psychologist in a more efficient way and with more comforting way to deal with trauma."
- "This tool helps to stabilize people before starting the work."

2. **Use these new tools to better help the other**

- "I want to give support to the development of those I see."
- "SE reinforces and amplifies the capacity of the human being be helped."
- "I have more resources to help people to perceive themselves."
- "I am more focused, attentive, and conscious – I am more patient with myself and with the patients, more relaxed and I can be more with myself when I see my clients."
- "I have been able to help my clients with small drops of SE, and they can integrate these somatic perceptions and perceive how they are in life."
- "I ask my clients to make a connection with their bodies before they tell their traumatic story, I ask to locate in their bodies."
- "I can work with more safety, where the client takes over his own process." "My clients have benefits by the new way of looking and treating."
- "I perceive more my yoga students and I can help them more."
- "I can help the clients in the healing of the traumatic experiences they went through."

3. **Ability to amplify the perception of the other**

- "I can have a better observation of what happens in the body of the other."
- "I am able to listen, accept the other without judgment, and observe the response and the needs of the body."
- "I am working with people with less fear and with less anxiety – I can perceive better when I look and I hear."
- "I have been observing more the somatic reactions of my clients."
- "I can observe better and thus I am interacting more in the sessions."
- "I have better observation and interaction with the client."
- "I can pay more attention to the patient which helps to complete and integrate the reactions and the emotions."
- "I can include with more confidence the felt sense and the tracking."
- "I have improved my capacity of presence and serenity when I see somebody activated." "I can improve the communication with people."
- "I have developed the capacity of observing."

4. **Deal better with present profession**

- "I can deal better with the stress in my present job."
- "I have improved learning how to deal in my contacts with colleagues at my work."
- "I feel that the moment I feel well resolved with myself, the professional changes came together."
- "Today I am not hostage of my work."

- "I have pleasure with what I do, I rest while working, I know how far I can go with my client without burden to myself."
- "I feel at home personally and professionally."
- "I perceive better my students, being able to perceive some resistances or behaviors."
- "I act with more safety."
- "I don't work with SE, however the concepts have been useful for my job." "I am able to deal with different people, accept diversity, be more exposed, I may expose more frequently my ideas, opinions, and be more regulated and organized."

5. **Direct professional activities towards SE**
    - "I plan to direct my professional activities towards the use of SE."
    - "It's a simple approach with very good results – I have something to offer to my future clients."
    - "I am finding a new way of working."
    - "I am not working now, but I would like to start working in this area."
    - "I am stimulated to work with SE, it is a wonderful approach."
    - "A new possibility has been open in my clinic."

Influence of the Training in Personal Life: Yes or No

In response to the question: "From your point of view, did this SE Beginning Level Training have some influence in your personal life?", 52 (96.3%) students marked 'Yes', and 2 (3.7%) marked 'No'. Therefore, the conclusion that the SE

Beginning Level Training had some influence in the personal life of the students is a valid conclusion (Chi Square =46.2963; p<0.001).

Table 8

Response to the Question "From your point of view, did this SE Beginning Level Training have some influence in your personal life?

Did this training influence your personal life?		
	n	%
Yes	52	96.3
No	2	3.7
Total	54	100
	Chi Square =46,2963	p<0.001

Chart 12

Response to the Question: Did this training influence your personal life?

Influences of the Training in Personal Life: Describe the Influences?

The question, "From your point of view, did this SE Beginning Level Training have some influence in your personal life?", was initially marked 'Yes' or 'No'. This was followed by the direction to write about these influences. The responses had many variations so we made groups according to their meaning or to the expressions that they used. Six categories resulted:

1. Self-perception
2. Self-regulation
3. Perception of patterns of behavior
4. New meaning to their life story
5. Perception of the other and of the surroundings
6. Relationships

Some of the subjects gave more than one response, covering several different topics; therefore, 94 responses were included, while there were only 54 students in total.

Table 9

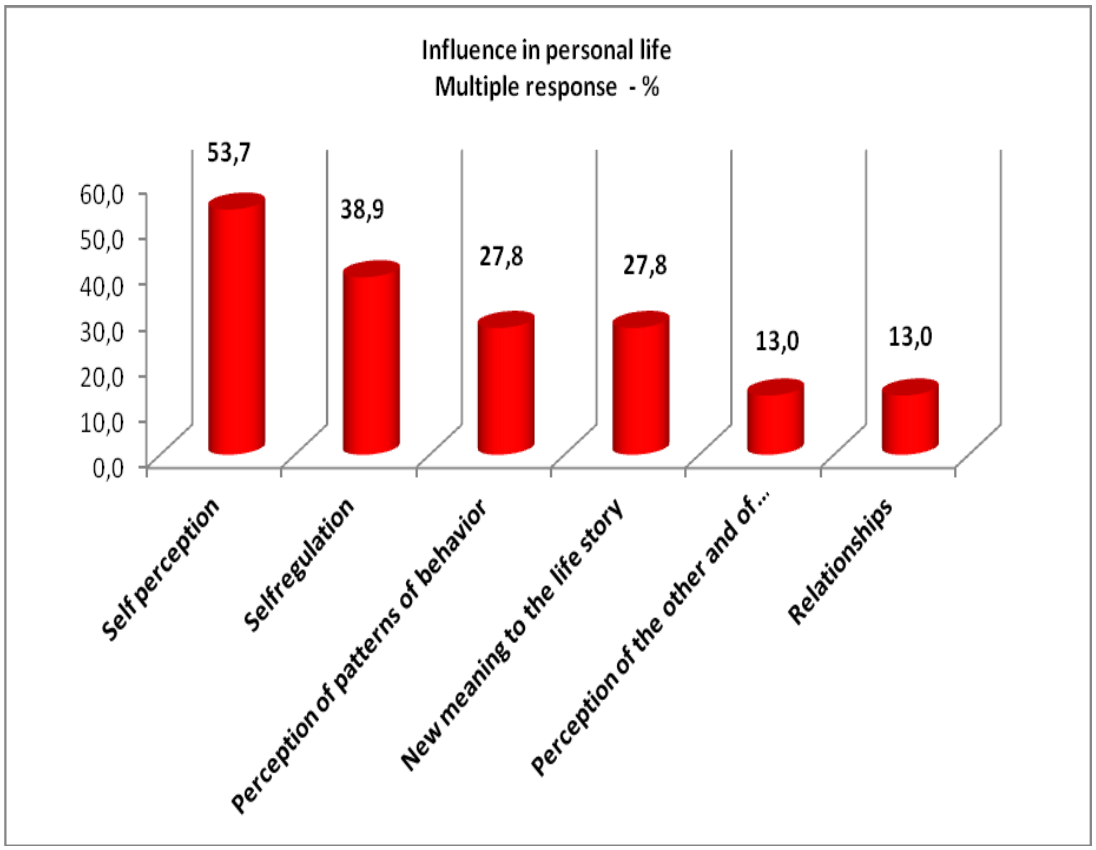
Distribution of Reponses: Grouping of the Influences Perceived in Personal Life

