



Institute for the Awakened Mind

The following study on the brainwaves of anesthesiologist Agapi Ermides took place on the evening of August 26, 2017, at the Omega Institute in Rhinebeck, New York, while Agapi was being monitored on the Vilius Mind Mirror 6 EEG with three other people.

The purpose of the study was to detect brainwave changes in these four subjects while they engaged in Emotional Freedom Technique (EFT) tapping in order to release emotional trauma.

Dawson Church, an author and teacher of EFT, led the four rounds of tapping. Opening and Closing baselines bracket the tapping segments and consist of eyes open and eyes closed measurements.

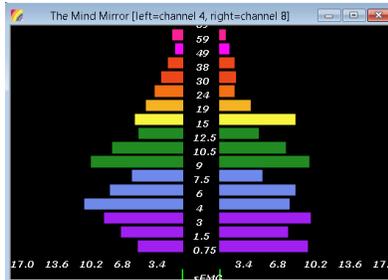
This informal study on the Mind Mirror was conducted by Judith Pennington, certified EEG Awakened Mind Consciousness Trainer. It is published here with the written permission of Agapi Ermides.

ABSTRACT: Agapi Ermides had no previous experience of EFT and is a new meditator who practices sporadically. She produced consistent surges of low and mid-range gamma (35-65Hz) during four segments of tapping. The Closing Baseline in both the Eyes Open and Eyes Closed segments showed a deepening of her awareness at 9Hz alpha and significant statistical increases in her Awakened Mind brainwave pattern (from 66 to 88%), as well as noteworthy increases in the statistics in her Evolved Mind (3 to 9%) and Gamma Synchrony (5 to 15%) patterns. By the end of the session, her brain was more coherent and integrated, and she felt more deeply relaxed than ever before. The emotional trauma that she tapped on was almost entirely resolved. On a scale from 0 to 5, she assigned as her outcome the number 4.

*Judith Pennington
September 7, 2017*

BACKGROUND INFORMATION: Agapi Ermides is an anesthesiologist with no prior experience with EFT. She is fairly new to meditation and meditates sporadically. Her meditation/spiritual experience includes introspection, mindfulness meditation, and meditation followed by journaling using a technique called Para Yoga. She tapped on a traumatic memory involving news she heard from a loved one a year ago.

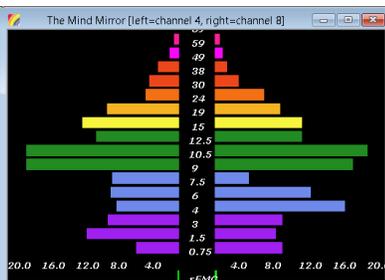
In the samples of her advanced brainwave patterns below, EO means Eyes Open; EC means Eyes Closed. As a further example, Opening EC means Opening Baseline, Eyes Closed segment.



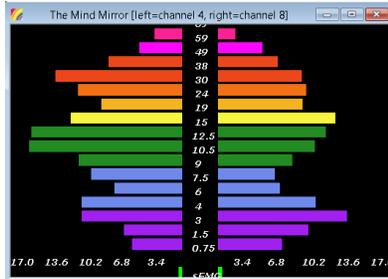
Sitting still, before the baseline. Beta is quiet. 9Hz low alpha peak, high-amplitude theta and upturned delta show inner unity and peak performance.



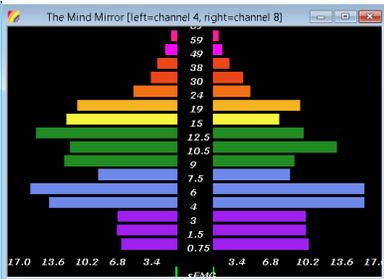
Opening EO. Asymmetry in alpha. High alpha peak at 12.5Hz shows anxiety. Asymmetrical delta may show hypervigilance. Block in 7.5Hz theta.



