

THE CREATIVE PSYCHOSOCIAL GENOMIC HEALING EXPERIENCE ©

An Open Invitation to Clinical & Experimental Research!

ADMINISTRATION, RATIONALE, & RESEARCH

Ernest Rossi, David Atkinson, Jane Blake-Mortimer, Salvatore Iannotti, Mauro Cozzolino, Stefano Castiglione, Angela Cikatelli, Erika Chovanec, Richard Hill, Claude Viot, Bhaskar Vyas, Jorge Cuadros, David Atkinson, Michel Kerouac, Thierry Kallfass, Helmut Milz, Claire Frederick, Bruce Gregory, Margaret Bullock, Ella Soleimany, Kathryn Rossi, & Stanley Krippner.

Address correspondence to Ernest Rossi, 125 Howard Ave., Milton H. Erickson Institute of the California Central Coast, USA. Email: ernest@ernestrossi.com.

David Atkinson, University of Pittsburgh School of Medicine; Jane Blake-Mortimer, University of Adelaide, Australia; Salvatore Iannotti, The Mind-Body Institute, San Lorenzo Maggiore, Italy; Mauro Cozzolino & Stefano Castiglione, University of Salerno, Italy; Angela Cikatelli, University of Naples, Italy; Erika Chovanec, Institute of holistic-motivational Psychotherapy, Vienna, Austria; Richard Hill, Western Sydney University, Australia; Claude Viot, Emergences, Rennes, France; Bhaskar Vyas, Raopura, Baroda, India; Jorge Cuadros, Grupo Hipnológica, Spain; David Atkinson, University of Pittsburgh School of Medicine, USA; Michel Kerouac, Canada; Thierry Kallfass, Institute of Human Perspectives, Geneva, Switzerland; Helmut Milz, Universität Bremen, Bremen, Germany; Stanley Krippner & Claire Frederick, Saybrook University, USA; Bruce Gregory, Counseling Psychology, Ryokan College, California, USA; Margaret Bullock, Elle Soleimany, & Kathryn Rossi, Milton H. Erickson Institute, California Central Coast, USA.

ABSTRACT

This administration protocol and rationale for *The Creative Psychosocial Genomic Healing Experience* is a new therapeutic approach for facilitating human resilience and resourcefulness for health, healing, and rehabilitation (Rossi, Iannotti, et al., 2008; Rossi et al. 2010). *The Creative Psychosocial Genomic Healing Experience* facilitates problem solving and healing by activating experience-dependent gene expression and brain plasticity (Rossi et al. 2008).

We propose that scores and response profiles on TCPGHE will be associated with unique profiles of activity and experience-dependent gene

expression (measured with DNA and Micro RNAs microarrays) and brain plasticity (measured with fMRI) that can make unique contributions to psychological development as well as personalized medicine and rehabilitation. We outline a series of hypotheses and research proposals that now require careful scientific assessment to compare and contrast TCPGHE in relation to other standardized therapeutic protocols in psychology and medicine. We invite academic and research groups engaged in creative approaches to psychotherapy, therapeutic hypnosis, and mind-body healing in alternative and complementary medicine to join us in this open research project on *The Creative Psychosocial Genomic Healing Experience* on all levels from the cognitive-behavioral to the molecular-genomic.

Key Words: Creative, Psychosocial, Genomic, Healing, Experience

INTRODUCTION

We have documented how our new *Creative Psychosocial Genomic Healing Experience* reduces (1) *dysfunctional inflammation* (associated with chronic pain and delayed healing) and (2) *oxidative stress* (associated with many chronic medical conditions and the ageing process) as well as (3) increasing a “*molecular-genomic signature of stem cells*” (activation of stem cells associated with healing and the rehabilitation and in many tissues of the body) as the deep psychobiological source of human resilience and resourcefulness (Rossi, Iannotti et al.; Rossi et al. 2009).

The Creative Psychosocial Genomic Healing Experience (TCPGHE) evolved out of 40 years of exploring Milton H. Erickson’s naturalistic and utilization approaches to mind-body healing by integrating them with current theory and research in neuroscience and psychosocial genomics (Rossi, 1972/1985/2000, 2002, 2004, 2007). The administration of *The Creative Psychosocial Genomic Healing Experience* as presented here requires about 20-30 minutes. A Scoring Form is usually filled out by the therapist but may be adapted for group administration. Considerable research is now required to

establish the validity and reliability of this initial version of *TCPGHE* on many levels from the cognitive-behavioral to the molecular-genomic level as outlined in the research section that follows this protocol and rationale for *The Creative Psychosocial Genomic Healing Experience* presented here.

The Administration and Rationale of The Creative Psychosocial Genomic Healing Experience

Introduction: Identify the Initial Stress, Symptom, or Problem

Initial Time_____ am pm Initial Stress & Symptom: 0% . . .50% . . .100%

We record the *Initial Time* when *The Creative Psychosocial Genomic Healing Experience* takes place for two reasons. (1) Time of day is an important factor determining when activity or experience-dependent genes are expressed in our normal circadian and ultradian rhythms of the Basic Rest-Activity Cycle (Lloyd & Rossi, 1992, 2008). (2) This initial time is needed to measure of the subject's mental engagement and therapeutic response in their scoring profile presented below.

We record the *Initial Stress or Symptom* to calculate *Stress or Symptom Reduction later in item #10*. *Initial Stress or Symptom* is the subject's subjective estimate before they begin *The Creative Psychosocial Genomic Healing Experience*. The therapist initiates the healing experience with these words.