		Responses		Percent of Cases
		N	Percent	N
Influence in personal life(a)	Self-perception	29	30.9	53.7
	Self-regulation	21	22.3	38.9
	Perception of patterns of behavior	15	16.0	27.8
	New meaning to their life story	15	16.0	27.8
	Perception of the other and of the surroundings	7	7.4	13.0
	Relationships	7	7.4	13.0
Total		94	100	174.1

Note: (a) = dichotomy group tabulated at value 1.

Chart 13

Response to the Question: Which were the influences of this SE Beginning Level Training to your personal life?



In order for the qualitative responses to have a quantitative representation, the responses were grouped into categories that we established in order to group the phrases that had similarities. There is, however, a richness in the details of the qualitative responses where the students could freely express freely their perceptions. We are reporting them under the categories that were established by the researcher.

Influence(s) in Personal Life

1. ***Self-perception***

- "I have developed a better perception of my body."

- “I have developed sensorial perception”.
- “I have a better perception of how my body functions.”
- “I have better perception of myself.”
- “I perceive my limitations.”
- “I have self compassion.”
- “I became more conscious of sensations and perceptions that are hidden.”
- “I have bigger capacity of observing myself.”
- “I am more attentive to my sensations and to my reactions.”
- “I became more present in my body.”
- “I feel more safe, and I trust more my instincts.”
- “I learned how to get in contact with my body and perceive it.”
- “I became more aware of my tendency to dissociate.”
- “I am more able to get in contact with my needs.”
- “I have more intimacy with my body and with my sensations.”
- “It is as if my soul was able to recover my body that had been forgotten.”
- “It helped me to perceive more.” “I am more conscious.”
- “I perceive my growth by knowing myself better and thus my personal life became richer.”
- “I perceive more my limitations.”
- “I perceive when my body has completion of my somatic responses.”
- “It helped me to develop perception of myself and this made me feel better.”

2. Self-regulation

- "I perceive I can self regulate better."
- "It is easier for me to deal with stressful situations of my life."
- "I have been able to experience internal states of confidence and well being, and to develop tools to get to these states."
- "I feel myself more integrated."
- "I have increased the capacity for self-regulation."
- "I feel more centered."
- "I perceive more the signs of activation, track them and facilitate them."
- "I can perceive what is not well and I can focus on what is well."
- "I learned to trust the self healing capacity."
- "I could perceive a more integrated existence."
- "I was able to improve my vital discharges."
- "I feel more integrated and flexible with a feeling of tranquility as if I were always at home."
- "I developed my self-regulation and containment."
- "I am releasing old charges – learning to self regulate myself and to resource myself."
- "I feel myself safer as a person – I feel alive and with motivation to do things that are important to me."
- "I was able to liberate tensions of my body."
- "I can live in a more resilient way."
- "I am slowly defreezing and feeling much support."

- "I am able to understand the physiological functioning in mental health."
- "I can be in my life with more lightness."
- "I feel I have more resources - I trust myself more."
- "I trust the self-regulation of the body."

3. Perception of patterns of behavior

- "I can identify the factors that would put me in stress."
- "I can perceive how I react to the fact and to the people."
- "I perceive the wounds that were left from the situations that I would consider normal, I perceive patterns of behavior."
- "I perceive how many events can diminish our potency for life."
- "I am living here and now, which is more pleasurable and I have more tranquility."
- "I can express myself in a more natural way."
- "I can recognize limitations and difficulties that would block my personal relationships."
- "I perceive I have a strong tendency to dissociate, which indicates that I need to make myself stronger and develop my state of presence."
- "I have more perception/consciousness of the patterns of behavior."
- "Some pictures that I thought they would never change in my life start to signal the possibilities of change. I perceive more balance and find new ways of being in this world."

- "I have restored limits that were ruptured, I have amplified my containers, I have better sense of orientation. I have more appropriate responses."
- "I learned to understand better my patterns of behavior."
- "I have more confidence, understanding, and I can deal better with my activations."
- "I can perceive better the things that activate my symptoms."

4. ***New meaning to their life story***

- "I have integrated my symptoms with my story."
- "I perceive things that seemed normal to me but left scars."
- "I entered in contact with a fear and a feeling of abandonment that I did not know it was there. It helped me to elaborate old experiences."
- "I have resources to deal with symptoms that were crystalized for long time." "I was able to transform traumatic events that I had in my childhood mainly with losses."
- "I worked with some aspects that had remained from traumatic experiences I had."
- "I am changing some of my beliefs, and I am amplifying the way I see the world."
- "I worked with several personal issues and it was helpful and I feel I evolved."
- "I entered in contact with a pain which I did not know how deep it was – it was very healing."
- "It was very nice to be able to access traumatic nuclei with safety, tenderness, clarity, and support – being able to feel myself whole."

- "I was able to perceive the possibility of renegotiating trauma and live in a more happy way, with more tranquility and resilience."
- "I was able to get information that became a resource for the story of my life."
- "I became conscious of some traumatic experiences I had."
- "I was able to liberate myself from development trauma and my birth – I have now more confidence in life."

5. ***Perception of the other and of the surroundings***

- "I have better perception of what is around me."
- "I perceive the factors that would make me stressful."
- "I have better perception of what is happening now."
- "It is easier for me to perceive another person."
- "I have a new vision of the other person."

6. ***Relationships***

"I understand better the dynamics of the family."

"I learned how to listen, reflect, and act, instead of just reacting."

"I perceive other ways of interaction in situations of family conflicts."

"I am able to be more loving and attentive with people and with my family."

"It has become easier for me to have a relationship with other because of the recovery of my identity."

