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Expanding the Paradigm in DMILS/HI Research: a Proposal in Four Phases

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Abstract

Future investigations into *direct mental interactions with living systems* (DMILS) including studies on "healing intention (HI)" will ideally take place in the context of a collaborative longitudinal research program employing field methods used in anthropology together with advanced brain imaging techniques to permit rigorous examination of "healing" in both naturalistic settings and controlled laboratory conditions. The multidisciplinary research program outlined in this proposal addresses important unresolved conceptual and methodological problems in DMILS/HI research with the goal of clarifying the roles of socio-cultural, psychological, biological, spiritual and "energetic" factors in "healing." As envisioned, a series of field and laboratory studies in four phases will examine "healing" in relationship to select traditional healing approaches as practiced in naturalistic settings; traits, attitudes and beliefs of healers, patients and researchers; relationship factors influencing outcomes in researcher-healer-subject teams including distance, duration, time displacement (eg, healing "intention" in past or future), differences in attitudes, numbers of healers, patients and researchers; environmental factors conducive of (or interfering with) responses to HI; quantitative or qualitative methodologies that permit replication of "healing" claims and clarify underlying mechanisms associated with healing in both field and laboratory conditions.

The proposed research program will yield improved methodologies for future field and laboratory studies on "healing," contribute to an integral theory of "healing," help scientifically validate the rigorous interdisciplinary practice of "healing" that can be integrated into conventional allopathic medicine and alternative medical practices. Research findings will also lead to improved understanding of environmental factors and healer-patient dynamics associated with optimal "healing" outcomes, and examine efficacy claims of specific "healing" techniques used to treat medical and psychiatric disorders, investigate whether healing techniques used in the context of unique cultural settings, traditional healing systems or spiritual beliefs generalize to a human capacity for "healing" across cultures or in controlled laboratory settings. Finally, the proposed research program will ask whether humans can be trained as "more effective" healers and "more successful" patients.

Key words: healing, healing intention, distant healing intention, theory of healing, culture.

Objectives

Future investigations into *direct mental interactions with living systems* (DMILS) including studies on "healing intention (HI)" will ideally take place in the context of a collaborative longitudinal research program employing field methods used in anthropology together with advanced brain imaging techniques to permit rigorous examination of "healing" in both naturalistic settings and controlled laboratory conditions. The multidisciplinary research program outlined in this proposal addresses important unresolved conceptual and methodological problems in DMILS/HI research in efforts to clarify the roles of socio-cultural, psychological, biological, spiritual and "energetic" factors in "healing." The proposed research program will lead to improved theories and research methodologies that will guide future studies on HI and DMILS. As envisioned, a series of field and laboratory studies will examine "healing" in relationship to:

- Select traditional healing approaches as practiced in naturalistic settings
- Traits, attitudes and beliefs of healers, patients and researchers
- Relationship factors influencing outcomes in researcher-healer-subject teams including distance, duration, time displacement (e.g., healing "intention" in past or future), differences in attitudes, numbers of healers, patients and researchers, etc
- Environmental factors conducive of (or interfering with) responses to HI
- Quantitative or qualitative methodologies that permit replication of "healing" claims and clarify underlying mechanisms associated with healing in both field and laboratory conditions

The proposed research program will challenge and expand the DMILS/HI research paradigm by:

- Critically examining current explanatory models of consciousness in "healing" in field and laboratory studies on physical, psychological, neurophysiological and Psi phenomena associated with healing
- Stimulating cross-disciplinary dialog and research collaboration in anthropology, medicine, consciousness research and Psi investigations on an integral theory of healing
- Optimizing DMILS/HI research methodologies increasing the quality and uniformity of future studies and enhancing the clinical relevance of findings
- Applying established and emerging technologies to optimize methodologies aimed at obtaining pertinent empirical data on socio-cultural, biological, physical, "energetic," and informational factors associated with "normal" healing responses and health benefits associated with HI
- Utilizing novel statistical models and methods for analysis of significance, covariance and other measures to more adequately capture and characterize complex factors operating in HI in different healer-patient-researcher-environment configurations