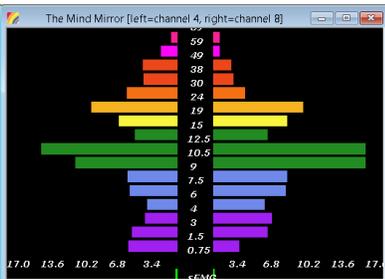
Opening EC. Alpha peak drops to 10.5Hz.; 19/15Hz beta highly amplified (on 20uV attenuation). Block in right-hemisphere 7.5Hz theta.



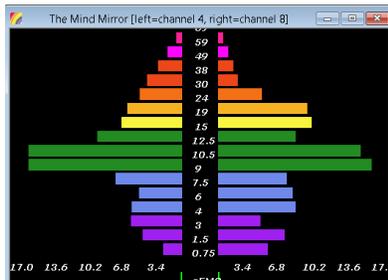
Last round of tapping. Gamma has amplified at 35-45Hz, raising alpha peak to 12.5Hz. Is working in alpha-theta with help from upturned Evolved Mind delta.



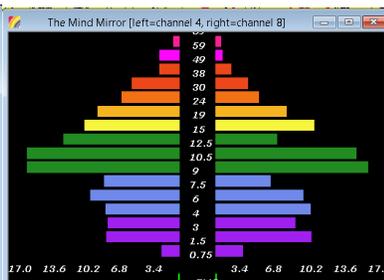
Last round of tapping. Deep work in highly amplified theta. Maintains 12.5Hz high alpha peak, either from 19Hz beta or arousal from the clearing.



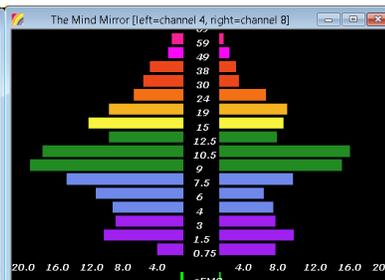
Closing Baseline, Eyes Closed. 7.5Hz theta block has cleared. First Evolved Mind flare in right hemisphere.



Closing Baseline, Eyes Closed First Evolved Mind flare in the left hemisphere. 9Hz alpha peak.



Closing Baseline, Eyes Closed. Awakened Mind pattern more stable; 9Hz alpha.

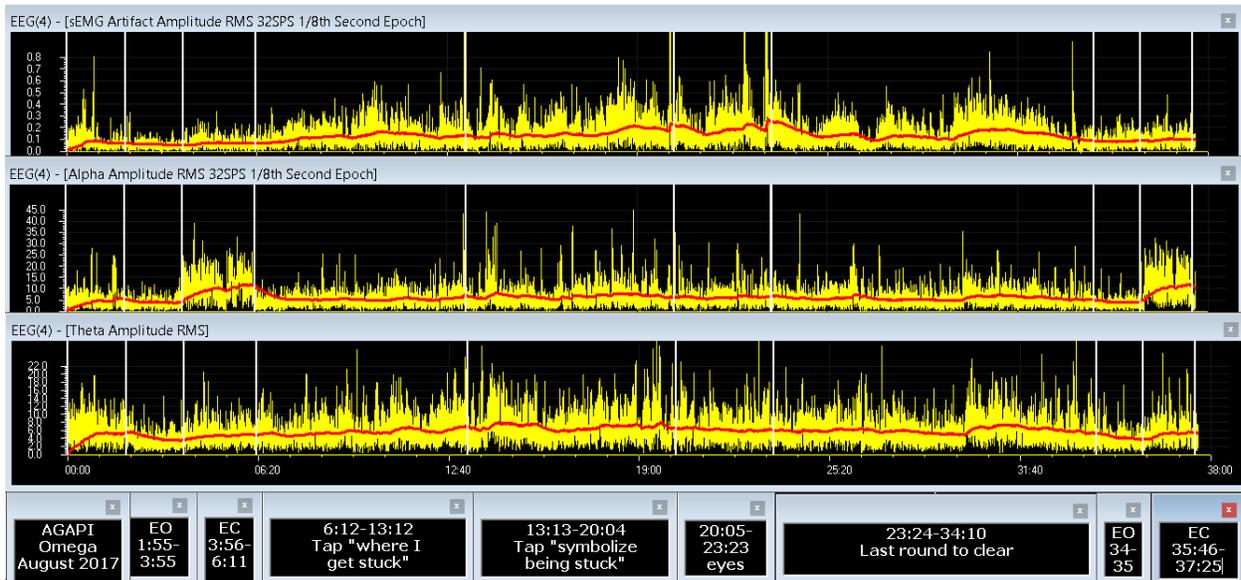


Closing Baseline, Eyes Closed. 9Hz alpha/7.5Hz theta cross-over, where healing occurs.