"I had an improvement in my relationships."

"Today I respect more my timing and the timing of other people."

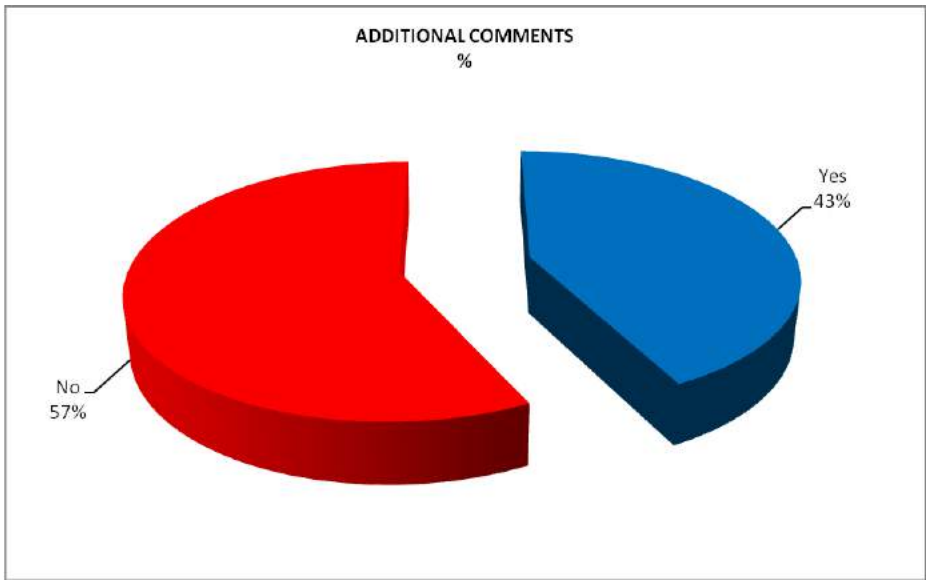
"I have increased my capacity to receive, to trust, I have new meanings."

Additional Comments

The last question was an open question: "Would you like to make any additional comments?" This question was followed by five empty lines to be filled if wished. Additional comments were done by 23 (42.6%) students.

Chart 14

Percentage of Students Who Made Additional Comments



The additional comments also had a great variety of expressions, many of them had the same meaning, so we decided to group them into four groups.

1. ***Interest to apply SE***. This group included all those responses that indicated enthusiasm or willingness to include SE in their practice, or willingness to get started with SE practice.
    a. "I would like to use SE in my professional area, which is working with safety."

b. “This training brought me a new paradigm in relationship to the clinical approach to the patient, as a very powerful tool towards healing.”

2. ***Appreciation of SE as an approach***. In this group were included all those comments that were praising SE as an approach.
    a. “The way SE works really impressed me – it is a way of work without invading the other, which is amazing.”
    b. “I value specially the respect and care, the gentleness and simplicity of this approach – this is how I perceive it and this is how I would like to be using it.”
    c. “SE is giving me the opportunity for a bigger external and internal flexibility.”
    d. “I believe we may keep more focus in problem solving through the body and not through rational ways coming from theories we have been using as professionals.”
    e. “I am thankful for the opportunity that was opened in my life.”
    f. “I am not sure, but it seems that my writing has changed after I did some personal work with SE. It seems that my writing has more freedom.”
    g. “SE has been very important in my life – through the training I was able to understand some attitudes that are present and need to be worked on.”
    h. “I have been able to deal more clearly with difficult situations.”
    i. “I am more resilient.”

3. ***Appreciation of the training***. In this group were included all of the comments praising the training, the faculty, the assistants, the organization, etc.
    a. "This experience of exchanging experiences with my coleagues and the way I was accepted feels very good."
    b. "As the training went on, I perceived the importance that this work can bring to my professional life and for sure in my private life."
    c. "I perceive that the faculty and the group of assistents are tuned, and function well with the students."
    d. "I see that the SE training is not a training where people are worried to pass on techniches – this training is about facilitating the student to know himself better and thus to form people – the same way that it helped me to have a better relationship with the other through the process of recovering my identity."
    e. "Among all the things that I studied up to this date (I had four graduations in total, before SE), this is the first time that I have been so deeply touched, with gentleness and efficiently."
    f. "The technique, the format, the topics – everything that was presented to us was wonderful. The faculty and assistants should receive congratulations."
    g. "I am very happy I got here."
    h. "I would like to thank the opportunity that has been open for my life thanks to this training."

i. “I am enjoying this training very much, and I have been thinking already about the Intermediate level and specially the Advanced level.”

j. “It is fantastic the organic format and the experiential aspect of this training – It is absolutely necessary the deep inside of the faculty and of the assistants – My body and my unconscious have been thankful – not only my cognitive part.”

4. ***Suggestions***. This group included suggestions from the students, which included topics such as making SE better known, making SE trainings available in more places, and so forth.

    a. “It would be interesting to evaluate the influences of this training within a month – allowing some time for the knowledge to be settled down.”