“What level of stress (symptom, problem) are you experiencing right now - where 100% is the worst stress level you have ever experienced, 50% is average, and 0% is no stress?”

Stage 1: Evoking Observing Consciousness - Curiosity, Focused Awareness, and Positive Expectancy

1. Warmer – Cooler? Reality % 0% 50% 100%

Evoking and heightening the subject's observing consciousness is the hallmark of *The Creative Psychosocial Genomic Healing Experience!* We want our

subject to be fully awake and aware of the nuances of self observation, self facilitation, and self healing via their own natural patterns of mind-body communication. Activating the subject's curiosity, focused awareness, and positive expectations of a healing journey is the first step in the Four-Stage Creative Process of Psychotherapy that optimizes *The Creative Psychosocial Genomic Healing Experience* on all levels from mind to gene (Lloyd & Rossi, 1992, 2008; Rossi, 2002, 2004).

The therapist models the activity-dependent mirroring hands protocol with the palms of her/his hands about 6 to 8 inches apart facing each other at chest level as illustrated in figure 1a. The hands in this initial position function as a metaphor for a safe inner space (temnos) or container within which the subject can experience a creative dialogue or drama between symptoms, problems, or issues projected into one hand and the "opposite" in the other hand. These "opposites" tend to activate the subject's inner resources accumulated from previous positive life experiences, memory, learning, etc. that often hold a key for initiating a therapeutic dialogue that may generate a satisfactory resolution of the presenting problem.



Typical Stage 1 hand positions for *The Creative Psychosocial Genomic Healing Experience*

Ask the subject, ***“Which hand seems warmer or cooler?”*** Subjects may sometimes ask therapists what they mean by this question. The therapist simply responds with, ***“Most people don’t realize how their hands and other parts of their body usually feel slightly warmer or cooler when they pay attention to it. This is a good exercise heighten your consciousness and awareness of yourself. It helps activate your focused awareness, creativity, and positive expectation of your natural self healing ability. The simple idea or expectancy of one hand being warmer or cooler will heighten your sensations of warmth and coolness.”***

After two minutes ask the subject ***“How real, strong or vivid does the feeling in your hands seem to be on a scale of 100% (completely real) to 0% (not real)?”*** (Therapist records whatever “Reality %” the subject reports experiencing.)

Recording this Reality % begins to focus the therapist’s own mirror neurons on subjects and provides an immediate impression of the subject’s level of focused attention, sense of reality, and positive expectancy of *The Creative Psychosocial Genomic Healing Experience*.

2. Stronger – Weaker? Reality % 0%. 50% 100%

Ask the subject, ***“Which hand seems stronger or weaker?”*** After two minutes ask the subject, ***“How real, strong or vivid does the feeling in your hands seem to be on a scale of 100% (completely real) to 0% (not real)?”*** (Therapist records whatever “Reality %” the subject reports experiencing.)

3. Child – Adult? Reality % 0%. 50% 100%

Ask the subject, ***“Now let’s turn to a personal memory . . . Which hand seems to be you right now - and which hand seems to feel more like you as a child?”*** After two minutes ask the subject, ***“How real, strong or vivid does the feeling in your hands seem to be on a scale of 100% (completely real) to***

0% (not real)?” (Therapist records whatever “Reality %” the subject reports experiencing.)

This contrast between the present and the remembered past tends to deepen focused inner attention, curiosity, and expectancy on one’s self and prepares for stage two of the creative healing experience that follows.

Stage 2: Incubation, Past Problem Review to Activate Positive Motivation and Inner Resources via the Opposites

Requesting a subject to lower a hand very slowly as they review the origin and history of their problem is a precise way of focusing their attention and expectancy to access the neural networks of their brain that encode their problem, maladaptive behavior, and consciousness. These neural networks encode memories that are to be updated by allowing therapeutic processes of activity and experience-dependent gene expression and brain plasticity to operate in an evolutionary adaptive manner (Rossi, Erickson-Klein & Rossi, 2008).

4. Problem & Opposite Reality % 0%. 50% 100%

Ask the subject, **“Which hand experiences your issue (concern, problem or symptom) and which experiences the opposite of that?”**

After two minutes ask the subject, **“How real, strong or vivid does the feeling in your hands seem to be on a scale of 100% (completely real) to 0% (not real)?”** (Therapist records whatever “Reality %” the subject reports experiencing.)

Recording “Reality %” is a way of focusing attention, heightening expectancy, and *activating the subject’s neural networks that encode the issues, problems, and motivations* for seeking a creative healing experience on all levels from mind to behavior and psychophysiology via *activity and experience-dependent gene expression and brain plasticity*.

5. Negative Past Review Reality % 0% 50% 100%

Tell the subject, ***“Let the hand that experiences your issue (concern, problem or symptom) now begin to drift down very slowly . . .all by itself . . . as your inner mind privately reviews the history, memories, and feelings of your issue (concern, problem or symptom) from the beginning to the present moment.”***



Typical Stage 2 hand positions for *The Creative Psychosocial Genomic Healing Experience*

Therapists model for the subject by very slowly lowering one hand as illustrated in figure 1b. If the subject begins to show negative cathartic reactions (frowning, weeping, etc.) the therapist can offer emotional support with empathetic *implicit processing heuristics* (positive permissive suggestions, Rossi, 2002, 2004; Rossi & Rossi, 2007) such as these.