Background

Many theories have been put forward in efforts to explain both indirect and direct effects of "healing intention (HI)"—including prayer and other spiritual practices—on health. Beneficial outcomes are reported almost 60% of the time when HI is employed alone to treat a medical or psychiatric disorder (Astin, Harkness & Ernst 2000). Reviews of the theory and research literature in DMILS and HI are available in Braud (Braud, 2003), Jonas & Crawford (Jonas & Crawford 2003) and Watts (Watts 2011). However, research findings to date are limited by serious methodological problems including poor or absent blinding, data omitted from analysis, unreliable outcome measures, rare use of power estimations and confidence intervals, and the absence of independent replication (Jonas & Crawford 2003). Along the same lines, it has been argued that few if any field or laboratory studies on "healing" have adequately simulated or re-created conditions and factors associated with reports of

healing in traditional societies (Schlitz, 2011). On this basis the significance of research findings on HI from Western-style research studies is questionable. Furthermore, models of "healing" based on these findings may have little or no bearing on human and environmental factors associated with healing.

Treatment approaches used in many non-allopathic traditions including Chinese medicine, Ayurveda, homeopathy, qigong, Reiki (and other forms of "energy healing") are premised on postulated interactions between putative non-classical forms of energy or information and complex living systems. For example, according to Chinese medical theory "qi" is an elemental energetic principle that cannot be adequately described in the language of contemporary science. Recent research findings suggest that "qi" may have characteristics that are consistent with the predictions of quantum field theory in complex living systems (Chen, 2004). Quantum brain dynamics (QBD) is a non-classical model that invokes quantum field theory in efforts to explain observed dynamic characteristics of brain functioning. QBD may eventually help elucidate reports of beneficial effects of "energy healing" on both physical and mental health. It has been suggested that prayer and other forms of healing intention may operate through nonlocal "subtle" energetic or informational interactions between the consciousness of the medical practitioner and the physical body or consciousness of the patient (Zahourek, 2004). Above-chance correlations in electrical brain activity between pairs of individuals separated by electromagnetic shielding who are instructed to "communicate" through intention may be consistent with the predictions of QBD or other emerging non-classical theories of consciousness (Schlitz & Braud, 1997; Standish et al 2003). Functional MRI imaging techniques showed a positive correlation between healing intention and changes in brain metabolic activity in patients who were empathically bonded with healers (Achterberg et al, 2005). Recently proposed theories of consciousness that invoke quantum-level mechanisms are only beginning to characterize relationships between the quantum level of reality, well described neurobiological and immunological processes, and human consciousness in ways that may permit laboratory studies on these important questions (Koehler, 2011).

The research program

The research program will require a coordinated effort over many years between researchers at multiple independent laboratories and take place in four phases. ***Phase I*** will consist of a comprehensive review of the anthropological, medical and Psi literature on "healing" to identify promising traditional healing practices and gifted healers in addition to specific medical or psychiatric disorders (if any) for which there is evidence for beneficial HI effects. To ensure an adequate "multidisciplinary lens" in future studies on healing, Schlitz has suggested a comprehensive literature review on the following five primary areas (Schlitz, 2011):

- Cross-cultural data
- Survey studies
- Public health research
- Basic science related to mind-body medicine
- Basic science and clinical studies of distant healing

Phase II will consist of field studies aimed at observing and documenting instances of "healing" culled from the literature review. Field studies will be conducted by trained investigators in naturalistic conditions employing validated anthropological field research methods (e.g., structured interviews of healers and patients, linguistic analysis, video and sound recordings, etc) and measures of physiological or "energetic" factors (e.g., serology, EKG, EEG, REG), and other appropriate research methods that can be adapted to field conditions. The field research program will yield observations and ratings of HI "performance" for different healing approaches and

unique healers with respect to particular medical or psychiatric illnesses using validated symptom-rating instruments and psychometric scales (see "variables and experimental measures" below). Analysis of Phase II field research findings will generate hypotheses about socio-cultural, psychological, biological, environmental, spiritual or "energetic" factors and relationships between factors when "healing" is reported or observed to take place with respect to particular medical or psychiatric illnesses. In addition, phase II findings will yield hypotheses about "optimal" configurations of socio-cultural, psychological, environmental, "energetic" factors associated with consistent positive "healing" outcomes for particular medical or psychiatric illnesses.