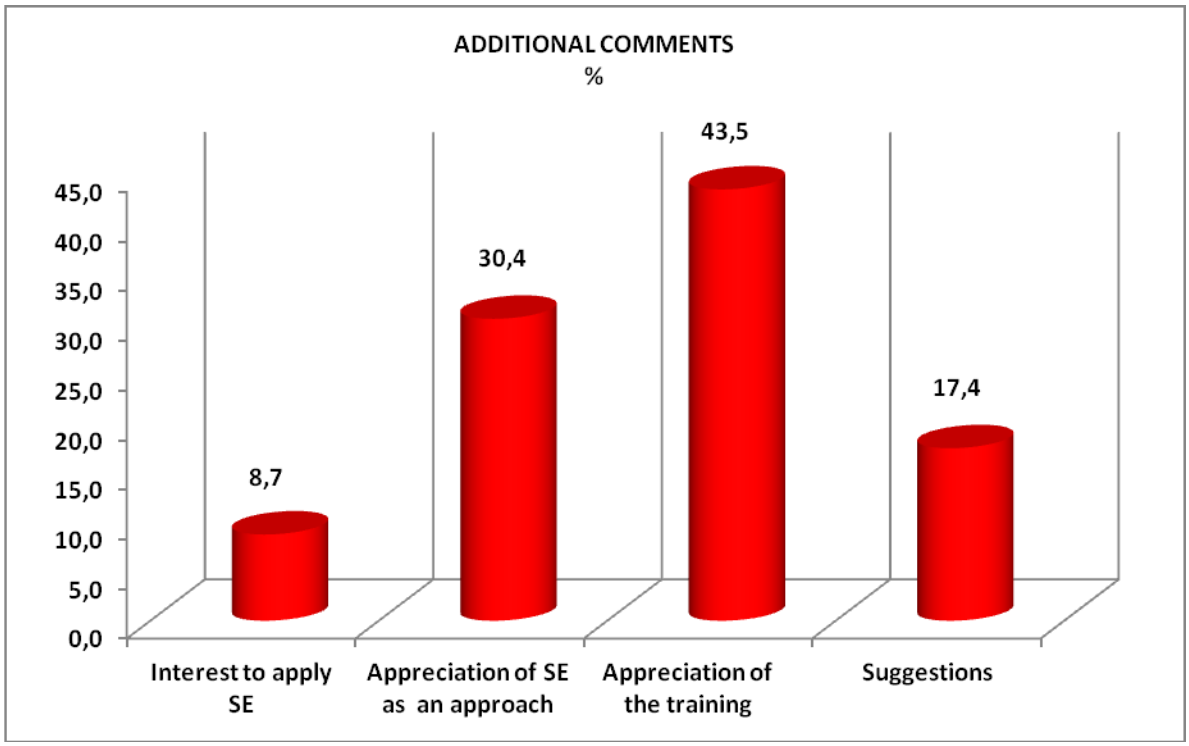
    b. “An exercise of pendulation was done, it would be interesting to explore further.”

    c. “I wish there were more SE professionals in Brasilia.”

    d. “It would be nice to have SE scientifically proved effective – this would give adequate credibility so that the technique be more respected and for people to be able to access the treatment.”

Chart 15

Distribution of Additional Comments



Additional Correlations

Searching for further conclusions that could be made with the results obtained, we came to the following observations resulting from a crosstabulation count.

1. ***Influence in professional life versus influence in personal life***.

   When we considered the relationship between the students who felt an influence in their personal life and made a crossing with those who felt influence in professional life, we observed that they are related. That is, it is statistically significant that those who perceived an influence in their professional lives also perceived an influence in their personal lives and vice versa. This conclusion is statistically significant (p= 0.000).

Table 10

Influence of Training in Professional Life versus Influence of Training in Personal Life

Did this training influence your professional life?		%
Yes	48	92.3%
No	4	7.7%
Total	52*	100%
* Subjects that had influence in their personal life		
p = 0.000		

2. ***Influence in professional life versus present profession.***

Regarding the correlation between the influence of the training in professional life and the students' present profession, we made two groups: one with health professionals including psychologists and other health professionals, and the second group with the other professions. The cross tabulation indicated p=0.433, which means that the relationship is not statistically significant. That is**,** there is an influence of the training in the students' professional lives, no matter their present profession.

Table 11

Influence of Training in Professional Life versus Present Profession

Did this training influence your professional life?	Present Profession		
	PSY + HEAL	OTHERS	Total
Yes	41	8	49
No	5	0	5
Total	46	8	54
P = 0.433			

3. ***Influence in personal life versus present profession***.

Regarding a correlation between the influence of the training in the students' personal life and their present profession, we made two groups: one with health professionals including psychologists and other health professionals, and the second group with the other professions. The cross tabulation indicated p=0.723, which means that the relationship is not statistically significant. That is, there is an influence of the training in the students' personal lives no matter their present profession.

Table 12

Influence of Training in Personal Life versus Present Profession

Did this training influence your personal life?	Present Profession		
	PSY + HEAL	OTHERS	Total
Yes	44	8	52
No	2	0	2
Total	46	8	54
P = 0.723			

4. ***Influence of training in professional life versus age***.

We made two groups: those who were less than 40 years of age and those who were older than 40 years of age. Regarding the cross tabulation count of the influence of the training in professional life and age, for both the students who were younger than 40 years of age and the students who were older than 40 years of age do not indicate a statistical valid relationship (p=0.692). That means that the subjects perceived influence of the training in professional life no matter their age.

Table 13

Influence of Training in Professional Life versus Age

Did this training influence your professional life?	Age		
	< 40	> 40	Total
Yes	8	41	49
No	1	4	5
Total	9	45	54
p = 0,,692			

5. ***Influence of the training in personal life versus age***.

In order to have a more clear view, we made two groups: those who were younger than 40 years of age and those who were older than 40 years of age. Regarding the cross tabulation count of the influence of the training in personal life and age, for both the students who were younger than 40 years of age and the students who were older than 40 years of age do not indicate a statistical valid relationship (p=0.614). That means that the subjects perceived an influence of the training in personal life no matter their age.

Table 14

Influence of the Training in Personal Life versus Age

Did this training influence your personal life?	Age		
	< 40	> 40	Total
Yes	9	43	52
No	0	2	2
Total	9	45	54
p = 0,614			

6. ***Influence of the training in professional life versus gender***.

Regarding the cross tabulation count of the influence of the training in professional life and gender, there is no statistically valid relationship (p=0.459). That means that the subjects perceived an influence of the training in professional life no matter their gender.

Table 15

Influence of the Training in Professional Life versus Gender

Did this training influence your professional life?	Gender		
	M	F	Total
Yes	5	44	49
No	1	4	5
Total	6	48	54
p = 0.459			

7. ***Influence of the training in personal life versus gender***.

Regarding the cross tabulation count of the influence of the training in personal life and gender, there is no statistically valid relationship (p=0.212). This means that the subjects perceived influence of the training in personal life no matter their gender.

Table 16

Influence of the Training in Personal Life versus Gender

Did this training influence your personal life?	Gender		
	M	F	Total
Yes	5	47	52
No	1	1	2
Total	6	48	54
p = 0.212			

8. Influence of the training in professional life versus the location of the training.

The cross tabulation of those who felt the training had a professional influence versus the location of the training does not present statistical validity (p= 0.844). That means that the professional influences were felt no matter where the location of the training. Furthermore, because each location had different faculty, it could be said that the professional influences were felt no matter who the teacher was.

