

Exploring Personality, Phenomenological, and EEG Correlates
of the Ayahuasca Journey Experience to
Facilitate an Individual's Spiritual Development

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Research Proposal of August 15, 2004

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**Twelve Subjects and \$30,000 needed for Ayahuasca/EEG Research
in Florianopolis, Brazil, from January 7-18, 2005
Invitation to Participate and/or Donate**

STUDY TITLE: Exploring Personality, Phenomenological, and EEG Correlates of the
Ayahuasca Journey Experience to Facilitate an Individual's Spiritual Development

Echenhofer, F.G., Wynia, K., Luna, L.E., Gunkelman, J, and Whitehouse, W.G.

The research team and the ayahuasca research seminar setting: This research was designed to replicate and extend the EEG and ayahuasca research that was conducted in Brazil in 2000. Frank Echenhofer will be the principal investigator, Katee Wynia, MA will provide expertise in refining research procedures to create the optimal environment for conducting EEG recordings. Dr. Luis Eduardo Luna, an anthropologist, will create and lead an ayahuasca seminar which involves the sacred use of ayahuasca in Brazil from January 7 through January 18. The seminar will take place at Wasiwaska, Research Center for the Study of Psychointegrator Plants, Visionary Art, and Consciousness, a legally established non-profit organization located in Florianopolis, southern Brazil. The cost of this ayahuasca seminar is \$1,600 and additional detailed information about the seminar can be obtained by contacting Dr Luna directly (leluna@wasiwaska.org). Donations are currently being sought to help offer scholarships for a limited number of qualified participants who cannot afford the airfare and seminar expenses. It is within the context of this seminar that the research project will take place. Jay Gunkelman, QEEGD has recommended and will continue to guide the EEG analysis for this study. Dr. Wayne Whitehouse has assisted in refining the research design and will edit the final journal article(s).

Individuals interested in participating: Contact Dr. Echenhofer (fechenhofer@ciis.edu) and you will receive in the mail an initial screening packet containing an informed consent form describing the study, a screening questionnaire and two psychological questionnaires, which take about 90 minutes to complete. The screening questionnaire includes: 1) questions about prior ayahuasca experience, 2) health history, and 3) current use of medications and remedies. These questionnaires help insure that participants recruited in this research have: 1) psychological and spiritual maturity, 2) had previous positive ayahuasca experience, 3) proficiency in English, and 4) familiarity and comfort with Western scientific research methods. This screening is designed to help minimize any risk associated with research involving ayahuasca. Participants receive a pre-addressed, stamped envelope to return the completed questionnaires. Potential participants can contact Dr. Echenhofer by phone or e-mail to have any questions answered. Participants who have been qualified to participate will then be contacted by Dr. Luna (leluna@wasiwaska.org) about registering for the seminar, within which the research project will take place.

The major EEG and ayahuasca research discovery: In August, 2000 Frank Echenhofer took an EEG system to the Brazilian Amazon with his doctoral student, David Stuckey, to examine the EEGs of two individuals very experienced in the shamanic use of ayahuasca. Aspects of this research were reported in David Stuckey's (2004) dissertation. The prior thirty years of EEG psychedelic research suggested that psychedelic substances tend to decrease alpha and theta power and enhance beta power in the EEG frequency spectrum. The work carried out by Echenhofer and Stuckey in Brazil in 2000 was *the first research to reveal a major EEG correlate with any psychedelic substance. Very high coherence was discovered among the majority of EEG recording locations in the EEG gamma frequencies (from 36 to 64 Hz)* during the eyes closed ayahuasca condition compared to the eyes closed baseline condition.

Implications this research discovery: Many neuroscience studies suggest that moderate levels of gamma coherence occur in the “binding” together of the many elements comprising normal consciousness into a unified experience. Richard Davidson reported preliminary EEG findings showing that highly advanced Tibetan meditators also have enhanced EEG gamma coherence during meditation. It is possible that high EEG gamma coherence may be a marker for states of heightened awareness common to the sacred use of meditation and entheogens and that these states involve enhanced binding processes.

The potential to access shamanic states using EEG biofeedback: The purpose of this proposed research is to further study the patterning and dynamics of enhanced EEG gamma coherence during the ayahuasca journey experience. If Echenhofer and Stuckey's prior research is replicated and extended, it may open important new lines of investigation for EEG and consciousness-oriented research. Clearly, robust EEG and experiential correlates can be used to develop biofeedback protocols, which, in turn, might be used for spiritual and therapeutic purposes to assist individuals to reproduce the specific patterns of EEG gamma coherence that occur during ayahuasca experience, thereby enabling them to voluntarily access shamanic states without using an entheogen.