“That’s right! Do you have the courage . . . to allow that hand and arm to drift down a bit. . . with each memory you find yourself reviewing?”

“Allowing your inner mind to feel only as much of that as you need to . . . and then move on to the next memory that comes up more or less by itself.”

“That’s right . . . let yourself have the courage to continue . . . only as long as you need to . . . to experience everything as fully as you need to . . . privately.”

“That’s right . . . while another part of you observes wisely . . . as you learn how to take care of yourself . . . and expect the best possible outcome.”

This therapeutic review is “fail-safe” in the sense that the only so-called, “failure” is that some people do not understand how to become engaged with their issues in a meaningful way. The easiest way of helping people understand how to have a therapeutic experience is to provide them with opportunities to observe others become optimally engaged in *The Creative Psychosocial Genomic Experience*. Such observations in group therapy, for example, provide the subject’s mirror neurons with appropriate psychosocial experiences, which they learn to use as models for their own therapeutic experiences.

This therapeutic review is “safe” in the sense that patients do not undergo a so-called, “re-traumatization of themselves” in this review of negative past experiences because they are experienced in a safe context (Foa, 2008). The safe context is that the *negative memories and emotions are carefully circumscribed and limited when they are externalized by being projected into one hand only*. The negative memories are always *balanced by experiencing their complementary opposite on the other hand* (presumably positive inner resources activated in step #4 above: Experiencing a Problem and its *Opposite*).

When the problem hand finally touches down in the subject’s lap, the therapist asks, ***“How real, strong, and vivid do your memories and feelings seem to be on a scale of 100% (completely real) to 0% (not real)?”*** (Therapist records whatever “Reality %” the subject reports experiencing.)

The therapist now facilitates the transition to stage three of the creative process with: ***“Wonderful . . . appreciating a job well done . . .and now***

getting ready to move on to the resolution of this issue (concern, problem or symptom).

Stage 3: Illumination, Facilitating Creative Mind-Gene Replays

This the famous “Ah-ha” or “Eureka” experience celebrated in ancient and modern literature when the creative process is described in the arts and sciences. Creative insight, problem solving & healing often seem to happen spontaneously. Subjects are usually surprised and delighted when they receive a creative thought. Many people automatically dismiss their own originality as worthless since it has never been reinforced in their early life experience. *The therapist’s main job at this stage is to help the subject recognize and appreciate the value of the “new” and creative that usually emerges spontaneously and unheralded.* Often the subject may have already thought of the options that come up for problem solving at this stage but dismissed them since they were never validated. Here we strongly support them!

6. Positive Now & Future Reality % 0%. 50% 100%

The following implicit processing heuristics prompt people experience the Novelty-Numinosum-Neurogenesis Effect: The *novelty* of this *Creative Psychosocial Genomic Healing Experience* tends to turn on the *numinosum* (a highly motivated state of focused attention, expectancy, wonderment, and fascination), which evokes activity and experience-dependent gene expression and brain plasticity (Rossi, 2002, 2004, 2007; Rossi et al., 2008). The therapist continues to model the subject’s behavior by slowly lowering the other hand as illustrated in figure 1c with these words.



Typical Stage 3 hand positions for *The Creative Psychosocial Genomic Healing Experience*

"Now allow your other hand to drift down slowly as you explore new possibilities about how to solve your problem today . . . Will that hand now begin go down slowly as you begin to experience something new? . . . Explore all your hopes . . . the most interesting and wonderful possibilities of healing and well being . . . Speculate about exciting and fascinating turning points in your life . . . Create the best of all possible worlds for yourself . . . Enjoy your best dreams about yourself!"

This fragile and tenuous transition from the difficulties of the previous stage two reviews of past problems to the new joyous possibilities of stage three that now emerge can often be read in the delicate shifts of the subject's facial expressions. Notice carefully the shifts from negativity, stress, sadness, and conflict (of stage two) to the more searching expressions of expectation in stage three that are often punctuated with a slight smile and even a short laugh. Sometimes subject's will manifest other minimal behavioral cues of their positive

attitude and enjoyment of this third stage of their creative experience by spontaneous head nodding “yes” and shaking, rocking, or caressing themselves comfortably. The therapist now supports these positive shifts with a few warm implicit processing heuristics such as these.

“Something pleasantly surprising you can look forward to? . . . What you really need that is most interesting and important to you?”

“Simply receiving and continuing to explore the sources of your strength for dealing successfully with that issue.”

“Yes, appreciating the value of that as fully as you need to while taking good care of yourself as that hand finally comes to rest in your lap.”

When the hand finally touches down in the subject’s lap, the therapist asks, ***“How real, strong, and vivid do these new positive possibilities and feelings for changing your life seem to be on a scale of 100% (completely real) to 0% (not real)?”*** (Therapist records whatever “Reality %” the subject reports experiencing.)