Phase III will consist of additional, more focused field research studies on specific medical or psychiatric illnesses identified as promising candidates in Phase II. Phase III field studies will test hypotheses generated in Phase II concerning "optimal" factors associated with observations of "healing" with respect to specific medical or psychiatric illnesses. As such, Phase III field studies will attempt to independently replicate Phase II findings for particular medical or psychiatric illnesses and characterize "optimal" configurations of researcher-healer-subject-environment factors associated with optimal "healing" outcomes in naturalistic conditions. An important goal of Phase III will be refinement of field research methods for obtaining and validating information on socio-cultural, biological, psychological, environmental and "energetic" factors associated with consistent positive outcomes when HI is used to treat a particular medical or psychiatric disorder. Analysis of Phase III findings will refine Phase II hypotheses about "optimal" healing conditions and configurations (i.e., researcher-healer-subject-environment relationships) with respect to select medical or psychiatric illnesses examined in this phase. Phase III data will also lead to improvements in qualitative and quantitative research methods that will be used to design Phase IV studies.

Phase IV will consist of a series of laboratory studies with the goals of replicating findings of naturalistic field studies and further characterizing socio-cultural, biological, psychological, environmental, spiritual or Psi factors associated with optimal "healing" for select medical or psychiatric illnesses. Phase IV will start with a critical literature review of laboratory Psi and HI studies to determine optimal research designs and statistical methods. The literature review will focus on the following questions and goals:

- Comprehensive review of all functional imaging studies (including EEG, fMRI, SPECT, PET, MEG) on Psi or "healing" "HI" or "simulated healing" published to date
- Re-analysis of previous findings with respect to CNS activation/localization, network theory, etc and HI; re-analysis of previous findings with respect to biological/immune markers and HI.
- Was research protocol used able to answer question posed? If not, what experimental design or methodology issues may need to be re-assessed?
- Identify theoretical biases and omissions that may have influenced outcomes or interpretation of findings in previous studies
- Critical review of statistical methods used in previous Psi and HI studies.
- Develop novel experimental protocols to optimize HI outcomes and data "capture" following methods and findings from Phase III
- Identify emerging theoretical models of Psi and "healing" that may be more consistent with reported outcomes and mechanisms discussed in literature

Phase IV studies will examine different explanatory models of HI under controlled laboratory conditions with the goals of refining methods and protocols used in HI research, further characterizing promising healing practices used in traditional settings, and replicating HI outcomes for a particular medical or psychiatric disease condition. ***Phase IV*** studies will focus on select medical or psychiatric disorders for which there are robust findings in Phase

II and III. "Gifted" healer-patient pairs identified in Phase II and III will be invited to participate in laboratory studies in environments adapted to simulate optimal healing "conditions" in the naturalistic environment in which healing practices are used in traditional cultural settings. Phase IV will identify research methods and factors conducive of "optimal" healing environments and "successful" healer-subject-researcher configurations. Data gathered in this phase will include select bioassays of immune function and other biological markers specific to the target illness being examined, validated psychometric scales measuring healer, patient and researcher attitudes, beliefs, interactions, and experiences, functional brain imaging methods (including possibly EEG, fMRI, SPECT, MEG), measures of putative informational or "energetic" factors that may be associated with "healing" (e.g. REG, other machines), and other qualitative and quantitative research methods appropriate for evaluating responses to HI with respect to the target medical or psychiatric disorder. Phase IV findings will further refine hypotheses about socio-cultural, biological, psychological, spiritual and Psi factors associated with "optimal" healing with respect to discrete medical or psychiatric disorders. Important goals of Phase IV include:

- Examining "gifted" healers (i.e., individuals who achieve robust or consistently positive HI results in naturalistic environments) in controlled laboratory settings to characterize environmental conditions and healer-subject-researcher factors conducive of optimal "healing" outcomes, and find out whether HI outcomes observed in naturalistic settings can be simulated or replicated in controlled laboratory settings
- Developing disease-specific protocols that simulate (as much as possible) naturalistic factors in controlled laboratory settings to achieve optimal "healing" with respect to specific medical or psychiatric disorders
- Characterizing optimal healer-patient-researcher-environment "configurations" with respect to specific medical or psychiatric disorders

Previous studies on "healing" suggest that multiple human and environmental factors play a significant role when "healing" takes place however the relative contributions of specific factors or relationships between them have not been clearly established. The proposed research program will characterize mechanisms involved in healing by systematically investigating human and environmental factors including:

- *State of healer* before, during and after a session directed at enhancing meditative absorption or trance using EEG biofeedback or other Psi-conducive procedures. Such Psi-conducive procedures can be used in the patient only, healer only, or both patient and healer simultaneously or at different times. Permutations in the relative "state" of healer and patient during a healing session should include a "neutral" state in which Psi-conducive procedures are not used, Psi-conducive procedures used in the healer alone or the patient alone, and the same or different Psi-conducive procedure used in both healer and patient at the same or different times.
- *Duration of healing session* and "directed" healing intention. Longer time intervals more closely approximate naturalistic conditions in which healing practices take place in traditional settings. Studies should compare short healing sessions of relatively short (several minutes) durations with sessions directed at the same disease condition of relatively longer (30 minutes to 1 hour or longer). Research methodologies should emphasize duration of healing sessions that reflect traditionally practiced forms of healing in naturalistic field conditions for particular forms of healing and particular disease conditions.
- *Receptivity of patient*. It will be important to develop measures that permit comparison of sustained "receptivity" or absorptive states in the patient with a psychologically "neutral" state. This will permit asking questions about whether patients who are more 'successful' at responding to healers' intentions are those capable of entering into and sustaining highly absorptive or trance-like states. Important

permutations to examine in field and laboratory studies include pairing a 'neutral' patient with a gifted healer; a highly absorptive patient with a sham healer, and a highly absorptive patient with a gifted healer.

- *Physiological factors*: serum markers of immune status, inflammation, infection, metabolic status, and others emphasizing known markers of the specific disease condition in a particular patient.
- *Functional brain data*: fMRI, SPECT, PET, EEG (including QEEG and Loretta or interpolation of deep brain EEG activity), analysis of co-variance of functional brain imaging findings by region or major circuit (eg, using network theory); analysis of relationships (if any) between above functional brain imaging data and peripheral physiological measures (e.g., electrodermal skin testing or galvanic skin resistance); analysis of relationships (if any) between functional brain imaging findings and measures of putative non-local effects using REG.
- *Possible role of classical QM or large-scale quantum field effects in healing*: There is emerging evidence that magnetic resonance spectroscopy (MRS) or fMRI data may provide indirect indicators of large-scale coherence in both living and non-living systems that may be consistent with predictions of Quantum Field theory. Ultra-sensitive biophoton detectors and random event generators (REG) may also yield insights about the putative role of non-classical phenomena (e.g., simple QM events and macroscopic quantum fields) in healing. A challenging part of future healing studies will be to develop empirical methods that permit testing for subtle co-variance between such indirect indicators of possible large-scale quantum field effects and conventional functional imaging data including fMRI, SPECT, EEG in relationship to objective reports of healing using standardized symptom rating scales and subjective "states" of both healer, patient and experimenter.
- *Personality inventories* of healers and patients could be performed using validated scales for absorption, dissociative tendencies, indicators of limbic activity, etc. The goal would be to test for consistent relationships between personality traits or states of healer, patient or experimenter, and higher than chance changes in objective outcome measures of a particular disease condition following a healing session. Analysis of covariance could be done, for example, on physiological markers of a particular disease condition being targeted by the healer, functional brain imaging findings, and subjective states reported by patient, healer and experimenter.
- *Objective outcomes* of "healing" should use blinded raters to evaluate changes in target symptoms for select medical or psychiatric disease conditions when comparing actual patients vs. sham patients for a specific disease condition on the basis of discrete immune or metabolic markers, etc. Test for covariances between objective outcomes based on above, and subjective reports from the perspectives of both patients and healers. Test for consistent relationships between objective outcome measures (above), subjective patient or healer reports, and functional brain imaging findings including fMRI, SPECT, PET.
- *Time variable*: An important and little explored variable in healing research is the absolute or relative role of the relationship between the "time" at which healing intention takes place and the "time" at which the patient is "receptive to," consciously "aware of" the healer's presence or intentions, experiences subjective changes, or is observed to respond to healing intention on the basis of objective measures. The role of "time" in healing raises issues pertaining to possible non-local space-time phenomena involved in healing intention with respect to objectively observed outcomes or subjectively reported patient "impressions." A first experiment examining the importance of "time" in healing might compare a neutral patient and sham patient who are empathically linked to the same healer. In this scenario the target disease condition and other variables would remain constant. That is, both patients would be treated for the same disease condition while the actual "timing" of the healer's intention, and the "time" the patient is notified of healing intention would be progressively staggered while monitoring both subjective reports and objective

outcome measures. Initial permutations in this experiment might include assigning the same "time" to healer's intentions and patient's awareness of or receptivity to healing, followed by a sequence of time "gaps" of hours or days in which the healer engages in "healing" intention both "before" and "after" the time at which the patient is notified that healing intention is being attempted, or before and after the patient is in a "receptive state."

- *Location and distance*: What is the importance of location of the healer and patient during healing? What effect does spatial separation between healer and patient for above variables and permutations have on subjective and objective reports of healing for different disease conditions or with respect to particular forms of healing? Are there significant and consistent differences in outcomes when healing is attempted in local settings reflecting naturalistic conditions in which there is shared awareness of healer and patient who are present in the same location and may form a "cooperative" pair, in contrast to pairs of healers and patients who are separated by considerable distance (e.g., kilometers or greater distances) and who may or may not have shared awareness of each other or of each other's intentions? It will be interesting to find ways to determine whether objective measures of healing outcomes for a particular disease condition correlate with relative distance "separating" healer and patient, and if so, whether "threshold" effects exist that may be consistent with a "minimum effective spatial separation" between healer and patient. Further, it will be important to ask whether spatial separation between healer and patient plays a greater or lesser role in objective or subjectively reported outcomes when particular distant healing modalities are used for particular disease conditions. Permutations to examine distance "effects" on healing in future functional brain imaging studies might include placing the healer vs. sham healer: inside scanner room with the patient; in control room; outside fMRI facility; at least one mile away; or having healer remain in a naturalistic environment remotely (up to thousands of miles) from the patient.

In ***Phase IV*** studies careful design of sham healer protocols is critical for clarifying the roles of intention, belief, empathy, distance and time in healing intention (HI). **Exhibit A** suggests permutations of healer-patient-researcher relationships in future HI studies. **Exhibit B** suggests permutations of sham vs. verum conditions for healer, patient, researcher and scanner in future HI studies.

Exhibit A: Healer-patient-researcher configurations in future laboratory HI studies

protocol	Healer	Patient	Relationship and controls/variables
I	Gifted	Successful	Pt knows and is "engaged" with (ie, empathically "linked") to healer, verum healer present
II	Gifted	Successful	Pt doesn't know she is "engaged" with healer, verum healer present
III	Gifted	Successful	Pt thinks she is "engaged" *NO* healer present
IV	Gifted	Successful	Pt thinks she is "engaged" sham healer present
V	Gifted	Successful	Pt thinks she is "engaged" verum healer works in past or future

(NOTE: Continue and expand above protocol using permutations of different healer skill levels, "non-gifted" patients while varying the target disease condition and varying the state of the researcher including, eg, researchers who are neutral vs. "engaged or "empathically linked" with the patient.)