Individuals interested in making tax-deductible donations: To support this research project contact MAPS, an IRS approved 501(c)(3) non-profit corporation, and MAPS will allocate 100% of the donations ear-marked for this project as well as providing donors with needed documentation for tax purposes. It is important that you indicate to MAPS that your donation is for the Echenhofer Ayahuasca EEG Project. For any additional information about making a donation MAPS can be contacted at (941)-924-6277 or by mail at MAPS, 2105 Robinson Avenue, Sarasota, Florida, 34232. If you are considering making a donation and would like further information, please e-mail Dr. Echenhofer at fechenhofer@ciis.edu or call (510) 233-7195.

The proposal for this research project is on the maps.org website:
<http://www.maps.org/research/ayahuasca/echenhoferproposal.pdf>

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Study Aims and Background

The proposed study, entitled *Exploring Personality, Phenomenological, and EEG Correlates of the Ayahuasca Journey Experience to Facilitate an Individual's Spiritual Development*, will investigate the sacred brew ayahuasca not in its traditional Amazonian environment but in a carefully designed setting in a research center in Brazil. This research is multi-disciplinary in nature and is therefore situated within several research paradigms (positivist psychophysiology and personality research, phenomenological research, and transpersonal psychology). Dr Frank Echenhofer (Echenhofer and Coombs, 1987; Coombs and Echenhofer, 1987; Echenhofer, 1992, 2000, 2002; Echenhofer and Greenberg, 2002; Echenhofer, 2003a, 2003b, 2004a, 2004b) is the principal investigator of the research project and is a licensed clinical psychologist, an expert in EEG research examining exceptional states of consciousness, certified in Biofeedback and Neurotherapy, a full professor of clinical psychology at the California Institute of Integral Studies (CIIS) doctoral program in clinical psychology, and an expert in spiritual practice and transpersonal psychology. Dr. Luis Eduardo Luna, an anthropologist and expert in ayahuasca (Luna, 1984a, 1984b, 1986, 1991, 2000), head of Wasiwaska, Research Center for the Study of Psychointegrator Plants, Visionary Art, and Consciousness, a legally established non-profit institution, is co-investigator in this research and will be structuring and leading the seminar which involves the sacred use of ayahuasca from January 7 through January 18. It is within the context of this seminar that the research project will take place.

Dr. Luna has over 30 years of experience studying ayahuasca in various contexts, and eight years conducting sessions and will be a collaborator in this research project, having the primary responsibility in 1) recruiting of the research participants, 2) establishing the physical setting as a sacred space within which the research participants will experience ayahuasca, 3) supervising all ayahuasca research sessions to help minimize risk, and 4) collaborating in the writing of the final research report as a co-author.

There are four primary research aims in this study. The first aim is to replicate, in a larger sample of research participants, the previous research finding that very enhanced EEG gamma coherence occurs among a majority of the standard 19 EEG sensor locations during the ayahuasca experience compared to a baseline control recording condition (Stuckey, 2004). The second research aim is to determine if specific patterns of enhanced EEG gamma coherence correlate with unique ayahuasca journey experiences for each research participant. The third aim is to develop unique EEG biofeedback protocols for each research participant for use in a subsequent research study to determine if individuals can gain access to journey-like experiences using EEG biofeedback procedures without the use of ayahuasca. The fourth aim of this study is to determine if questionnaire data and psychological assessment instruments will significantly correlate with the qualities and intensities of the ayahuasca experiences and with observed EEG changes.

There is also a fifth, overarching aim, which bridges the research objectives of the project with an attempt to identify and, ultimately, to apply the most effective tools and procedures to facilitate mysticism for spiritual development. This fifth aim is the most practical, most important, and most difficult to realize and will require a long series of research studies involving many skillful participants and research collaborators. Scientific methods will be used systematically and carefully to help explore each

participant's unique personal dimensions that each participant invests in their sacred use of ayahuasca, along with the individual's experiences with other sources of spiritual knowledge and practice. By identifying correspondences between the expressed content of each person's spiritual experiences, it will become possible to understand the person's current core unfolding processes within a more universal framework of development that is most clearly articulated in the essential insights of the world's great wisdom traditions. An assumption of this work is that an individual's developmental stage in this spiritual unfolding is reflected on all levels, including the level of electrical energies recorded as the EEG, where relative expansion or contraction in spiritual awareness is reflected in the over-all complexity of the patterns of electrical energy in constant transformation across the cerebral cortex. This assumption is well supported by previous research findings (Stuckey, 2004). Another assumption guiding this research is that, by simultaneously exploring the personal symbolic, universal symbolic and formless, as well as the chemical-electrical realms related to knowledge and being, there can arise a fuller, more enriched way to both understand and embody these realms of experience. This fifth aim is, of course, one that our research is just beginning to address. It is hoped that this first group of research participants will be instrumental in helping us to realize the first four research aims but, more importantly, that they derive personal benefit from this fifth aim in their quest to enhance their spiritual lives.