The therapist now facilitates the transition from stage three of the creative process to stage four with: ***“Wonderful . . . really appreciating yourself for a job well done! . . . And now getting ready to move on to the resolution of this issue (concern, problem or symptom)!”***

Stage Four: Integration and Reality Testing:

The therapist optimizes stage four illustrated in figure 1d by (1) facilitating a follow-up discussion to validate the value of the subject’s experiences and (2) helping the subject reframe symptoms into signals and psychological problems into inner resources. Here is a four part implicit processing heuristic to mediate these creative transitions (Rossi, 2002, Chapter Nine).



rehabilitation

Typical Stage 4 hand positions for *The Creative Psychosocial Genomic Healing Experience*

1. ***“When . . . [pause]***
2. ***A part of you knows it can continue this creative work entirely on its own at appropriate times throughout the day . . . [pause]***
3. ***And when your conscious mind knows it can simply cooperate in helping you recognize when it is the right time to tune in . . . [Pause]***
4. ***Will that give you a feeling, a signal that it’s time for you to stretch, open your eyes and come fully alert so you can discuss how you can use this in your real everyday life?”***

Mentioning “*appropriate times throughout the day*” and “*the right time to tune in*” are ultradian cues that help people utilize their entirely natural Basic Rest Activity Cycle that takes place every 90-120 minutes throughout the 24 hour day. Such implicit processing heuristics help people access the state dependent encoding of behavior state related gene expression, brain plasticity, and mind-

body healing that can take place most easily at “appropriate times” of their circadian cycle. The therapist can further facilitate with these implicit processing memes that can optimize the evolutionary, adaptive, and constructive aspects of future mind (Rossi, Erickson-Klein, Rossi, 2008).

“Something interesting you would like to share about that?”

“What is surprising and unexpected about this that is new to you?”

“What is most significant and life changing about this for you?”

“How will you remind yourself to do this several times a day?”

“What does this lead you to now?”

“How will this change your life?”

“What will you do in your life that is different now?”

The stress and symptom scaling of the subject’s state before and after the *Creative Psychosocial Genomic Healing Experience* is a measure of therapeutic progress, problem solving, and healing that is used to validate the value of the therapeutic process

Repeats If Necessary: If stress and symptom reduction of less than 50% is reported, facilitate further therapeutic progress with, ***“If your inner nature knows it can do another unit of creative work right now so you can reach a more satisfactory state, will those eyes close for a few moments so you can fully receive everything you need at this time?”***

If stress and symptom reduction of less than 50% continues after two or three repeats reassure the subject, ***“You know that your mind and body go through a natural cycle of ultradian healing and problem solving every couple of hours throughout the day and at night even when you are asleep & dreaming. Notice how your progress will continue all by itself and how you can improve your self-care every day.***

Final Stress & Symptom (0% is Best)_____. **Confidence (100% is Best) _____.**

7. Positive Self-Change 0% . . 100% 8. Positive Self-Prescription 0%..100%

This corresponds to stage four of the creative experience wherein the subject has an opportunity to assess the value of the insights gained in their stage three “Aha” and plan how they will reality test them now and in the future.

Self Change 0% . . .100% is the degree that the subject recognizes and accepts how they will **change their own thinking emotions, and behavior.**

Self-Prescription 0% . . .100% is the “reality %” which each subject believes they can give themselves **positive and satisfactory Self-Prescriptions for changing themselves.**

Subjective Time Est. Min: 0-5 6-10 11-20 21-30 31-40 41-50 51- 60+

Immediately after the experience (following stage four when the subject usually opens their eyes, although they are usually not asked to close them in the first place), the subject is asked (without looking at their watch) to estimate how much time passed since the beginning of their experience. This is their Subjective Time Estimate in Minutes.

Real Time (Min.): 0-5 6-10 11-15 16-20 21-25 26-30 31-40 41-50 51-60+

This is the real time of the subject was involved in the creative experience that the therapist records here,

9. Mental Absorption: (Real Time / Est. Time) X 100 = _____ %

Now the therapist can calculate the subject’s degree of mental absorption or engagement via so-called “time distortion,” which research has recently noted as being a reliable indicator of positive engagement and expectancy, which are characteristic of the creative and therapeutic state of mind (Naish, 2007).

For example, a person might be engaged in *The Creative Psychosocial Genomic Healing Experience* for 20 minutes in “real

time” as measured by the therapist’s stop-watch. When asked by the therapist immediately after this experience (typically when the person opens their eyes, stretches, adjusts themselves, etc.), “How long would you estimate you were you doing that inner work (trance, hypnosis, meditation, etc.)?” however, the person might guess, “about 5 minutes.” Doing the calculation: 20 minutes/ 5 minutes X 100 = 400% mental absorption or engagement. “400% mental absorption” may sound a bit peculiar initially but it is an indication that they are more focused and active mentally during their experience of *The Creative Psychosocial Genomic Healing Experience*. We interpret this to mean that people can become so deeply engaged (absorbed) in their inner work that they “forget time” and underestimated how long they were creatively engaged. This is very typical of people when they are engaged in creative, important, and highly motivating *activities*, which we propose, actually turns on “*activity-dependent gene expression and brain plasticity*” for healing and problem solving at the molecular-genomic level.

10. % Stress Reduction: Initial Stress / Final Stress X 100 = _____%

The therapist now asks the subject how much stress (or symptoms) the subject is now experiencing in comparison with the subject’s initial stress score recorded in the beginning before *The Creative Psychosocial Genomic Healing Experience* began. The therapist now calculates the % **Stress Reduction** as indicated.

For example, a person might estimate that their *initial stress* level is at the 90% level. At the end of *The Creative Psychosocial*

Genomic Healing Experience he/she might estimate stress has been reduced to the 10% level. Doing the math: $90\% / 10\% = 0.90 / 0.10 = 9 \times 100 = 90\%$ stress reduction.