SUMMARY WINDOWS FOR sEMG, ALPHA & THETA

The summary windows shown below are for EEG 4, Agapi's left hemisphere. Her brainwaves are for the most part bilaterally symmetrical, thus we can look at only her left brain for post-session analysis.

The legend below the summary windows identifies the Opening Baseline of Eyes Open (EO) and Eyes Closed (EC), four segments of tapping, and the Closing Eyes Open and Eyes Closed Baselines.



COMMENTS on the summary windows shown above:

sEMG Artifact Amplitude – measurements well below 5uV (amplitudes in left column) confirm that sEMG movement and tension artifact did not distort her brainwave patterns. The readings are reliable.

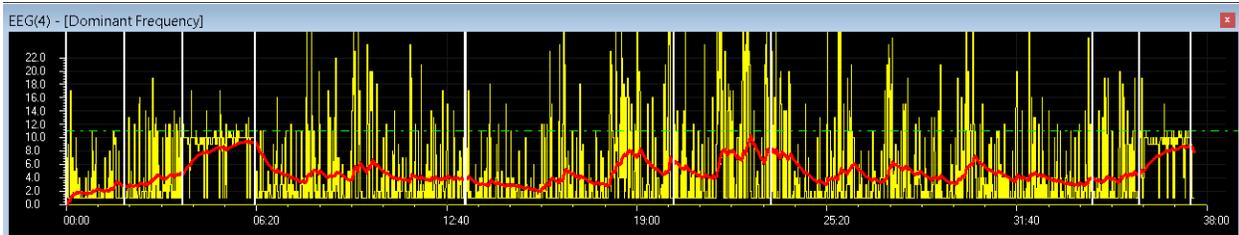
Alpha Amplitude – the red trend line shows comparatively low amplitudes of alpha while Agapi tapped with her eyes open, compared to greater alpha amplitudes in the two Eyes Closed segments. Comparison of the trend line and yellow data lines shows a positive change in Agapi's alpha by the time of the Closing Baseline: her substantial Eyes Closed alpha has become more consistent and stable.

Theta Amplitude – these amplitude increases show that Agapi was working inside her subconscious theta in all four tapping segments.