Table 17

Influence of the Training in Professional Life versus the Location of the Training

	Local
São Paulo	10
Rio de Janeiro	12
Porto Alegre	11
Brasília	7
Bahia	10
Total	50
p=0.844	

9. ***Influence of the training in the students' personal lives versus the location of the training.***

The cross tabulation of those that felt the training resulted in personal influences versus the location of the training does not present statistical validity (p= 0.927). That means that the personal influences were felt no matter where the location of the training was. Because each location had different faculty, it could be said that the personal influences were felt no matter who the teacher was.

Table 18

Influence of the Training in Personal Lives versus the Location of the Training

	Local
São Paulo	10
Rio de Janeiro	12
Porto Alegre	11
Brasília	8
Bahia	11
Total	52
p=0.927	

CHAPTER VI

DISCUSSION

There are no reports of previous studies on the effects of the SE training on the personal and professional life of the students. Therefore, this is a pilot study focusing on the perception of the students after having gone through the Beginning Level of the SE Training, where it was questioned if such training affected their personal and/or professional lives and in which way.

The initial information collected indicate that the participants were mostly female, the majority between 40 and 59 years old, university level, graduated in health related areas and presenting professions also related to health. As to the question if the person has ever had trauma in their life, 90,7% responded positively. This big percentage is in agreement with the literature, where according to Galea (2005), two thirds of the population go through traumatic experiences, and according to Levine (2005 p.8), "almost all of us have experienced some forms of trauma, either directly or indirectly."

It was not questioned in this study, which trauma they went through, in order not to stimulate memories or produce any activation which could happen if focus was given to such event.

One of the aspects to be considered is that the trauma is not related directly to the event itself but rather to the response of the nervous system (Levine & Frederick, 1997), therefore, a minor event which may not be perceived initially as traumatizing, might produce some time later, an intensive emotional and/or physical response, characterizing it then as a response to the previous traumatizing event.

As the responses to trauma are mostly physiological rather than merely psychological (Levine & Kline, 2008), several symptoms and pathologies may possibly be related to traumatic experiences, even those that happened many years before (Kapczinski, 2003). “Because traumatic symptoms are largely the result of primitive responses, they are often difficult to recognize” (Levine & Frederick, 1997).

Therefore, the response to the question of having had traumatic experience is subjective and based on personal concepts of trauma and of traumatic experience. It was not analyzed if such concepts were changed or expanded during the training as there was no survey before the training.

The training was reported as having influenced the **professional life** of 91% of the subjects, and the main effects reported were “getting new tools” , “helping the others”, and “amplifying the perception of the other”. As to getting new tools, SE opens up for a new vision of trauma including concepts of containment, resourcing, empowerment, tracking, being able to identify – normalize – and stabilize traumatic reactions, and investigate the transformative qualities of trauma (SE Mannual, 2007; http://www.seti.org).

In this study, subjects emphasized the importance of learning and understanding about the physiological processes connected to emotions, the dynamics of stress, the advantage of including the body in psychotherapy amplifying the possibilities for healing and transformation. In fact, teaching the basics of neuroscience is done throughout the SE training, as the importance of the intricate two-way communication between mind and body has been established by solid evidence in recent developments in neuroscience and psycho-neuro-immunology (Levine & Frederick, 1997).

As to the topic “better help the others”, it would be expected that to help the others it would be important to have a better perception of the others. The more the

therapist perceives the client, and the more the client perceives himself, the most possible is to have effective work and effective healing (SE Manual, 2007). There is an intense work dedicated during the SE training for the observation, tracking, empathic attunement (Levine, 2010). The capacity of reflective self awareness allows the perception of the natural flow of the biological processes and the person may respond in a more adequate way to the immediate situations (Levine, 2010).

Some of the students of this study acknowledged the value of using "resources" and the expansion of perception and sensibility. One of the subjects reported perceiving being more patient with herself and more relaxed when seeing clients, and another one reported being able to work with less fear and anxiety. This could be the result of the development of self observation followed by healthy nervous system response (http://www.traumahealing.com/somatic-experiencing-trainings/).

Some of the subjects reported that they have been able to amplify the perception of the other, improve communication and accept the other without judgement, observing the responses and needs of the body. These responses could have happened as a natural response to class exercises where self-perception is developed, at the same time that the perception of the other is perceived as different, not better or worse, but merely different. The importance of time is focused in the training stimulating to slow down to allow more time for perception and to allow the time needed for the physiology return to balance (SE Manual, 2007). The improvement of communication could be the result of the empathic attunement needed to form close relationships (Rizzolatti & Craighero, 2004; Cozolino, 2006) also dealt with in the training.

Some comments referred to "dealing better with the stress of present job". This could be related to development of the self tracking ability, the perception of resources when previous challenges have been successfully concluded, ability to discharge

excessive activation, dealing better with bounderies (Scaer, 2001), and development of resiliency (Araujo, Mello, & Rios, 2011; Cozolino, 2006; Hellen & LaPierre, 2012; Southwick & Charney, 2012).

Still some comments referred to "feeling less burdon on self". This could to be connected with the development of protective limits or bounderies (Scaer, 2001), eventual perception of coupling dynamics (Morris, 1975), more adequate empathic processes (Davis, 1992), and many other possibilities.

The participants in this study considered SE a simple and effective therapeutic approach and there was interest to direct professional activities towards SE. In fact SE approach is a reasonably new approach and it has not yet been subject to rigorous scientific research , however these comments are encouraging to proceed towards future studies and publications regarding the efficacy of SE allowing it to be better known and more available.

The pedagogical system used in the SE trainings definitely favor the learning of the SE process. The theory is taught with the support of visual aids: slides, films, and charts. Practical examples are given frequently by the faculty, added with comments of professional and personal experiences of the students. Demonstrations of sessions are done by the faculty in class. Active participation of the students is stimulated through the whole training and exercises are set up to develop self-perception and to recognize patterns of behavior. Trios are set the following way: one student in the role of therapist, one in the role of client, and the third one as observer. Sharing and discussion is performed after each round with the support of assistants, usually one for each trio or one for two trios. During these exercises and sessions the student has a practical learning about the theory, about the way they can interact, and mainly about themselves.

The SE Beginning Level training has been perceived as influencing **personal life** by 96,3% of the students.