11. Surprise: 0%. . . .100%

The therapist asks the subject to estimate on a scale of 0% to 100% how surprised they were by any aspect of their therapeutic experience. Neuroscience has established how experiences of surprise, novelty, and creative experience turn on Activity and Experience-Dependent Gene Expression and Brain Plasticity, which is the molecular-genomic basis of *The Creative Psychosocial Genomic Healing Experience*, psychotherapy, and rehabilitation that we seek to assess and facilitate with this scale.

12. Confidence: 0 %. . . .100%

The therapist asks the subject to estimate on a scale of 0% to 100% how confident they are of the value of their therapeutic experience in resolving the problems, symptoms, or issue they worked with.

Education: Elementary High School College Masters Doctorate

Age: 0 – 9 10 – 19 21 – 29 30 – 39 40 – 49 50 – 59 60 – 69 70 – 79 +

Sex: M F

Night Sleep Length: 1h 2h 3h 4h 5h 6h 7h 8h 9h 10h 11h 12h +

Dreams: 1 2 3 4 5 6 7 **Days/Week. Est. Dreams Per Night** _____

Comments:

Comments by the subject indicating any happy, surprising or unexpected, positive aspects of the experience are recorded by the

therapist. These spontaneous manifestations of the creative healing experienced, particularly during stage three and four, are worthy of further reinforcing by remarks by the therapist.

An Open Invitation to Research *The Creative Psychosocial Genomic Healing Experience*

Since our initial pilot study (Rossi, Iannotti et al. 2008) had only three subjects it is important to replicate it with larger populations (~ 30 subjects) and many diagnostic categories. Our initial cohort of three highly susceptible hypnotic subjects all had advanced academic degrees and were recruited from a university environment by the second co-author (Iannotti) on the basis of a General Psychiatric Evaluation, The Minnesota Multiphasic Personality Inventory (MMPI-2), The Tellegen Absorption Scale (highly correlated with Standard Scales of Hypnotic Susceptibility), and the Spiritual Intelligence Self Report Inventory (high scorers on the SISRI-24 acknowledge heightened experiences related to Critical Existential Thinking, Personal Meaning Production, Transcendental Awareness, and Conscious State Expansion). These subjects scored within the normal range of personality characteristics with no evident psychopathology on the MMPI-2. They were all enthusiastic volunteers who responded well to the "*The Creative Psychosocial Genomic Healing Experience*" with a positive sense of focused attention, expectancy, appreciation, wonder, and therapeutic well being.

A full description of the clinical intervention, sample collection, and microarray analysis can be found in Rossi, Iannotti et al. 2008. Briefly, peripheral blood was obtained from three adult subjects immediately prior to, 1 hour after, and 24 hours after a single session of therapeutic hypnosis according to the protocol “*The Creative Psychosocial Genomic Healing Experience*” established by Rossi (2004). Total RNA was extracted from leukocytes, quantified, and purified. Approximately 2.5 µg of purified total RNA was delivered to the MicroCRIBI Service (University of Padova, Italy) for microarray analysis. MicroCRIBI Service performed the microarray analysis on 21,329 - 70mer oligonucleotides (Operon version 2.0) designed on Human Unigene clusters. For each sample, 1.0 µg of total RNA was reverse transcribed and labeled with Cy3 and Cy5 fluorophores for two-channel scanning. Fluorophore labeling of “control” (Immediately before hypnosis) versus “treated” (1 hour or 24 hours after hypnosis) samples was counterbalanced, to control for dye bias. The microarrays were scanned with a two channel confocal microarray scanner (ScanArray# Lite, Perkin Elmer, USA) using its dedicated software (ScanArray Express 3.0.0., Perkin Elmer).

Table one notes some similarities and differences in the *Stanford Hypnotic Susceptibility Scales (SHSS)* (Hilgard, 1965, Table 96, p. 402), which emphasize pathological *dissociation*, and this initial beta version of *The Creative Psychosocial Genomic Healing Experience (TCPGHE)*, which focuses on the *ideo-plastic* processes of activity-dependent gene expression and brain plasticity.

CLASSIC HYPNOSIS (SSHS) Vs PSYCHOSOCIAL GENOMICS

CLASSICAL HYPNOSIS	PSYCHOSOCIAL GENOMICS
• AGNOSIA (NOT KNOWING)	• 4-STAGE CREATIVITY
• AMNESIA	• ENHANCED MEMORY
• TIME DISTORTION	• TIME CONDENSATION
• (+) HALLUCINATIONS	• IDEO-SENSORY SIGNALING
• (-) HALLUCINATIONS	• IDEO-MOTOR SIGNALING
• DREAMS & REGRESSION	• DREAM & CONSCIOUSNESS
• LOSS OF SELF CONTROL	• SELF-EMPOWERMENT
• POSTHYPNOTIC compulsion	• SELF-PRESCRIPTIONS

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Table One: A comparison of the Classical Stanford Scale of Hypnotic Susceptibility (SSHS) with The Creative Psychosocial Genomic Healing Experience (TCPGHE).

Table one highlights the differences between the *SSHS* and *TCPGHE* to draw attention to a series of hypotheses that motivate the type of creative psychosocial genomic research that is now required.

1. The classical hypnosis scales (*SHSS*) were constructed so that only 5-7% of the general population is scored as “highly susceptible.” This implies that only 5-7% of the general population would be suitable for therapeutic hypnosis. We hypothesize, however, that with appropriate psychosocial experience and training everyone will be able to score highly on *TCPGHE*. Therefore it will be well suited for facilitating translational research and the clinical practice of

therapeutic hypnosis, psychotherapy, meditation, and counseling with everyone.