Exhibit B: Sham considerations in future DMILS/HI studies

General

- Verum vs. sham healer, patient, scanner, experimenter
- Use healers, patients and researchers as their own controls

Healers

- True healer healing intention
- True healer neutral state
- True healer interfering/negative state
- Sham healer healing intention
- Sham healer neutral state
- Sham healer interfering/negative state
- (Same as above with past vs. future time displacement added)
- (same as above with positive vs. neutral vs. negative researcher expectation)
- No healer present

Patients

- "Successful" patients have documented history of beneficial healing "effects" (Phase II and III) with healer in study
- Successful healthy pt in highly absorptive state
- Successful healthy pt in neutral state
- Successful healthy pt in negative state
- Successful ill (discrete disease condition) pt (greater "need" for healing (see Braud here) in absorptive state
- Successful ill pt in neutral state
- Successful ill pt in negative state
- Sham pt in absorptive state
- Sham pt in neutral state
- Sham pt in negative state
- (Same as above but add past vs. future time displacement)
- (Same as above but include verum vs. sham healers)
- (Same as above but include experimenter expectation positive, neutral, negative)

Researcher

- True researcher "believes" in HI efficacy
- True researcher "skeptical" re HI efficacy
- Sham researcher "believes" in HI efficacy
- Sham researcher "skeptical" re HI efficacy

fMRI, SPECT, PET, EEG, REG and other functional measures

- Scanners "on." Apparent correlations between subjective or objective healing outcomes measures?
- Scanners "off." Observed effects on subjective or objective healing outcomes measures?
- Are there observed covariances between experimenter "engagement," "optimism" and subjective/objective outcomes? Is experimenter expectation or "belief" as significant a factor as in verum vs. true healer, or neutral vs. "successful" patient?
- Other factors to consider?

Findings from Phase IV studies will help answer the following questions:

- What are the effect sizes and significance (if any) of differences in healing outcomes for the above permutations in different patient/healer/experimenter/environment configurations?
- Are there consistent co-variances between different permutations of healers/patients/experimenters/environment for select medical or psychiatric disease conditions? If so what do observed co-variances imply about the relative contributions of healer, patient, experimenter and environmental factors to "healing" with respect to a particular disease condition?
- What is the relative importance of psychological "set" or state of the healer, patient and experimenter with respect to subjective and objective outcomes?
- What are the relative effects of duration of a healing session, distance and temporal factors (see "variables and experimental measures") on differences in subjective reported and objective measures of outcomes for different patient/healer/experimenter/environment configurations and for different disease conditions?
- Are there consistent and significant differences in the number of runs to achieve statistical significance for major configurations of patient/healer/experimenter/environment for select disease conditions? If so this finding may imply differences in the capacity for humans to "train" as proficient healers using particular techniques when approaching particular disease conditions.

Summary

An interdisciplinary research program on "healing" will yield rigorous uniform methodologies for future field and laboratory studies on healing, contribute to an integral theory of "healing," help establish and scientifically validate a discipline of "healing" that can be integrated into conventional allopathic and alternative medical practices, lead to improved understanding of unique environmental conditions and healer-patient factors that may be associated with optimal healing outcomes, and examine efficacy claims of specific "healing" techniques addressing particular medical and psychiatric disorders. In addition, the proposed research program will investigate whether healing techniques used in the context of unique cultural settings, traditional healing systems or spiritual beliefs generalize to a human capacity for "healing" across cultures or in controlled laboratory settings. Finally, the proposed research program will ask whether humans can be trained as "more effective" healers and "more successful" patients.

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