Research Participants: Inclusion/Exclusion Criteria

After eight years of experience in guiding ayahuasca sessions, Dr. Luna has developed long-term relationships with many potential research participants, some of whom will be recruited for this research study. From this group of prior ayahuasca seminar participants, Dr. Luna will recommend a list of potential research participants based on his sense of their psychological and spiritual maturity, previous positive ayahuasca experience, proficiency in English, and familiarity and comfort with Western scientific research methods. These individuals will then be contacted by e-mail by Dr. Luna to see if they would consider being further screened for participation in the research study. All individuals who express the wish to participate will receive the initial screening packet and asked to fill out and return by mail one screening questionnaire and two psychological assessment instruments (ES, POI).

The screening packet questionnaire includes the following questions or requests for information.

- 1) Do your previous ayahuasca experiences come to you in primarily visual, kinesthetic, auditory, tactile, or other ways, or some combination of these?
- 2) Would you consider your ayahuasca experiences to be mild, moderate, intense, or very intense? Please explain with some detail.
- 3) Please describe your medical health history, including all illnesses and hospitalizations from childhood up to the present time.
- 4) Please describe all prescription medications that you are currently taking for any current physical disorder.
- 5) Please describe your history regarding allergies including any allergic responses in childhood and up to the present time.
- 6) Please describe your current use of non-prescription medications and herbal remedies and why you use these.

-7) Please describe your mental health history, including all illnesses and hospitalizations from childhood up to the present time.

-8) Please describe all prescription, non-prescription medications and herbal remedies that you are currently taking for any reason.

The two psychological assessment instruments are the ego strength (ES) sub-scale of the MMPI and the Personal Orientation Inventory (POI), which assesses self-actualization and psychological maturity. Individuals will be excluded from participation who have any serious medical or psychological disorder, are taking any medications or herbal remedies for a medical or psychological disorder that affects the Central Nervous System, and have ego strength and over-all POI scores below the 75th percentile.

It will take participants a total of approximately 1 hour to complete the ES, POI, and screening questionnaire. Participants will be provided with an addressed and stamped envelope to return the completed materials to Dr. Echenhofer.

Description of Research Methods and Procedures

Individuals who meet the study's initial screening criteria will be sent a second mailing that will include one additional questionnaire and three additional assessment instruments (VVQ, MPQ, TPQ) to be filled out and mailed back to Dr. Echenhofer for scoring prior to the EEG ayahuasca recording session. Richardson's (1977) Verbalizer-Visualizer questionnaire (VVQ) will be used to assess each participant's preferred cognitive mode of experiencing. Tellegen's Absorption Scale (MPQ) (Tellegen, 1982, 1992) assesses the capacity to experience "absorption" which has been linked to the capacity to enter into altered and exceptional states of consciousness. Participants will be asked to complete the most recent version of Cloninger's Tridimensional Personality Questionnaire (TPQ) (Cloninger, 1991, 1996) which is currently the dominant personality model in psychiatric genetics. Cloninger's Biosocial Model of Personality examines the relative strength of three "temperament" traits, thought to be influenced primarily by genetic factors. These traits are novelty-seeking which is thought to be controlled by the dopaminergic system, harm avoidance which is thought to be controlled by the serotonin system, and reward dependence, which is thought to be controlled by norepinephrine.

The questionnaire will ask participants to answer the following questions or requests for information.

-1) Describe, in general, your current way of using ayahuasca and how your experiences with ayahuasca have influenced you.

-2) What kinds of spiritual practices or traditions have you learned and used in the past and what aspects of these practices, if any, do you now retain as part your spiritual practice?

-3) Describe several important and memorable ayahuasca journey experiences that have greatly affected you.

-4) What kinds of spiritual models or systems or frameworks, if any, have you relied upon to make sense of your own ayahuasca journey experiences?

- 5) Has this question of the interpretation of your ayahuasca journey experiences been important to you? If so, how have you developed your interpretations of your experiences?
- 6) If such interpretations have been important, are there particular questions that you have continued to explore during your ayahuasca experiences?
- 7) What are some of the evolving themes found in your ayahuasca journeys?
- 8) What occurs during the course of these experiences that you consider sacred?
- 9) Have you used writing or artistic expression or other forms of expression such as movement or dance or singing or other ways to express and to learn more about what you have experienced during your ayahuasca experiences? If so, please explain.
- 10) How well do you remember your ayahuasca journey experiences?
- 11) Have you written about your ayahuasca journey experiences?
- 12) If you have, would you be willing to allow your writings or other forms of expression to be a part of this research project?

It will take participants a total of approximately 2 hour to complete the VVQ, MPQ, TPQ, and second questionnaire. Participants will be provided with an addressed and stamped envelope to return the completed papers to Dr. Echenhofer.

On the day of the EEG ayahuasca recording session, Drs. Echenhofer and Luna will greet research participants and orient them to the research setting and procedures. Dr. Echenhofer will be available to oversee preparations and running of all of the EEG ayahuasca recording sessions. The individuals present during these experimental sessions include Dr. Echenhofer, his research associate, a research facilitator, Dr. Luna, and the research participant.