2. Research on the effects of training people to optimize their score on the classical scales of hypnotic susceptibility has been discouraging. Since people are not able to improve their classical hypnotic susceptibility (*SHSS* scores are conceptualized as a “fixed trait”), this would imply that most subjects cannot improve their self-care and psychotherapeutic skills! *This is the opposite of what research demonstrates about humans – we are very responsive to psychosocial learning opportunities for improving our psychotherapeutic skills and well being!* Crowds and social activity actually turns on experience-dependent gene expression (Ganguly-Fitzgerald et al. 2006). Experience with TCPGHE suggests that most people can improve their performance when (a) they are given appropriate, positive instruction and illustrations about how the 4-stage creative process is typically experienced; (b) they are given optimal opportunities to actually experience TCPGHE and openly share their experiences in supportive groups; (c) when their privacy is respected during self-motivated sharing of their positive creative experience. We hypothesize that creative therapeutic achievement on TCPGHE is enhanced by psychosocial learning in positive, constructive, & non-competitive groups!

3. We hypothesize that TCPGHE is a means by which people can empower themselves by learning how to experience the 4-stage

creative process in everyday life as well as in academic, artistic, scientific, and therapeutic situations on all levels from mind to gene.

4. We hypothesize that scores and response profiles on TCPGHE will be associated with unique profiles of activity and experience-dependent gene expression (measured with DNA and Micro RNAs microarrays) and brain plasticity (measured with fMRI). The *Gene Set Enrichment Analysis (GSEA)* computer program available free on the internet from MIT can be used to assess the meaning of DNA microarray findings for practical therapeutic purposes.

5. The characteristics of classical hypnosis as measured by the *SHSS* in table one are associated with undesirable states of *dissociation* such as agnosia (not knowing), and pathology (amnesia, hallucinations, regression, loss of self control), which are typical of psychological dysfunctions. We hypothesize that the characteristics of TCPGHE, by contrast, are associated with the positive, creative *ideo-plastic* processes of psychological resilience, resourcefulness, self-empowerment and mind-body healing (Wetterstrand, 1902). This may be the reason why research and professional commentators over the past two generations have cast doubt on the value and validity of “hypnotherapy” practiced as a method of putting people into a “sleep-like trance” and programming them with post-hypnotic suggestions and commands while they are misperceived to be vulnerable and robot-like in their behavior.

6. The historical misconceptions of classical hypnosis as a negative and possibly harmful process of “power, programming, manipulation, and control of human cognition and behavior” has led to the unfortunate reality that today classical hypnotic scales (*SHSS*) are no longer easily available because of fears of liability with their misuse. We hypothesize that the positive and creative activity-dependent “ideo-plastic” behaviors facilitated by *TCPGHE* are consistent with what neuroscientists call “activity-dependent gene expression and brain plasticity.” We propose that the creative “ideo-plastic” faculty will have greater face validity as a definition of modern therapeutic hypnosis that will be welcomed by people seeking help as well as the general public.

Considerable research will be required to assess the validity and reliability the administration of *TCPGHE* with the typical statistical methods of standardizing any psychological scale with item analysis, factor analysis, etc. We need to explore, for example, the art of questioning subjects about their experience in a manner that will not distract them from the creative flow of their inner processing. Variations in the language of *TCPGHE* for individual and group administration need to be assessed. Details about optimizing this creative approach to facilitating activity and experience-dependent gene expression and brain plasticity are presented in chapter nine of “*A Discourse with Our Genes: The Psychosocial and Cultural Genomics of Therapeutic Hypnosis and Psychotherapy*” (Rossi, 2004). The background of the theory, research, and practice of

TCPGHE is presented in all the Rossi volumes and papers listed below.

Self-Organizing Mind-Gene Maps of *The Creative Psychosocial Genomic Healing Experience*

We expect that the subjective experiences that are assessed by *The Creative Psychosocial Genomic Healing Experience* will contribute valuable insights when they are entered into the subject's experience-dependent gene expression matrix (the data from the DNA microarray gene chips) for the construction of Heat Maps and Self-Organizing Mind-Gene Maps, which will provide a picture of their mind-body relationships.

Note that the 12 points scored on this scale together with the subjects scores on the *Tellegen Absorption Scale*, *The Stanford and Harvard Group Scale of Hypnotic Susceptibility*, *The Minnesota Multiphasic Personality Inventory 2 (MMPI 2)*, *The Spiritual Intelligence Self Report Inventory (SISRI)* <http://www.dbking.net/spiritualintelligence/sisri.htm> - and any other variables researchers would like to study – can be transformed into standard scores and entered into the same data matrix with the subject's gene expression data. The matrix of gene expression scores and psychological scores could be used to make Heat Maps and Self-Organizing Genomic/Psychological Maps. Visualized Mind-Gene Maps could give us more understanding of the evolving theory, research, and practice of psychosocial genomics (Dusek et al. 2008;

Eisen et al., 1998; Jiang, et al. 2004; Kim, 2008; Kustra et al., 2006; Mahony, et al., 2004; Rossi et al. 2008).