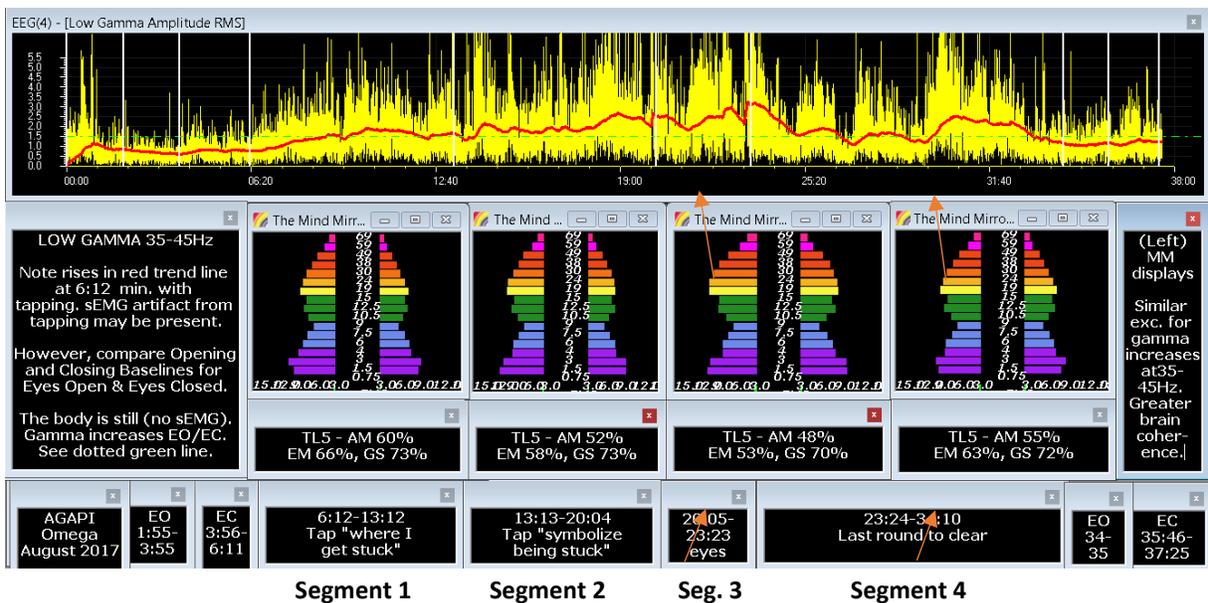
DOMINANT FREQUENCY MEASUREMENTS

In the Dominant Frequency window shown below, the green dotted line marks the typical dominant frequency, which occurs at 10.5Hz alpha. The red trend line is an average of the highest and lowest (0) frequencies, which frequencies are listed in the left column of the window. Here we see Agapi's

concentration of consciousness below the green dotted line (alpha) in the lower frequencies of theta and delta. Gamma, beta and alpha production raise the red trend line; theta and delta waves lower it.



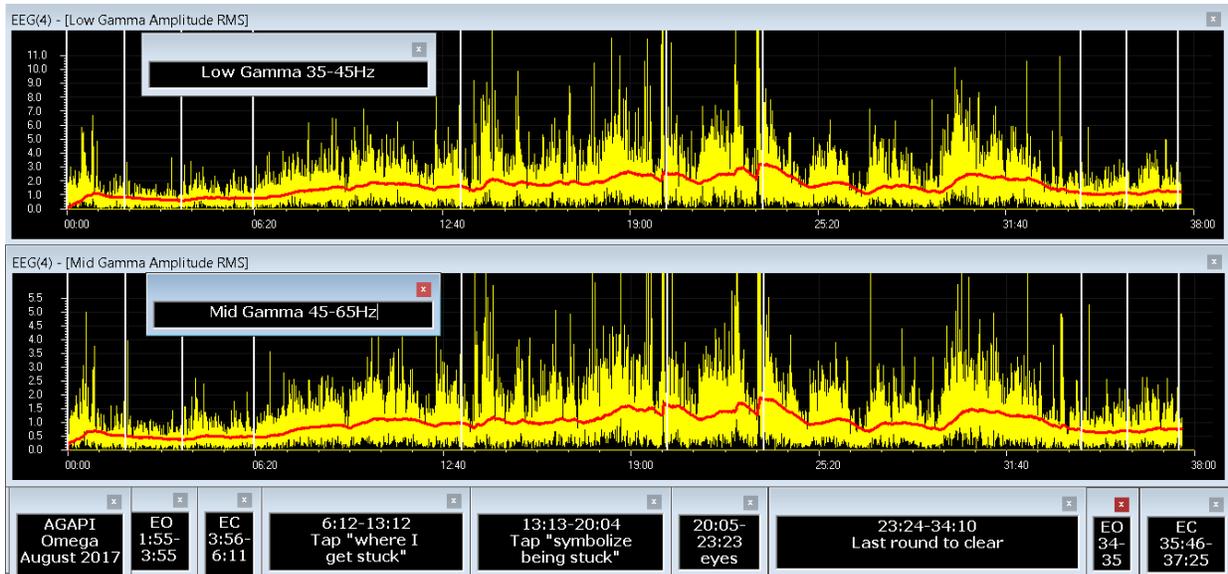
GAMMA AMPLITUDE AND MIND MIRROR SUMMARIES FOR TAPPING



COMMENTS: (Above) The Low Gamma Amplitude window across the top of the screen capture includes gamma frequencies ranging from 35-45Hz. Follow the red trend line to see steady increases in Low Gamma. Agapi's verbalization of the EFT affirmations could account for these surges in Low Gamma; however, comparison of the Opening and Closing EO and EC baselines—both obtained during non-verbal physical inactivity—shows more gamma at Closing than Opening. Therefore, the Closing gamma amplitudes appear to be a carry-over of real gamma produced during the four tapping segments.

The Mind Mirror displays for all four segments show the greatest Low Gamma increase in Segment 3. Also noteworthy is the upturned delta in Segments 1 and 4, which indicate that what was unconscious is flowing upward to become consciously known and understood.

(Below) Agapi’s Low Gamma (35-45Hz) activities flowed up into the Mid Gamma (45-65Hz) range. Mid Gamma corresponds to the frequencies at the top of the Gamma Synchrony pattern, which is identified as the Superconscious Mind of whole-brain synchrony, “aha” insights, and integration, as well as neurogenesis, neuroplasticity, intelligence and creativity.



COMPARISON OF OPENING AND CLOSING BASELINES



Eyes Open

(Above) Agapi’s increased amplitudes in the Low and Mid Gamma ranges are displayed in the Mind Mirror Summary (average) pattern for the Closing Baseline, most notably in the 15-59Hz frequency bars. From the Opening to the Closing baselines, her Gamma Synchrony score for Eyes Open nearly doubled: from 43 to 81% at Training Level 5, a high score comparable to those of seasoned meditators.

These high Gamma Synchrony scores in both the Opening and Closing Baselines—equivalent to those of practiced meditators, intuitives and healers—suggest that Agapi has a high level of attentional awareness, engages in creative endeavor or spiritual studies, and/or is a healer.

The increased gamma amplitudes seen in the upper frequencies of her Closing EO Open Baseline explain the increase in her Evolved Mind scores from 53 to 63%.

Qualification: Although Eyes Open statistics are meaningful, it is also true that what might appear to be “superconscious” activity could simply be externalized awareness with powered-up random thinking. Therefore, the more reliable measurement of change is with eyes closed, when awareness is withdrawn from the outside world into self; alpha naturally increases its amplitude (in Agapi, from 5 to 16uV); and the amplitudes of beta/gamma consequently reduce in favor of interior awareness.



Eyes Closed

(Above) Agapi’s more reliable Eyes Closed measurements show substantial increases in her statistics for the Awakened Mind (66 to 88%), Evolved Mind (3 to 9%), and Gamma Synchrony (5 to 15%). Compared to practiced meditators, intuitives, and healers, 15% is a relatively low Gamma Synchrony score, as is her Evolved Mind score of 9%. The primary and more useful statistical increase is in her Awakened Mind pattern.

The statistical increase in her Awakened Mind pattern suggests that the four tapping segments resolved a block or blocks in her theta, probably at about 21 minutes during the third segment of tapping, when

her brainwave patterns became more consistently profound in terms of increased flow within beta, alpha, theta, and delta.

Further evidence of the release of a subconscious issue is in the increased amplitude of her 9Hz alpha at Closing. This signifies greater relaxation and connection with her subconscious theta waves. The Mind Mirror's conclusion that the issue cleared agrees with Agapi's later report that on a scale of 0 to 5, with 0 representing "no change" and 5 representing "total clearing of the issue," she would rate her clearing level at 4. She reiterated that she has no experience with EFT and does not know at what point the emotional trauma cleared, only that it resolved substantially within her psyche.

The first page of this report includes a series of brainwave patterns showing that Agapi's Awakened Mind patterns became more stable and consistent by the time of the Closing Baseline, as reflected in her Training Level scores for the Awakened Mind: from Opening 66% to Closing 88%. Long-term meditators score between 75 and 98% at Training Level 5 with eyes closed.

The change in her Awakened Mind scores, then, is from low statistical rewards for Eyes Closed at Opening to high statistical rewards at Closing. Agapi reported a week later that during the Closing Baseline she focused on an image she sometimes uses in silent meditation; it was then that she began to feel "super relaxed" within the deepest meditation she has ever experienced. "I felt like I was just an energy without my body," she explained.

Her meditative depth was undoubtedly due to her extended 9Hz alpha band and was likely made possible by the brain synchrony and coherence that resulted from the sustained and increasing amplitudes of her Low and Mid Gamma. The left-hemisphere dominance at Closing could be due to her analytical beta/gamma awareness of a person in the group who was struggling during the exercise.

CONCLUSIONS

Agapi's occasional flares of alpha in the Opening Baseline's Eyes Open segment are the result of either her practice of introspection and mindfulness, or the recent energy healings she has done with light. The Mind Mirror display and Alpha Amplitude summary windows show that by the time of the Closing Baseline, her eyes-open flares of alpha became more frequent, indicating greater relaxation despite her concern for the woman in the group who was having difficulties. Other important changes include:

- Resolution of the issue (retraction of 7.5Hz theta, which constitutes a "block") shown on the first page of this report.
- Agapi's high Awakened Mind score of 88% for Eyes Closed in the Closing Baseline indicates that the issue cleared. This most likely occurred during the third segment, when she dropped her alpha peak of 12.5Hz to the classic 10.5Hz alpha peak, which is closer to and more connected with 7.5Hz theta.
- Comparison of the Opening and Closing baselines for Eyes Closed show that her Awakened Mind statistics substantially increased from 66 to 88%. Her Evolved Mind scores increased from 3 to 9%, and her Gamma Synchrony scores increased from 5 to 15%.
- Agapi's Low and Mid Gamma amplitudes increased during the four tapping segments, which accounts for her increase in the Gamma Synchrony pattern at Training Level 5 from 5 to 15%.

- After the session, she reported feeling “super-relaxed,” almost as if she had dissociated and left her body. “This doesn’t happen often,” she said. Her self-assessment matches the improvement in her Awakened Mind, Evolved Mind, and Gamma Synchrony patterns and statistics, as well as her increases in left-brain gamma, which others have described as relaxed transcendence.

The final screenshot on the first page of this report shows Agapi’s 9Hz alpha and 7.5Hz theta converging in an alpha-theta cross-over in the left hemisphere. Neurofeedback associates the alpha-theta cross-over with healing.

RECOMMENDATIONS

For future EFT brainwave studies:

Except for the evidence of increased gamma seen in Agapi’s Closing Baseline, the statistics and patterns from the four tapping segments are mildly questionable because of the verbalized affirmations and the physical movement involved in tapping. In Agapi’s case, the statistics are deemed credible because her sEMG movement/tension readings are low. In several other people, the tapping movements seem to have caused distortion of the pattern. This could be investigated further. At this point, we can say with certainty that:

- The most reliable and trustworthy measurements come from the Opening and Closing Baselines. The Closing Baselines should be taken as soon as possible after the last EFT tapping segment.

If people are to be measured during while tapping, these recommendations would help assure reliable results:

- The inclusion of Eyes Open and Eyes Closed segments at the beginning and end of the session.
- Tapping with eyes closed, if possible, so that greater amplitudes of alpha are present during the tapping segments. Consistent eyes-closed alpha would afford a better visual comparison of changes in the Mind Mirror display from segment to segment.
- Tapping with the eyes closed might also invite the subject to tap less vigorously, especially on the head and face. Gentler tapping would decrease any question of pattern distortion caused by movement.

For Agapi:

- To determine through Mind Mirror monitoring if the left-hemisphere dominance at Closing is consistent or transient.
- To do Awakened Mind meditation training in order to stabilize her alpha and generalize it to waking awareness as an eyes-open Awakened Mind pattern.
- To obtain, through the Mind Mirror, landmarks for eyes-closed gamma production, so she can recognize when she is producing gamma and use it to her advantage.

~ Submitted by Judith Pennington, September 7, 2017