Among the influences perceived are the development of self-perception and the learning of patterns of behavior. The development of self-perception or felt-sense is part of one of the most focused tools of SE, which is "tracking" (Levine & Frederick, 1997) . The students in their role of being client or being the therapist, follow each sensory experience including thoughts, feelings, emotions, and body sensations. In this process, habitual responses are perceived and the person becomes aware of adaptative survival styles (Heller & LaPierre, 2012). Among the self-perception topics, the students have also reported better capacity of observing themselves, better perception of body functions, perception when there is completion of somatic responses, perceiving and trusting instincts, feeling more safe and able to get in contact with needs, and perceiving limitations. The learning about individual patterns of behavior allowed the subjects, according to their report, to be able to identify factors which would usually put them in stress, however, as these are now perceived in advance, the stress could be avoided. Also, the self perception without judgment allowed expression in a more natural way.

As to self regulation, subjects perceived themselves "more centered" and "present", finding more ease in regulating themselves and overcome stressful situations in life. Statements of having developed self-regulation and containment, feel more resourceful and trusting in self regulation, and living in a more resilient way may be the response to learning about resiliency and experience its expansion (Araujo, Mello, & Rios, 2011; Southwick & Charney, 2012).

Improvement in relationships was also reported by the subjects of this study, together with the understanding of dynamics of the family, learning to listen, reflect and

act instead of only reacting. The perception of others and the surroundings as stated by a student, resulted from perceiving the other person and possibility of attunement (Cozolino, 2006).

The trauma was perceived by several subjects and referred to as “perceiving wounds”, “perceive that some experiences left scars”, “events that would diminish potency for life”, able to “liberate from traumatic experience”, etc. . It was also referred to establishing “a new meaning to the life story”, and “changing some beliefs”. References were made to traumatic experiences in childhood and possibilities of dealing with them now. Statements were made of changing beliefs and amplifying the way of seeing the world. Some expressions referred to being liberated from trauma and having more confidence in life. According to the literature presented in this work, it is known that trauma can be a “life sentence”, however, when we address the essential role played by the body, it can be healed (Levine & Frederick, 1997) .

The statements of the students correspond to the theoretical nature of SE that was taught to them during the SE Beginning Level Training. They indicate that there was a deeper understanding and a contact of the person with himself. The pedagogical characteristic in the SE trainings cover theoretical aspects with immediate association with personal experience and immediate application through session trading with class partners. Every class has an experiential component, and the training presents a continuous invitation to participate with the deepest self. In the process of learning about the different possibilities and responses in someone’s life, there is permission to feel emotions and sensations, and these become acceptable. Through the tracking of experiences, the person becomes more present in his body and perceives shifts continuously happening, indicating the possibility for transformation. De-activation is perceived as a relief, and shifts are felt as openings for new possibilities. The cognitive

perceptions follow toward deeper connections with the person itself and with the world in a more holistic way.

The literature review indicates that trauma affects different people in different ways. People often do not recognize that they suffer from trauma. Traumatic symptoms may exist, but they are not associated with the traumatic event or they are dormant in the unconscious level. The perception happens through the feeling of freedom or relief and lightness when the trauma has been resolved or transformed. Attractive forces toward repetition of patterns may be protective of unconscious memories stored. Since 91% of the students reported having gone through trauma in their lives, it is not surprising that the students benefited from the SE approach as they were able to process their own traumatic experiences.

The topics included in the program for the SE Beginning Level Training include physiological responses to stress, which can lead to trauma. These are experienced in the first day of class, together with the experience of the natural healing responses bringing the system back to balance. Resourcing is taught through the students exploring their own resources. The healthy nervous system responses are obtained through balancing the activation, or the trauma vortex, with the help of resources leading towards pendulation and discharge. The students are invited to perceive the flow through the sympathetic and the parasympathetic stages until there is a perception of embodiment—physical, psychological, emotional and spiritual connectedness. As a result, the person experiences the possibility of choices and options. The capacity of tracking oneself and the capacity of observing the other are procedures that are developed through all of the training. The learnings about the reptilian brain and the neuroendocrine system contribute to the understanding and perception of the functioning of our body. The tools used in the SE approach are also useful tools for

self-perception and to control of the amount of activation to maintain manageable levels. The understanding of coupling dynamics allows the freedom from continuously following the same path; as well, it allows a perception and understanding of the attitudes/behaviors of people in our relationships. New options become possible to be explored.

The responses of the students indicating that the training had influence in their personal and professional life, in a way it is not surprising because, even though the training had just finished, the participants had theoretical concepts and practical exercises during the training and the students were able to experience both the role of being the therapist and the role of being the client by trading sessions with their colleagues. Important concepts and careful hints were given during the training such as the concept of working slowly—"less is more"— respecting the timing of the client, and allowing time for processing and integrating.(SE Manual, 2007). Caution was also stressed regarding the concepts of 'joining' and 'merging' (Davis, 1998), because these concepts are useful both from the professional and personal point of view. This exchange of sessions during the class under the supervision of the faculty and the assistants gave the students experiences to immediately apply the learning after the class, under safe conditions, which will give them a better experiential foundation to build on during the next phases of the SE training.

The results of this study were mostly justified by the literature referring to trauma, by the theories taught during the SE training, by the pedagogic approach, however, the most important aspect to be considered is the transformative quality of SE. The physiology, the neuroscience behind each concept, the tools, they are all vehicles for accessing SE as a therapeutic approach, however the totality of these concepts plus

the potential of healing of a human being enhance the effectiveness of psychological and physiological healing work of SE.

The last request asked of the students was about any additional comments that they would like to make. These responses were subdivided afterwards in the following categories:

1. "Appreciation of the training" (43.5%). Comments included praising the training, the faculty, the assistants, the organization, etc.
2. "Appreciation of SE as approach" (30.4%). Comments praised the SE approach.
3 "Suggestions" (17.4%). These included suggestions like having SE trainings available in more places, and to make SE better known.

What could be perceived mostly in the responses was that the students appreciated the organic format of SE, how gentle yet effective the SE approach was, how simple it was, and how it could contribute to the improvement in resiliency. .

Correlations between the various variables were also explored. The results indicate that those who felt the SE training influenced their professional life also felt it influenced their personal life ($p=0.000$). This result would be expected since the changes in the professional life do affect the personal life and vice versa; as stated by one of the participants in this study— "I don't see how to separate the personal change from the professional change. I feel that in the moment that I am well with myself, the professional changes come together. Today I am not hostage of my work, I have pleasure with what I do, I rest while working, I know how far I can go with my client without overburden myself. I feel at home both personally and professionally."