The Use of DNA Microarrays (Rossi, 2005/2006) and bioinformatics software programs such as GSEA (<http://www.broadinstitute.org/gsea/>) and DAVID (<http://david.abcc.ncifcrf.gov/>) for the annotation, meaning, and therapeutic implications of *The Creative Psychosocial Genomic Healing Experience* are now being investigated. Such research already suggests that it reduces (1) chronic dysfunctional inflammation (associated with chronic pain and delayed healing); (2) oxidative stress (associated with many chronic medical and psychological conditions as well as the ageing process); (3) increases a “molecular signature of stem cells” (possibly associated with activating stem cells throughout the body). We hypothesize that these three deep molecular-genomic processes, plus others to be determined by further research, could eventually define what we call, “*The Creative Psychosocial Genomic Healing Response.*”

Such research could determine if this is also the molecular-genomic signature of the healing placebo (Benedetti, 2008). This is consistent with research that documents how interventions via therapeutic hypnosis (the Ultradian Healing Response) and meditation (the Relaxation Response) reduces stress and promotes healing on the molecular-genomic level (Dusek et al., 2008; Rossi, 2002, 2004, 2007; Rossi, Iannotti et al., 2008; Yehuda et al., 2009). Future research could examine these therapeutic effects directly using novel markers of inflammation and oxidative stress such as 5'-ectonucleotidase (NT) in humans as described by Blake-Mortimer et

al (1996, 1998, 2000). We invite other research groups to coordinate with us in the standardization and further documentation of the therapeutic value of *The Creative Psychosocial Genomic Healing Experience* on all levels from the cognitive-behavioral to the molecular-genomic.

<http://www.ernestrossi.com/ernestrossi/Neuroscienceresearchgroup.html>.

References

- Benedetti, F. (2008). *Placebo Effects: Understanding the mechanisms in health and disease*. New York: Oxford University Press.
- Blake-Mortimer, J., Winefield, A., & Chalmers, A. (1996). The relationship between psychological stress and lymphocytic 5'-ectonucleotidase during stress. *International Journal of Stress Management*, 3, 189-207.
- Blake-Mortimer, J., Winefield, A., & Chalmers, A. (1998). Evidence for free radical mediated reduction of lymphocytic 5'-ectonucleotidase during stress. *International Journal of Stress Management*, 5, 57-75.
- Chalmers, A., Blake-Mortimer, J., & Winefield, A. (2000). Lymphocytic 5' ectonucleotidase, an indicator of oxidative stress in humans. *Redox Report*, 5, 89-91.
- Dusek J., Hasan H., Wohlhueter A., Bhasin M., Zerbini L., Joseph M., Benson H., Libermann T. (2008). Genomic Counter-Stress Changes Induced by the Relaxation Response. (2008). *PLoS ONE*, 3(7): e2576. doi:10.1371/journal.pone. 0002576.
- Eisen, M., Spellman, P., Brown, P. & Botstein, D. (1998). Cluster analysis and display of genome-wide expression patterns. *Proceedings of the National Academy of Science*, 95, 14863-14868.

- Foa, E., Cohen, J., Keane, T., Friedman, M. (2008). *Effective Treatments for PTSD: Practice Guidelines from the International Society for Traumatic Stress Studies*. N.Y.: Guilford.
- Ganguly-Fitzgerald, I., Donlea, J., Shaw, P. (2006). Waking Experience Affects Sleep Need in Drosophila. *Science*, 313, 1775-1781.
- Hilgard, E. (1965). *Hypnotic Susceptibility*. N.Y.: Harcourt, Brace & World.
- Jiang, D. Chun Tang, C., & Zhang, A. (2004). Cluster analysis for gene expression data: a survey. *Knowledge and Data Engineering, IEEE Transactions*, 16(11)1370- 1386.
- Kim, C. (2008). Self-Organizing Maps with Statistical Phase Synchronization (SOMPS) for Analyzing Cell Cycle-Specific Gene Expression Data. *Statistical Applications in Genetics and Molecular Biology*: Vol. 7: Iss. 1, Article 1. <http://www.bepress.com/sagmb/vol7/iss1/art1>
- Kustra, R., Shioda, R. and Zhu. M. (2006). A factor analysis model for functional genomics. *BMC Bioinformatics*, 7:216 doi:10.1186/1471-2105-7-206.
- Lloyd, D & Rossi, E (Eds.) (1992). *Ultradian Rhythms in Life Processes: An Inquiry into Fundamental Principles of Chronobiology and Psychobiology*. NY: Springer-Verlag.
- Lloyd, D & Rossi, E (Eds.) (2008, In Press). *Ultradian Rhythms From Molecules to Mind: A New Vision of Life*. NY: Springer.
- Mahony, S., McInerney, J., Smith, T., & Golden, A. (2004). Gene prediction using the Self-Organizing Map: automatic generation of multiple gene models. *BMC Bioinformatics*, 5:23doi:10.1186/1471-2105-5-23.
- Naish, P. (2007). Time distortion and the nature of hypnosis and consciousness. In Jamieson, G. (Ed.) *Hypnosis and Conscious States: The Cognitive Neuroscience Perspective*. Oxford: Oxford University Press.
- Rossi, E (1972/1985/2000). *Dreams, Consciousness & Spirit: The Quantum Experience of Self-Reflection and Co-Creation*. (3rd Edition of *Dreams & the Growth of Personality*). NY: Zeig, Tucker, Theisen.