All EEG and eye movement physiological monitoring procedures are non-invasive and will follow standardized protocols. Hook-ups to this instrumentation will take 90 minutes. Physiological sensors will remain in place during the course of the ayahuasca journey process and become unnoticeable over the course of the session. After this hook-up procedure a brief interview with each research participant will occur prior to the beginning of the EEG recording ayahuasca session.

The following is a list of sample questions for the brief interview that will be used prior to the EEG recording session.

- 1. Do you have any specific intention for this ayahuasca journey?
- 2. How do you feel now emotionally and physically?

Audio recordings of each participant's brief interview prior to the EEG recording session, of subjective experiences during the journey experience itself, and of a brief interview after the session will be made.

Baseline EEG eyes closed and eyes open prior to ayahuasca ingestion will be recorded for approximately 10 minutes with research participants seated comfortably. From that time, every 20 minutes research participants will be asked to sit in a relaxed manner as a 5 minute EEG recording is conducted. Just subsequent to this EEG recording, participants will be asked to describe briefly their experiences which will usually take about 5 minutes. On average, most ayahuasca session are complete within four hours,

which should permit recording about eight, 5 minute samples of EEG data, with related subjective experience recorded on audio tape.

The following is a list of sample questions that will be used just subsequent to each of the 5 minute EEG ayahuasca recording samples.

- 1. What were your experiences over the last 5 minutes?
- 2. Could you tell me more about that?
- 3. How alert were you?
- 4. How intense was your experience (1 to 10 scale)?
- 5. What modality was most pronounced?

Once four hours have elapsed from the time of ingestion and/or the research participant reports that the ayahuasca journey experience has completely ended, a brief interview will occur and will be audio tape recorded.

The following is a list of sample questions of the interview that will be conducted at the end of EEG ayahuasca recording session.

- 1. How alert were you over-all? Do you think you were asleep at all? If so, when?
- 2. How intense was your over-all experience (1 to 10 scale)
- 3. How would you rate the over-all experience in terms of having a body focus, an emotional or relational focus, an insight and wisdom focus, or a formless focus?
- 4. Could you describe your ayahuasca journey experiences this time in more detail?
- 5. How did your journey themes relate to your previous experiences?
- 6. Did your experiences seem to relate to your initial intention?
- 7. What modality was most pronounced and when?
- 8. Did paranormal phenomena occur during this or previous ayahuasca journeys?
- 9. Did you experience contact in any way with entities or beings during this or previous ayahuasca journeys?
- 10. Did you experience guidance in some way or form during your experience? Please explain.
- 11. Do you think the EEG recording procedures affected your experience? If so, how?

After the interview has been conducted the physiological sensors will be removed. This procedure takes 15 minutes. At this point a standardized assessment of the over-all altered state ayahuasca experience will be obtained after the ayahuasca EEG recording session by administering the APZ questionnaire (Dittrich, 1994). The APZ questionnaire is a widely used research instrument to assess altered states of consciousness

Research participants will then be asked to continue to reflect over the course of the next day upon their recent ayahuasca experience and use ways familiar to them to explore further their experiences through writing or any other way of reflection, expression, and inquiry. Materials will be provided for drawing or painting. The next day participants will meet with Dr. Echenhofer to sit in front of their writing, drawing, and/or painting to further describe their experiences as they look at their work. Research participants will be asked to share these products for inclusion as research data. These discussions will be audio tape recorded.

Dr. Echenhofer and his collaborators will then analyze the different kinds of research data (EEG, psychological assessment, phenomenological, audio recording transcripts, and each participant's reflections and expressions of their experiences) over the next 2 months and write a report of this research for publication. This report will include an appendix that will provide information on recommended sets of EEG biofeedback protocols specific to each research participant's unique EEG gamma coherence patterns obtained during different subjective experiences over the course of his/her ayahuasca journey. This appendix will also include detailed and specific recommendations as to how to implement individually specific EEG biofeedback training procedures to progressively learn to recreate his/her own EEG gamma coherence patterns and associated ayahuasca journey-like experiences without using ayahuasca.

Potential Risks/Discomforts to Subjects and Methods of Minimizing These Risks

The risks involved in using ayahuasca relate to the fact that ayahuasca is a powerful entheogen. While ayahuasca can be a very challenging psychological experience, recent research has shown that when used with simple precautions it is quite safe (Grob et. al. 1996). In individuals who have had adequate preparation and who have the appropriate setting and guidance as needed for their experience, ayahuasca is reported to facilitate the working through of personal issues and the facilitation of shamanic experiences. In this study many procedures have been put into place to minimize risk. Screening procedures previously described will screen out individuals who have potential risk factors associated with using ayahuasca including 1) inadequate psychological maturity and ego strength, 2) compromised or vulnerable mental or physical health status, and 3) poor preparation. A leading expert in providing safe and beneficial settings for using ayahuasca in a sacred context, Dr. Luna, will facilitate all the ayahuasca research sessions.

The kinds of personal experiences that might occur might best be characterized as the working through of unresolved psychological issues. This working through process can clearly be experienced as intense as might occur in depth psychotherapy. Because of the nature of the ayahuasca brew, individuals may purge during these working through processes. This purging is what gives ayahuasca its reputation as a powerful teacher and as a teacher that offers the possibility to heal personal issues (Metzner, 1999). The kinds of shamanic experiences that could occur might best be characterized as involving any or all of the stages of the hero's journey (Campbell, 1972) including experiences of ego-death and rebirth (Eliade, 2004), emergence of the Self (Jung, 1977), of communications with non-corporal entities of the lower and upper worlds (Harner, 1990), and of experiencing deities, experiencing oneself as a deity, of non-dual experiences, among many other possible transpersonal experiences (Cortright, 1997).

Potential risks from the ingestion of ayahuasca and participation in this research will be handled in a variety of ways. Dr. Luna's long previous experience facilitating individuals exploring consciousness with ayahuasca will be relied upon through all phases of this study to insure safety and minimize potential harm. The comprehensive screening procedures described previously will be used to exclude individuals more likely to experience difficulties. All participants will have been screened to insure that they are mature individuals with high ego strength. All participants will have good physical and

mental health status. All participants will have had a prior positive relationship with Dr. Luna and will have previously had numerous positive experiences in the sacred use of ayahuasca. All participants will have a spiritual orientation in the sacred use of ayahuasca. In the unlikely situation of a psychological or medical emergency of any sort, Dr. Luna will facilitate the immediate situation and if necessary, make an immediate referral to the appropriate local health care facility.

Dr. Luna is clearly aware of the risks and has mastery of the resources that might be required in the event of an arising problem. Two factors that reduce risk are that all the research participants in this study will be very experienced in the use of ayahuasca and will be mature individuals. Dr. Luna has available to him methods to minimize risk both from his training in Amazonian Shamanism and as a Western professional.

The physiological monitoring sensors, which are very small and lightweight will be attached to the participants' skin with adhesive tape and glues specifically designed for the sensors. While wearing these sensors could potentially become mildly uncomfortable and distracting to the participants, the vast majority of research participants report that they forgot about the sensors entirely. Participants will be clearly informed about the hook-up procedures to facilitate adaptation to the unusual circumstance of the research setting. Participants will have been previously selected based upon their interest and comfort with science and scientific experimentation. Every effort will be made to ensure the wellbeing of all participants. The EEG recording procedures have been designed to allow each participant to have as normal a journey experience as possible with their favorite music playing, only being interrupted at 20 minute intervals for EEG recordings to take place for 5 minutes followed by a brief interview. These procedures have been tested and found not to interfere with the quality of a research participant's journey experience (Stuckey, 2004). If it becomes apparent that any problem for the participant is arising such as the electrode hook-ups becoming a hindrance to a successful ayahuasca journey experience, any or all electrodes may be removed during the course of the journey. Hindrance may be judged by either the participant or by Dr. Luna.

Care will be taken to ensure that interview procedures will be comfortable for the participants. All identifying information will be removed from the transcriptions of all audio tape material and from all writing and artwork provided by research participants. Audio tapes and all research materials will be kept locked in a filing cabinet only accessible to Frank Echenhofer. Only Frank Echenhofer and a professional transcriber will have access to the audio tape recordings and transcripts. Because this research is planned as part of an ongoing series of studies, all the research data (the physiological data, audio tapes, and tape transcripts) will be kept indefinitely in a locked cabinet. At any point when this series of research studies is complete, all data collected, except the artwork, will be destroyed. Participants will be contacted to determine if they would like the artwork returned to them.

Potential Benefits To Research Participants and to the Research Discipline

There will be no monetary benefit to any research volunteer for participation in this study. However, there are a variety of potential benefits to research participants. As was mentioned previously, Dr. Echenhofer and his collaborators will, within 2 months of the time of the EEG ayahuasca recording sessions, provide a written report to participants. This report will include an appendix that will provide information on recommended sets of EEG biofeedback protocols for each research participant that may potentially allow

them to learn ultimately to recreate his/her own EEG gamma coherence patterns and the associated ayahuasca journey-like experiences without using ayahuasca. It is also possible that by taking part in this research and reading the research report, the participants might deepen their understanding of their own ayahuasca experiences. Anecdotal reports in previous EEG and ayahuasca research (Stuckey, 2004) have consistently suggested that, rather than disrupting the ayahuasca experience, which might have been expected, asking research participants to report on their experiences during the ayahuasca session seems to have greatly enhanced later recall of their ayahuasca experiences.

Replication in 12 participants of the previous finding by Stuckey (2004), using only two participants, that ayahuasca is associated with enhanced EEG gamma coherence is quite important in consciousness research, because this finding had never before been reported with any psychedelic. The potential for developing BF protocols that might allow individuals to voluntarily access ayahuasca journey-like experiences is also a very promising outcome. If realized, it could provide a powerful technology for future consciousness research as well as for our ability to explore shamanic realms.

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Appendix A; Consent Form

CONSENT FORM

Introduction: Frank Echenhofer, a faculty member at the California Institute of Integral Studies in San Francisco, is the principal investigator of the research study *Exploring Personality, Phenomenological, and EEG Correlates of the Ayahuasca Journey Experience to Facilitate an Individual's Spiritual Development*. Dr. Luis Eduardo Luna, an anthropologist, is co-investigator in this research and will be structuring and leading a seminar which involves the sacred use of ayahuasca at Wasiwaska, Research Center for the Study of Psychointegrator Plants, Visionary Art, and Consciousness, Florianopolis, Brazil, from January 7 through January 18, 2005. It is within the context of this seminar that the research project will take place.

Research Aims: There are four primary research aims: 1) to replicate previous findings of enhanced EEG gamma coherence during ayahuasca, 2) to identify specific patterns of enhanced EEG gamma coherence for each research participant, 3) to develop unique EEG biofeedback protocols for each research participant for use in later research to determine if individuals can access journey-like experiences using EEG biofeedback without using ayahuasca, and 4) to determine if questionnaire and psychological data will significantly correlate with ayahuasca experiences and observed EEG changes.

Research Participant Screening: Individuals interested in participating in this research should contact Dr Echenhofer (fechenhofer@ciis.edu). Dr Echenhofer will mail an initial screening packet containing an informed consent form describing the study in complete detail, a screening questionnaire and the two psychological questionnaires, which will take approximately one hour to complete. The screening questionnaire includes: 1) questions about prior ayahuasca experience, 2) medical and psychological health history, and 3) current use of medications and remedies. This questionnaire and the psychological questionnaires will help insure that participants recruited in this research have: 1) psychological and spiritual maturity, 2) had previous positive ayahuasca experience, 3) have proficiency in English, and 4) familiarity and comfort with Western scientific research methods. This screening is designed to help minimize any risk associated with research involving ayahuasca. Participants will be provided with a pre-addressed, stamped envelope to return the completed questionnaires to Dr. Echenhofer. Potential participants can contact Dr Echenhofer by phone or e-mail to have any questions they may have answered. Dr Echenhofer will inform participants by phone or e-mail whether or not they have met the screening criteria to participate in this research. Participants who have been qualified to participate by Dr. Echenhofer will then be contacted by Dr Luna (leluna@wasiwaska.org) about registration in Dr Luna's ayahuasca seminar, within which the research project will take place. Further information about the ayahuasca seminar can be obtained by contacting Dr Luna directly (leluna@wasiwaska.org).

Research Procedures: Individuals who meet the study's initial screening criteria will be sent a second mailing that will include one additional questionnaire and three additional psychological questionnaires all of which will take approximately 2 hours to complete. The questionnaire will ask participants to: 1) describe their previous ayahuasca

experiences and the meaning and themes in their experiences, 2) describe their approach to spirituality and how ayahuasca is involved in their spirituality, 3) indicate whether they have written about or in other ways expressed the meaning of their ayahuasca experiences, and 4) if they have, to express their willingness to allow their writings, painting, or drawing, etc. to be included as a part of the research data for this project. The data from this questionnaire and from the three psychological questionnaires will be used to determine if particular personal characteristics of each participant might correlate with specific ayahuasca experiences and observed EEG changes occurring during the research session. Participants will be provided with a pre-addressed, stamped envelope to return the completed questionnaires to Dr. Echenhofer.

Dr. Echenhofer directs the EEG ayahuasca recording sessions using standard non-invasive methods, which include attaching twenty-four very small, lightweight physiological monitoring sensors to the scalp and face of the participant with a specially formulated adhesive and tape designed for the sensors. The sensors take approximately 90 minutes to attach and will remain in place during the course of the EEG ayahuasca journey session, which lasts approximately 4-5 hours.

While wearing these sensors could potentially become mildly uncomfortable or distracting nearly all prior research participants report that they forget about the sensors completely. If it becomes apparent that the participant has any concern that the sensors are a hindrance to a beneficial ayahuasca journey, sensors can either be re-attached or removed during the course of the journey. Participants are completely free to choose not to take part in any aspect of the research and may discontinue the research at any time without needing to provide explanation.

Next participants will be asked about: 1) any specific intention for the ayahuasca journey, 2) their general alertness level, and 3) their current thoughts and feelings and the intensity of these thoughts and feelings. Audio recordings of all conversations between the participant and Drs Echenhofer and Luna will be made during the research session. Next the baseline eyes closed and eyes open EEG recordings will occur with participants seated. These baseline recordings will take approximately 10 minutes. Research procedures have been designed to allow each participant to have as normal a journey experience as possible with their favorite music playing, only being interrupted at 20 minute intervals for EEG recordings to take place. During these recordings participants will sit in a relaxed manner with eyes closed as a 5 minute EEG recording is conducted. Participants will then be asked to: 1) briefly summarize their experiences over the last 5 minutes, 2) rate their alertness level, 3) rate the intensity of their experience, and 4) identify the sensory modalities that were most pronounced. This interview takes about 5 minutes. At the end of EEG ayahuasca recording session participants will be asked about their: 1) over-all alertness, 2) over-all experience intensity, 3) ayahuasca experiences. Following this, the physiological sensors will be removed – a process that takes approximately 15 minutes. Participants will then answer questions from a standardized psychedelic experience questionnaire, which again requires approximately 15 minutes.

Research participants will be asked to reflect over the next day upon their ayahuasca experience and use ways familiar to them to explore further these experiences through writing or any other way of reflection, expression, and inquiry. Materials will be provided for drawing or painting. The next day participants will meet with Dr.

Echenhofer to sit in front of their writing, drawing, and/or painting to further describe their experiences as they look at their work. These discussions will be audio tape recorded. Research participants will be asked to share these products for inclusion as research data.

Risks Inherent In Ayahuasca Research And Methods For Minimizing Risks:

The risks involved in using ayahuasca relate to the fact that ayahuasca is a powerful entheogen. During an ayahuasca research session participants may have a range of shamanic experiences as well as the re-living and/or the working-through of unresolved psychological issues. Because of the nature of the ayahuasca brew, individuals may purge during these shamanic and working-through experiences. While ayahuasca can produce a very challenging psychological experience, recent research has shown that when used with simple precautions it is quite safe. Dr. Luna will provide a research setting appropriate for the sacred use of ayahuasca and guide research participants when needed. In the unlikely situation of a psychological or medical emergency of any sort, Dr. Luna will intervene, and, if necessary, make an immediate referral to the appropriate local health care facility. In this study many procedures have been put into place to minimize risk. Screening procedures previously described will screen out individuals who have potential risk factors associated with using ayahuasca including 1) inadequate psychological maturity and ego strength, 2) compromised or vulnerable mental or physical health status, and 3) poor preparation. Dr. Luna has available to him methods to minimize risk both from his training in Amazonian Shamanism and as a Western professional.

Participants have the right to be sure that their identity is not linked to any information they provide for this study. Neither a participant's name, city of residence, nor any other identifying information will be included in the research report. All information contributed will be held in strict confidence within the limits of the law (see the attached confidentiality statement). All audio tapes will be transcribed and portions will be used, without any identifying information, for research and educational purposes. Audio tapes and all research materials will be kept in a locked filing cabinet accessible only to Frank Echenhofer. Only Frank Echenhofer and a professional transcriber will have access to the audio tape recordings and transcripts. Because this research is planned as part of an ongoing series of studies, all the research data (EEG, audio tape, tape transcript, and all questionnaire data) will be kept indefinitely in a locked cabinet. At any point when this series of research studies is complete, all data, except the artwork, will be destroyed. Participants will be contacted to determine if they would like their artwork returned to them.

Potential Benefits to Participants: There will be no monetary benefit to any participant for participation in this research study. Two months after the EEG research sessions are conducted, a research results report will be provided to participants and will include: 1) over-all research results, 2) an appendix that will provide information on recommended sets of EEG biofeedback protocols specific to each research participant's unique EEG gamma coherence patterns during different subjective ayahuasca experiences, and 3) the results of all the different questionnaires filled out by the participant.

If you have any concerns or questions regarding your rights as a participant in this research, or if you feel that you have been placed at risk, you may report them, anonymously, if you wish, to Bob Duchmann, coordinator of the Human Research Review Committee. California Institute of Integral Studies, 1453 Mission Street, San Francisco, CA 94103, telephone (415) 575-6100.

I, _____ have read this consent form and hereby consent to participate in the study *Exploring Personality, Phenomenological, and EEG Correlates of the Ayahuasca Journey Experience to Facilitate an Individual's Spiritual Development* conducted by Frank Echenhofer of the California Institute of Integral Studies. I have received a copy of this consent form and the Confidentiality Statement, and I understand that my confidentiality will be protected within the limits of the law.

Signature

Date

Appendix B: Photo and Video Consent Form

PHOTO AND VIDEO CONSENT FORM

I, _____ give my approval that still photographs taken of me while taking part in the study *Exploring Personality, Phenomenological, and EEG Correlates of the Ayahuasca Journey Experience to Facilitate an Individual's Spiritual Development* conducted by Frank Echenhofer of the California Institute of Integral Studies, can be used in any research publication and for educational purposes.

Signature

Date

I, _____ give my approval that video taken of me while taking part in the study *Exploring Personality, Phenomenological, and EEG Correlates of the Ayahuasca Journey Experience to Facilitate an Individual's Spiritual Development* conducted by Frank Echenhofer of the California Institute of Integral Studies, can be used in any research publication and for educational purposes.

Signature

Date

Appendix C: Bill of Rights

FOR PARTICIPANTS IN PSYCHOLOGICAL RESEARCH

You have the right to...

- I. be treated with dignity and respect;
2. be given a clear description of the purpose of the study and what is expected of you as a participant;
3. be told of any benefits or risks to you that can be expected from participating in the study;
4. know the research psychologist's training and experience;
5. ask any questions you may have about the study;
6. decide to participate or not without any pressure from the researcher or his or her assistants;
7. have your privacy protected within the limits of the law;
8. refuse to answer any research question, refuse to participate in any part of the study, or withdraw from the study at any time without any negative effects to you;
9. be given a description of the overall results of the study upon request.
10. discuss any concerns or file a complaint about the study with the Human Research Review Committee, California Institute of Integral Studies, 1453 Mission Street, San Francisco, CA 94103.

EXPERIMENTAL SUBJECTS' BILL OF RIGHTS

Persons who participate in a medical experiment are entitled to certain rights. These rights include, but are not limited to, the subject's right to be informed of the nature and purpose of the experiment; be given an explanation of the procedures to be followed in the medical experiment and any drug or device to be utilized; be given a description of any attendant discomforts and risks reasonably to be expected; be given an explanation of any benefits to the subject reasonably to be expected, if applicable; be given a disclosure of any appropriate alternative, drugs, or devices that might be advantageous to the subject and their relative risks and benefits; be informed of the avenues of medical treatment, if any, available to the subject after the experiment if complications should arise; be given an opportunity to ask questions concerning the experiment or procedures involved; be instructed that consent to participate in the medical experiment may be withdrawn at any time and that the subject may discontinue participation without prejudice; be given a copy of the signed and dated consent form; and be given the opportunity to decide to consent or not to consent to a medical experiment without the intervention of any element of force, fraud, deceit, duress, coercion or undue influence on the subject's decision.

Appendix D: Confidentiality Statement

To Accompany High-Risk Research Consent Form

Your privacy with respect to information you disclose during participation in this study will be protected within the limits of the law. However, there are circumstances where a psychologist is required by law to reveal information, usually for the protection of a patient, research participant, or others. A report to the police department or to the appropriate protective agency is required in the following cases:

- 1. if, in the judgment of the psychologist, a patient or research participant becomes dangerous to himself or herself or others (or to property), and revealing the information is necessary to prevent the danger;
- 2. if there is suspected child abuse, in other words, if a child under 16 has been a victim of a crime or neglect;
- 3. if there is suspected elder abuse, in other words, if a woman or man over 60 has been a victim of a crime or neglect;

If a report is required, the psychologist will discuss its contents and possible consequences with the patient or research participant.

Appendix E: Research Proposal Budget (prepared by Ken Abiko, CIIS Controller & Director of Finance)

**Echenhofer EEG
Research Project**

Budget Items	Notes	Additional Info.	Budget	Acct#	Acct Description
				<u>Dept 26-206</u>	Echenhofer Research
MAPS.org			<u>#####</u>		5075 Funds
				<u>Dept 18-112</u>	
Courses "Buy-Out"	Spring '05 semester	6 units of workload	9,000.00		4010 Adjuncts
				<u>Dept 10-316</u>	
Airfare 1	Principal Investigator	depart 1/6; return 1/19	1,200.00		4420 Travel
Airfare 2	Research Associate	depart 1/6; return 1/19	1,200.00		4420 Travel
Airfare 3	Research Facilitator	depart 1/6; return 1/19	1,200.00		4420 Travel
Ground Transportation	In USA and in Brazil	1/6 & 1/19	450.00		4420 Travel
Food during Travel	In USA & in Brazil	1/6 & 1/19	300.00		4420 Travel
Food/Lodge During Retreat	At Brazil Research Ctr.	1/7-1/18 for 3	1,980.00		4420 Travel
MITSAR EEG	Portable System	optimized for travel	4,000.00		4310 Research Materials
EEG software	Analysis Software		1,000.00		4370 Computer Software
EEG Accessories	Cap & EEG sensors		1,000.00		4310 Research Materials
EEG Supplies	To attach EEG sensors		500.00		4310 Research Materials
EEG Laptop	For Mitsar EEG	optimized for travel	2,000.00		4360 Computer Hardware
EEG Consulting	EEG record & Analysis	Feb. - March '05	2,500.00		4050 Consultant
Ayahuasca Assay	Determines DMT	needed for publication	1,000.00		4600 Outside Service
shipping expenses	extra baggage charge	equip. hand carried	400.00		4420 Travel
Conference Fees	paper presentation	June '05	300.00		4415 Conference Registration
Manuscript Preparation	For presentation & pub.	March - April '05	100.00		4638 Outside Printing
Conference Expenses	Airfare, Room, Board	3 day Conference	800.00		4420 Travel
Mailing Costs	for journal publication	July '05	30.00		4150 Postage
			28,960.00		
			Summary	Acct#	Acct Description
			9,000.00		4010 Adjuncts
			7,530.00		4420 Travel

5,500.00	4310 Research Materials
1,000.00	4370 Computer Software
2,000.00	4360 Computer Hardware
2,500.00	4050 Consultant
1,000.00	4600 Outside Service
300.00	4415 Conference Registration
100.00	4638 Outside Printing
30.00	4150 Postage
<u>28,960.00</u>	Total