The influence of the SE training in the professional life is the result of the developments obtained in the personal life because the embodiment of SE concepts may

be felt holistically. The concepts taught in SE such as titration (or "less is more") allow the procedures to be slow and gentle, yet productive as expressed in the qualitative responses of the students.

Correlations were also explored regarding the influence of SE training in the students' professional lives versus their present professions and their personal lives versus their present professions indicating that the training does influence both the students' professional lives and their personal lives, regardless of their present profession.

The statistical analysis also indicated that the influence in professional and personal life are present independently of age, gender, and location of the training and faculty teaching the class.

The fact that the students apply the theoretical concepts from the first days of the training, allows the early perception of effects of the training. The students' phrases expressed in the qualitative component of this study correspond to the nature of the theory of SE that is being taught in the training. Quantitative and qualitative analysis reinforce our hypothesis that the SE Beginning Level Training produces effects in the professional and personal lives of the students.

CHAPTER VII

CONCLUSION

The conclusion of this study indicates that the students participating in the five classes of the SE Beginning Level Training, held from August to December 2013 in different regions of Brazil, and taught by different teachers, did perceive influence of the training in their professional life ($p<0.001$) and in their personal life ($p=0.001$). The open ended questions also indicated that there was a positive effect of the SE Beginning Level Training both in the professional and personal lives of the students.

The influences perceived in their professional lives were also reported as responses to an open ended question. These were organized in the following categories: getting or adding new tools; using these tools to better help the other; the ability to amplify the perception of the other; dealing better with present profession; directing professional activities towards SE.

The influences reported in personal life belong to the following categories, which were grouped according to similarities in their meaning: improvement in self-perception; improvement in self-regulation; perception of patterns of behavior; new meaning to their life story; increase of the perception of the other and of the surroundings; and improvement in relationships.

The students who experienced an influence of the training in their personal life also felt an influence in their professional life and vice versa. The influence of the SE Beginning Level Training was perceived by the students independently from their age,

gender, schooling, and profession. The location of the training and the teacher of the SE Beginning Level training were also independent of the influence the students perceived from the training. These statements were based on statistical analysis.

We conclude from this study that SE has a transformative nature, and that the SE training, which is done in an experiential pedagogical model including theoretical concepts, development of observation, perceptive exercises of others and of the person itself, watching class demos in class, trading sessions with class partners, stimulating perceptive and reflexive thoughts and sharing them, is an effective way of transmitting the SE approach, producing personal growth of the students, both professionally and personally, and allowing the students to put the in-class learning immediately into practice expands the effects in their professional and personal lives.

The limitations of this study are mainly the number of students (54) and the number of classes evaluated (5). As pilot study, since there is no report on research having done with SE students, the questions were simplistic and reduced in number (only 4) which was adequate for this start, but limited in the number of information. The information was collected by requesting filling in a formulary, but personal interviews could have explored more the qualitative responses.

These are some of the further studies recommended:

1. Perception of having trauma.

   It would be interesting to study if the perception of having had trauma was already a perception before the training, or if this was perceived after learning about the characteristics, responses, and consequences of trauma.

2. Extend the research to more students.

   The research could be extended to other locations, to other classes, to verify if the conclusions are valid for other subjects or other groups.

3. Motivation for doing the training.

   The fact that 85% of the students in this study were already working in health related professions indicates that their motivation could be having professional opportunities to use the learning, or it could be that those already working with health related professions know the relevance of emotional well-being and the need to overcome traumatic events and stressful events in life for developing a better quality of life. Still another possibility could be the attraction towards the theme "trauma", which is the topic related to SE and the topic taught in the training, as it is known that re-traumatization is one of the common responses for those who have gone through traumatic experiences. There is the possibility that personal issues as result of existing traumatic experiences and needing help could be the driving force towards the training. A new study could explore the motivation for doing the training and compare it with the results achieved at the end of the training.

4. Expectations

   It would be interesting to study the students' expectations of the training before it begins and then question them again at the end of the training to see if their expectations were met.

5. Further training

   It would be interesting to study the effects of the next levels of SE training where specific traumas are studied in more detail.

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APPENDIX A

LEXICON

ACTH - Adrenocorticotropic hormone, also known as corticotropin, is a hormone produced and secreted by the anterior pituitary gland. It is an important component of the hypothalamic-pituitary-adrenal axis and is often produced in response to biological stress. Its principal effects are increased production and release of corticosteroids.

Amygdala – or amygdaloid bodies are part of the limbic system. They are two masses of neurons located within the temporal lobes of the brain. Their primary role in the processing of memory and emotional reactions as fear and rage.

ANS – Autonomic Nervous System, which is also called involuntary nervous system since it acts as a control system functioning without interference of the conscious demand (involuntary). It includes visceral functions like heart rate, digestion, respiratory rate, and perspiration. The ANS is divided into three sub systems: sympathetic nervous system (SNS), parasympathetic nervous system (PSNS) and enteric nervous system (ENS).

Counter-vortex – In the stream of life model, the counter-vortex is a force that pulls the individual out of the fixation on the trauma vortex.

CNS – Central Nervous System. It is one of the two parts of the nervous system (peripheral nervous system and central nervous system). It consists of the brain and spinal cord.

CRF *(Corticotropin Releasing Factor),* also called ***CRH*** *(Corticotropin Releasing Hormone)* is a hormone and neurotransmitter involved in stress response.

CRH – corticotropin-releasing hormone. See CRF.

Defreezing **–** neurophysiological response when individual recovers from tonic immobility.

Discharge – A biological process releasing charge from the autonomic nervous system (ANS). Physiological discharge occur through indicators as trembling, shaking, sweating, feeling heat, yawning, crying, etc.

Dorsal vagus - One of the branches of the vagus, or tenth cranial nerve. It elicits immobilization behavior. The vagus nerve is a primary component of the autonomic nervous system.

FHE – Foundation of Human Enrichment, organization founded by Peter Levine, located in Boulder, Colorado, also called SETI – Somatic Experiencing™ Trauma Institute.

HPA – Hypothalamic-pituitary-adrenal axis. It is a complex set of direct influences and feedback interactions of the hypothalamus, pituitary and adrenal (suprarenal) glands. They are part of the neuroendocrine system controlling reactions to stress.

Hippocampus – part of the limbic system. It enhances memory storage.

Hypothalamus – located above the brain stem, is part of the limbic system with the function of linking nervous system to endocrine system via pituitary gland. It acts as an integrator for autonomic functions.

Hypophysis or pituitary gland **-** an endocrine gland located at the base of the hypothalamus. It secretes hormones that regulate homeostasis.

Limbic System – a group of brain structures under the cerebrum. The following structures belong to the limbic system : olfactory bulbs, hippocampus, amygdala, anterior thalamic nuclei, fornix, mammillary body, septum pellucidum, habenular commissure, cingulate gyrus, Parahippocampal gyrus, limbic cortex, and limbic midbrain areas. The limbic system is primarily responsible for emotions, behavior motivation, long term memory, and olfaction.

Locus coeruleus – a small cluster of nerve cells that contain most of the brain's adrenergic neurons. The locus coeruleus is the principal site for brain synthesis of norepinephrine (noradrenaline). The locus coeruleus and the areas of the body affected by the norepinephrine it produces are described collectively as the locus coeruleus-noradrenergic system or LC-NA system.

PNS – Peripheral Nervous system. It is one of the two parts of the nervous system (peripheral nervous system and central nervous system). It consists of the sensory-somatic nervous system, and the autonomic nervous system. The sensory somatic nervous systems collects data from the receptors to inform the CNS, and from CNS the effectors or motor neurons indicate the action to be taken.

PTSD – Post Traumatic Stress Disorder. It is a condition of persistent mental and emotional stress occurring as result of a traumatic event. It involves several physical and emotional symptoms.

PSNS – Parasympathetic nervous system. It is one of the sub-systems of the autonomic nervous system. It is often considered the "rest and digest" system or "feed and breed" system.

Resilience – capacity for returning to normal after a stressful event.

Resource – something positive that that can help to feel calmer or less activated, so that conditions may be set for pendulation.

Renegotiation – the process where more coherence and stabilization is obtained after pendulation – from trauma vortex to counter-vortex.

SETI – Somatic Experiencing™ Trauma Institute, organization founded by Peter Levine, located on 6685 Gunpark Drive, Suite 102, Boulder, CO, 80301, also referred to as FHE – Foundation for Human Enrichment.

SNS - Sympathetic nervous system. It is one of the sub-systems of the Autonomic Nervous System. It is often considered as "fight or flight" system.

Ventral vagus – One of the branches of the vagus, or tenth cranial nerve. It is linked to social communication and self-soothing behaviors. The vagus nerve is a primary component of the autonomic nervous system.

APPENDIX B

ALUNOS DO CURSO DE SE® - INICIANTE III

1. Você já sofreu algum trauma na sua vida? (Assinale)
   SIM _____ NÃO _____

2. No seu ponto de vista, este curso (SE) teve alguma influência na sua vida pessoal?
   SIM _____ NÃO _____
   Qual (quais)?
   _____
   _____
   _____
   _____
   _____

3. No seu ponto de vista, este curso (SE) teve alguma influência na sua vida profissional?
   SIM _____ NÃO _____

   Qual (quais)?
   _____
   _____
   _____
   _____
   _____

4. Algum comentário adicional que queira fazer

   _____
   _____
   _____
   _____
   _____
   _____

APPENDIX C

STUDENTS CONCLUDING THE SE TRAINING - BEGINNING LEVEL – (INICIANTE III)

1. Have you ever suffered trauma in your life? (Mark)

   YES _____ NO _____

2. From your point of view this SE Beginning Level training had some influence in your **personal** life?

   YES _____ NO _____

   Which one (ones)?

   _____
   _____
   _____
   _____
   _____
   _____
   _____

3. From your point of view this SE Beginning Level training had some influence in your **professional** life?

   YES _____ NO _____

   Which one (ones)?

   _____
   _____
   _____
   _____
   _____
   _____
   _____

4. Any additional comment you would like to make

   _____
   _____
   _____
   _____
   _____
   _____
   _____

APPENDIX D

TERMO DE CONSENTIMENTO LIVRE E ESCLARECIDO PARA PARTICIPAR DE PROJETO DE PESQUISA

Pesquisadora: Cornélia P. Rossi
Pesquisa: Efeito do curso de SE®

Caro participante,

Gostaria de convidá-lo a participar como voluntário da pesquisa sobre efeito do curso de SE que se refere a uma pesquisa pessoal com o objetivo de investigar a ação da abordagem SE.

Seu nome não será utilizado em qualquer fase da pesquisa, o que garante seu anonimato. Não será cobrado nada, não haverá ganhos nem riscos na sua participação neste estudo e não estão previstos ressarcimentos ou indenizações, não haverá benefícios imediatos na sua participação. Os resultados contribuirão para o conhecimento da técnica de SE no mundo científico.

Sua participação é voluntária e poderá recusar-se a participar ou retirar seu consentimento, ou ainda descontinuar sua participação se assim o preferir.

Desde já agradecemos sua atenção e participação e coloco-me à disposição para maiores informações.

São Paulo, _____(date)

Cornelia P. Rossi
CRP-116162 Tel. 3862-4792

Participante da pesquisa:
Nome _____
Data de Nascimento _____
RG_____ CPF _____
Endereço residencial _____
_____
Assinatura _____

Appendix E

INFORMED CONSENT FOR PARTICIPATION IN RESEARCH PROJECT

Researcher: Cornélia P. Rossi
Research: Effects of the SE™ Training

Dear Participant,

I would like to invite you to participate as volunteer in the research about the effect of the SE training referring to a personal research with the objective of investigating the action of the SE approach.

Your name will not be used in any phase of the research, which guarantees the anonymity. Nothing will be charged. There will be no gains nor risks in your participation in this study, and there will be no indemnifications, nor immediate benefits as result of your participation. The results will contribute to the knowledge of the SE approach in the scientific world.

Your participation is voluntary, and you may refuse to participate or remove your authorization, or still interrupt if so desired.

I thank you in advance for your attention and your participation, and I am making myself available for more informations.

São Paulo, _____(date)

Cornelia P. Rossi
CRP-116162 Tel. 3862-4792

Participant of the research:
Name _____
Date of birth _____
RG_____ CPF _____(document nrs.)
Address _____
_____
Signature _____