- Rossi, E. (2002). *The Psychobiology of Gene Expression: Neuroscience and Neurogenesis in Therapeutic Hypnosis and the Healing Arts*. NY: W. W. Norton Professional Books. ISBN: 0 – 393 – 70343 – 6.
- Rossi, E. (2004). (Translator & Editor, Salvador Iannotti: Saiannot@tin.it) *Discorso Tra Geni [Italian]. A Discourse with Our Genes: The Psychosocial and Cultural Genomics of Therapeutic Hypnosis and Psychotherapy*. Benevento, Italy: Editris SAS Press. [Available in Italian and English editions] ISBN 88 – 89396 – 01 – 6. NY: Zeig, Tucker, Theisen.
- Rossi, E. (2005/2006). Prospects for Exploring the Molecular-Genomic Foundations of Therapeutic Hypnosis with DNA Microarrays. *American Journal of Clinical Hypnosis*, 48 (2-3), 165-182.
- Rossi, E. (2007). *The Breakout Heuristic: The New Neuroscience of Mirror Neurons, Consciousness and Creativity in Human Relationships: Selected Papers of Ernest Lawrence Rossi*. Phoenix, Arizona: The Milton H. Erickson Foundation Press. office@erickson-foundation.org.
- Rossi, E., Rossi, K., Yount, G., Cozzolino, M., and Iannotti, S. (2006). The Bioinformatics of Integrative Medical Insights: Proposals for an International PsychoSocial and Cultural Bioinformatics Project. *Integrative Medicine Insights*, 2006: 2 1–19. <http://www.ernestrossi.com/ernestrossi/Neuroscienceresearchgroup.html>
- Rossi, E & Rossi, K. (2006). The Neuroscience of Observing Consciousness & Mirror Neurons in Therapeutic Hypnosis. *American Journal of Clinical Hypnosis*. 48: 283-278.
- Rossi, E. & Rossi, K. (2007). What is a Suggestion? The Neuroscience of Implicit Processing Heuristics in Therapeutic Hypnosis and Psychotherapy. *The American Journal of Clinical Hypnosis*. 49:4, 267-281.
- Rossi, E., and Rossi, K. (2008). Open Questions on Mind, Genes, Consciousness, and Behavior: The Circadian and Ultradian Rhythms of Art, Beauty, and Truth in Creativity. In Lloyd & Rossi (Eds.) *Ultradian*

- rhythms from molecule to mind: A new vision of life.* New York: Springer. 391-412.
- Rossi, E., Erickson-Klein, R., and Rossi, K. (2008). The Future Orientation of Constructive Memory: An Evolutionary Perspective on Therapeutic Hypnosis and Brief Psychotherapy. *American Journal of Clinical Hypnosis*, 50:4, 343-350.
- Rossi, E., Iannotti, S., Cozzolino, M., Castiglione, S., Cicatelli, A. & Rossi, K. (2008). A pilot study of positive expectations and focused attention via a new protocol for therapeutic hypnosis assessed with DNA microarrays: The creative psychosocial genomic healing experience. *Sleep and Hypnosis: An International Journal of Sleep, Dream, and Hypnosis*, 10:2, 39-44.
- Rossi, E. & Rossi, K. (2009). How the mind and the brain Co-Create each other: Mind-Brain-Gene Research on the foundations of Consciousness, Creativity, Imagination, and Psychotherapy. Chapter 7 in Bosnak, R. (Ed.) *Imagination and Medicine*, Spring Publications Books.
- Rossi, E. et al. (2010, In press). The Creative Psychosocial Genomics of Human Resilience and Resourcefulness. In Celinski & Gow (Eds.) *Human Resilience and Resourcefulness*.
- Wetterstrand, O. (1902). Hypnotism and Its application to practical medicine, New York: Putnam. Quoted in Tinterow, M. (1970). *Foundations of hypnosis*, pp. 513 – 543.
- Yehuda, R., Cai, G., Golier, J., Sarapas, C., Galea, S., Ising, M., Rein, T., Schmeidler, J., Müller-Myhsok, B., Holsboer, F., and Buxbaum, J. (2009). Gene Expression Patterns Associated with Posttraumatic Stress Disorder Following Exposure to the World Trade Center Attacks. *Biological Psychiatry*. doi:10.1016/j.biopsych.2009.02.034.

**THE CREATIVE PSYCHOSOCIAL GENOMIC HEALING EXPERIENCE ©
(Scoring & Assessment Form)**

Initial Time _____ am pm

Initial Stress: 0% . . . 100%

Accessing Resources:

1. Warmer – Cooler 0% . . . 100%

2. Stronger – Weaker 0% . . . 100%

Engaging Issues:

3. Child – Adult 0% . . . 100%

4. Problem – Opposite 0% . . . 100%

Creative Replays:

5. Negative Past Review 0% . . . 100

6. Positive Now & Future 0% . . . 100%

Integration:

7. Positive Self Change 0% . . . 100%

8. Positive Self-Prescription 0% . . . 100%

Real Time (Min.): 0-5 6-10 11-15 16-20 21-25 26-30 31-40 41-50 51-60 61+

Est. Time (Min.): 0-5 6-10 11-15 16-20 21-25 26-30 31-40 41-50 51-60 61+

9. Mental Engagement: Real Time / Est. Time X 100 = _____ %

10. Stress Reduction: Initial Stress / Final Stress X 100 = _____ %

11. Surprise: 0% . . . 100%

12. Confidence: 0% . . . 100%

Education: Elementary High School College Masters Doctorate

Age: 0 – 9 10 – 19 21 – 29 30 – 39 40 – 49 50 – 59 60 – 69 70 – 79 +

Sex: M F

Night Sleep Length: 1h 2h 3h 4h 5h 6h 7h 8h 9h 10h 11h 12h +

Dreams: 1 2 3 4 5 6 7 Days/Week. Est. Dreams Per Night _____

Comments: