Journal of Scientific Exploration, Vol. 22, No. 2, pp. 147–159, 2008 0892-3310/08

RESEARCH

Meditation on Consciousness

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Abstract—This study evaluates the idea that consciousness is creating an influence on the environment in a way that makes random systems (Random Number Generator – RNG) become more ordered. This evaluation is combined with an exploration of two, potentially, influencing factors: distance from the target and awareness of the target. The experimental procedure was based upon data derived from meditating groups where experimental data (during meditation) was compared with the control data (pre-meditation). Comparison was also made between awareness and non-awareness groups (participants were aware/non-aware of the RNG). This allowed the influencing factor of the participants' awareness to be tested. The factor of distance has been tested by applying a second RNG. The first machine (local) was positioned in the room with the meditators while the second machine (distant) was positioned away from that point. Results showed completely random data for the non-awareness group (both control and experimental periods) while the awareness group produced significant data in the experimental periods of the local machine and random data in the distant machine. It is suggested that awareness of the PK (psychokinesis) target and distance from the PK target could be influencing factors in the way consciousness might be influencing a random environment.

Keywords: consciousness—psychokinesis—Random Number Generator—influencing factors—meditation

Introduction

The contemporary era in psychokinesis (PK) research, which began in the 1960s, might be characterized by the technical advance which allowed conducting experiments with Random Number Generator (RNG) machines, also known as Random Event Generator (REG) machines. This technology enhanced an important line of research: monitoring specific situations where human consciousness might be influencing its surroundings (Radin, 1997). RNGs generate numbers in a sequence in such a way that the next number has no relation with the previous numbers. The first truly random RNGs (in contrast with machines using an algorithm to calculate the next number from an initial

seed number) used radioactive decay and the first study to use such a truly random source was Beloff and Evans (1961). In later stages, as their source of randomness, RNGs were based on avalanche noise (Zener diode) and thermal noise. The output produced from the RNG is transformed into random bits of 0 and 1 and stored on a computer. The number of 0s and 1s produced by the RNG is supposed to be random and the participant in such an experiment is, supposedly, influencing the machine so order might be found in the data. Order, in this context, might for example be a frequency of 0s or 1s which is above or below their chance expectancy.

Radin's Theory Of the Whole Shebang (*tows*) theory (Radin et al., 1996) proposes consciousness as one possible influencing factor underlying mind-matter interaction allowing a tentative debate concerning the effect on RNGs. This model of psi offers specific properties of consciousness, which are testable experimentally, and elaborates the way it is supposed to create any effect upon the environment (Radin, 1997: 160):

1) Consciousness extends beyond the individual and has quantum field-like properties, in that it affects probabilities of events.
2) Consciousness injects order into systems in proportion to the ''strength'' of consciousness present.
3) The strength of consciousness in an individual fluctuates from moment to moment, and is regulated by focus of attention. Some states of consciousness have higher focus then others. Ordinary awareness has a fairly low focus of attention compared to peak states, mystical states and other non-ordinary states (Csíkszentmihályi, 1975).
4) A group of individuals can be said to have ''group consciousness''. Group consciousness strengthens when the group's attention is focused on a common object or event, and this creates coherence among the group.
5) Physical systems of all kinds respond to a consciousness field by becoming more ordered. The stronger or more coherent a consciousness field, the more order will be evident.

It is evident why such a theory of consciousness could be tested easily in the field of PK. Most of the experiments, in order to be testable, are based on a comparison of data found under supposedly PK influence with the Mean Chance Expectation (MCE; the value that one would expect to find, on average, if nothing other than chance coincidence, mere random variability, were operating in the situation). In other words, we compare what we expect to find randomly with data found under the participant's consciousness influence. Under these circumstances the whole idea of a shift from random to ordered data is highly relevant since, if indeed consciousness is creating any psi effect, it will be reflected as a significant difference between the data and MCE.

FieldRNG Experiments

The fourth property in Radin's (1997) theory refers to the idea of ''group consciousnesses''. In connection with this idea a line of research was established,

studying the possible influence of consciousness when a group of individuals are engaged in high-focus attention events involving intense or profound experiences; this kind of engagement will, allegedly, influence the RNG. These experiments involve the running of the RNG at the same time as a meaningful event occurs (anything between huge disasters such as the 9/11 terror attack to a concert in the park or a group of people engaged in some spiritual practice), trying to observe any deviance from random data in the RNG. This kind of experimentation was initiated in the mid-1990s by Roger Nelson (Nelson, 1997) and was referred to as ''field consciousness'' experiments. Such studies require the experimenter to announce, in advance, the venue or situation of interest, and define which time-segments are supposed to produce deviations from randomness.

As an example of a fieldRNG experiment we can examine Bierman (1996) who tested the possible correlation between a mental state and the data produced by an RNG. On 24 May 1995 most of the Dutch population was fascinated by the European football cup final where a Dutch team met an Italian one. The 90 minutes of the match (experimental data) were compared with the 90 minutes before the match (control data). The experimental data was found to be significant at $p < 0.05$ while the data for the control period produced a non-significant result. An interesting segment of data was found around the time of the only goal that was scored during this game, two minutes before the official end of the game, for the Dutch team. Such a goal obviously created a wave of euphoria across the Netherlands and the experimenter hypothesised that the RNG's data would show evidence of such a response. The experimental period was chosen to be the four minutes following the goal, and the ten minutes preceding the goal were analysed as the control period; comparing theses time periods showed a negative trend ($t = -1.94$, $\mathrm{df} = 54$, $p = 0.058$, two-tailed). This hints at a possible change in the influence of the collective ''group consciousness'' influencing the RNG.

Two overviews of fieldRNG experiments (Nelson et al., 1996, 1998) present a list of experiments which, when combined, ''add credence to the concept of a consciousness 'field' as an agency for creating order in random physical processes'' (1996: 111). A variety of study environments are described in these overviews, which include data-gathering from group meetings (such as the working group on direct mental and healing interactions), ritual gatherings (such as the gathering of the covenant of Unitarian Universalist pagans) and conferences (such as a humour conference). These studies found, according to the authors, that high degrees of attention, intellectual cohesiveness and shared emotion tend to correlate with levels of order in the RNG deviating from chance expectation. Considering the actual data gathering, combined results for a series of ten such experiments in the 1996 overview show a χ^2 of 50.008, $\mathrm{df} = 20$ and a significant corresponding p value of 2×10^{-4}.

A prominent example of such experimental work is reflected in the Global Consciousness Project (GCP) led by Roger Nelson. As part of the GCP,

scientists from all over the world continuously record data from RNGs and send these data through the internet to a server in Princeton, NJ, USA. The project includes 65 active RNGs located mostly in Europe and North and South America but also in other countries such as India, New Zealand, Israel, Japan, China and Thailand. This allows later analysis and possible correlation with different events around the globe that might arouse high coherence in consciousness. The recording sites for the Global Consciousness Project are called "eggs" (a humorous acronym for ElectroGaiaGram, a play of words on EEG and Gaia) and refer to RNGs which continuously produce data that is kept on the computer to which it is attached. A few examples of the measurements produced by the GCP are the events of the 9/11 terror attack, the death of Princess Diana and the funeral of Pope John Paul II, all events which captured the complete attention of hundreds of millions of people around the world. In the 9/11 terror attack, for example, as a result of the complete coverage by CNN, the BBC and the other media, people from the entire world were experiencing, simultaneously, the same terrible emotions as the tragedy unfolded in front of their eyes, live, on the TV screen. According to Nelson (2002) these powerful feelings of horror, fear, shock and fascination joined together to create a collective consciousness tuned to a single frequency. This kind of coherence would have to be detected by the RNGs spread all over the world. The primary prediction, where specific segments of time were chosen for analysis, was made without the knowledge of the actual results and was based on prior models created after similar terror attacks (such as the terrorist bombings of the US embassies in Africa, August 1998). The prediction time to be tested was chosen to be the ten minutes prior to the first crash and continuing for four hours after that same crash (thus including the timeframe of all the attacks with an addition of two hours). The data from the 37 reporting eggs show a χ^2 of 15,332, df = 15,000, which shows this body of data is not random with significance of $p = 0.028$.

FieldRNG Influencing Factors

Although, as shown, interesting results have been reported in different field-consciousness experiments, there are still vague parameters that need to be clarified in this line of research. Two factors in need of more testing are the issues of distance and awareness. As part of the *tows* theory, Radin et al. (1996: 146) claim: "In the case of hidden and remote RNGs *tows* offers the same prediction ... we see order even in hidden and remote RNGs because *tows* says any RNG, anywhere, would reveal anomalous order in time-correspondence with moments that consciousness, located anywhere, was focused and coherent." This is a statement which is quite hard to digest; as we consider the huge number of events, festivals, violent attacks, nature disasters and other powerful human experiences which occur across this planet at any given moment (combined with the fact that, theoretically, distance is of no significance in such a process), it is hard to contemplate the idea that the RNG is being influenced

by the exact event that we are interested in when so many other events might also influence it. Radin's claim also does not correspond with the data collected on 11 August 1999 as the full solar eclipse passed over Europe and parts of Asia. The prediction was that, due to the excitement and interest in the event, significant departures from randomness would be found in the output from machines spread all over the world recording data as part of the GCP. When the full data set was summarised the deviation was found to be non-significant but when data were extracted only from the seven machines in the specific areas where the eclipse occurred, the outcome was highly significant, with a chance probability of only 3 in 10,000. Nelson (1999: paragraph 35) reacted to these results: ''Although some other cases suggest otherwise, these eclipse results indicate that the RNGs are most sensitive to relatively local influences, in apparent contradiction of one of our on-going assumptions, which says that the location of events relative to the eggs should be unimportant. If this indication is confirmed in other assessments, it means that although the anomalous interaction of minds and machines that we use for our measure is nonlocal, it isn't unboundedly so. The intensity of regard or the concentration of attention may have an effect that is stronger on machines least distant from the people who generate the group consciousness. At the same time, we must emphasize that other evidence suggests a different relationship. We have to learn much more before drawing conclusions in this deeply complex area.''

Different conclusions are proposed by Dunne and Jahn (1992). In a series of remote experiments, the issue of the RNG's location was tested. Two hundred and five remote RNG series were made, generated by 30 different participants over a six-year period. The machine was generating the data at the Princeton Engineering Anomalies Research (PEAR) laboratories while the participants were situated at a variety of different countries such as Kenya, India, New Zealand, Hungary, the USA and Canada (distances of half a mile to 9000 miles) as they were trying to influence the machines by focusing their intention on either higher or lower values. Cumulative results show that the aiming for the lower values resulted in non-significant data but the high-values aiming resulted in a z-score of 2.348 ($p = 0.009$). These results drove the authors to conclude that the RNGs are insensitive to distance.

In the ''Academy Awards broadcast'' experiment by Radin et al. (1996), an attempt was made to test whether the ordering effect was distance-independent. An estimated one billion people in 120 countries were watching the live television broadcast of the annual Academy Awards in 1995 and RNGs were assessing the fluctuation in group coherence. The experimenters divided the broadcast into ''high coherence'' time segments, which were judged to be interesting and attract the viewers' high focus of attention, and ''low coherence'' time segments, which were judged to be uninteresting and attract low focus of attention. An interesting part of this experiment was the experimenters' effort to assess the question of distance by using two RNGs: one was located in the first author's home as he was watching the broadcast while the second was located

alone in the laboratory suites at the University of Nevada. The prediction which is relevant here was that the statistical behaviour of the two RNGs would be affected in the same way at the same time regardless of the distance between them. In accordance with this prediction, a positive correlation was found between the output of the two RNGs ($r = 0.28$, $p = 0.05$, one-tailed). Only this experiment is not helpful as we try to understand the complexities of distance issues in RNG experiments. The experiment proves that two different machines, distant from each other, produce similar data. However, it completely fails to address the most important question relating to distance, namely: What is the effect, if any, of the distance of the RNG from the source of effect? The event Radin et al. have chosen for their experiment is not an appropriate one. Since we are dealing with one billion potential participants who, supposedly, influence the machines from every corner of the world there is no control over the question of the machine's distance from the focus of effect. As we have seen in the solar eclipse experiment, the significant data were produced by the ''local'' machines, which were near the event, in comparison with the ''distant'' machines, distant from the event, which produced random data. This is the kind of comparison we need to aim at in order to understand whether or not being nearer the RNG influences the levels of order. Although we can find experiments involving near-situated RNGs and experiments involving far-situated RNGs, no experiment can be found, to date, where a comparison is made between RNGs, which are known to be local vs. distant from the event, *under the same conditions*. The methodology employed in this study, therefore, will be the first attempt to investigate this issue by comparing data from two RNGs: one positioned at the centre of the event and the other positioned away from that point.

The second issue addressed in this study is the question of awareness. Is it true that awareness of a target does not contribute to the effectiveness of consciousness in affecting an RNG? In what way, if at all, does knowing of the target contribute to the effect? Most of the individual RNG experiments (e.g., Schmidt, 1973; Braud and Hartgrove, 1976) are based upon conscious attention of the participant who is aware of the RNG and trying to manipulate the data or cause some sort of event to happen (such as influencing the direction of the light's movement). On the other hand, within the fieldRNG experiments, participants (who are, in many cases, not even aware of the fact they are performing as participants in an experiment) are usually not aware of the RNG and therefore not directing their focused attention on the machine and not willing a specific change, as was the case with the individual's lab RNG experiments. In both cases the body of data is interesting enough to suggest a possible PK effect, and we might have claimed that there is no need for the participants to be aware of their target. The problem with such an assumption lies with the number of participants in the fieldRNG experiments. One of Radin's properties, as presented earlier, states that group consciousness (where a large number of participants are joined together) would be more effective when, supposedly, influencing a random event. The fieldRNG experiments, therefore, are enhanced

by the number of participants (groups of a few individuals up to many millions of people), which might raise the assumption that these successful results were obtained not because of but in spite of the fact that participants were not aware of the PK target. It might be that the strength of the group consciousness overcame the weakness of not being aware of the influenced target – the RNG. When discussing the future course of RNG experiments, Nelson et al. (1998: 448) stated: ''An adequate model must help us to understand both the intention-driven laboratory experiments, and the field studies where little or no attention is given to the RNG and there is no explicit intention''. Although we can find experiments involving participants aware of the RNG and experiments involving participants who are non-aware of the RNG, no experiment can be found, to date, where a comparison is made between participants who are aware vs. non-aware of the RNG *under the same conditions*. The question of awareness, therefore, would be a further novel aspect in this study's specific methodology, where this issue will be investigated by comparing data from two groups: an awareness group, where participants have the knowledge of an RNG's presence in the room, and a non-awareness group, where participants have no knowledge of the fact that an RNG is running in the vicinity of the group.

One last experiment that has to be considered, due to its relevance to the study presented in this paper, is the ''breathwork workshop experiment'' by Radin et al. (1996). In this study, nine participants went through a Holotropic breathwork session that brought the participants to an altered state of consciousness. An RNG generated data throughout the nine-hour session (experimental data) and during the nine hours following the session (control data). The control data was used as a matching random control sequence. The prediction was that high coherence events (important segments of time during the workshop such as group meditation) would show ordered data while the low coherence events (non-important segments of time such as lunch break) and the control data would show results corresponding to chance. Results confirmed the predictions: experimental data showed significantly increased order in high coherence periods ($z = 3.12$, $p = 0.0009$), and random data in low coherence periods ($z = 0.79$, $p = 0.215$). Control data showed random results both for high coherence periods ($z = -0.3$, $p = 0.618$) and in low coherence periods ($z = -1.4$, $p = 0.919$). Since many of the questions asked within the context of Radin et al.'s experiment resonate in the study presented in this paper, it has influenced a variety of choices concerning the methodology and statistical analysis.

A list of hypothetical properties of consciousness was given by Radin (1997) trying to explain the way consciousness might interact with the environment. As this paradigm is still at its preliminary stage, these properties require more investigation and this is the purpose of the current study. This study was trying to replicate the basic effect, the possibility that consciousness affects the data produced by an RNG, while measuring the possible influence of two additional factors: distance from the RNG, and awareness of the RNG. Two groups, with ten participants in each, met separately for a five-week meditation course. The

first group was not aware of the fact that a hidden RNG was recording data throughout the sessions while the second group knew of the RNG, which was positioned in a prominent place in the room, being present. Two RNGs were used for this experiment: the first, RNG1, was in the room where the meditation took place; the second, RNG2, was 2 km from the meditation room. Both RNGs collected data in the hour before the class began (control data) and during the one-hour meditation period (experimental data). The output from the RNG was analysed and compared in order to test the following hypotheses:

Hypothesis 1 – The basic PK effect would be found under a state of meditation influencing the levels of order for experimental data and not the levels of order for the control data.

Hypothesis 2 – The factor of awareness of the RNG would influence the levels of order for the experimental data in the awareness group in comparison with the non-awareness group.

Hypothesis 3 – The factor of distance would influence the levels of order for the experimental data in RNG1 in comparison with RNG2.

Method

Participants

Participants in the non-awareness group were ten volunteer students (six females), aged between 19 and 36 years (mean age = 27.6 years, SD = 4.04). Participants in the awareness group were ten volunteer students (seven females) aged between 18 and 32 years (mean age = 25.1 years, SD = 3.19). The experimenter was also the meditation teacher, having had ten years' experience of practicing meditation.

Materials

The RNGs were built by an experienced technician in Goldsmiths College and had already been used and tested in former research (Crawley et al., 2002). The noise generator is based around a germanium diode in reverse bias. The diode undergoes Zener breakdown where quantum mechanical tunnelling of carriers through the bandgap as well as thermal effects on the charge carriers in the diode give rise to a broadband noise signal. The AC component of the leakage current through the diode is amplified and converted into a digital signal via a 12-bit analogue to digital converter. The signals at this stage are Gaussian distributed and are over-sampled eight times and converted to uniformly distributed bytes at a rate of 100 Hz. The machines were built in a way that was supposed to prevent any external influence: the case was of metal construction and thus helped to attenuate radio frequency interference and other stray electromagnetic fields. The power supply was external battery so that no possibility of electrical influence on the machine would exist. For that end a battery (PP3 9 volt) was used to supply power to the RNG circuitry. Within the equipment, a second

regulator circuit ensured that no power surges could enter the RNG circuit. The power supply was also well decoupled with capacitors.

The RNG was tested before the experiment, using the diehard set of tests (Marsaglia, 1995) to ensure randomness of the data generated. The full set of results showed that the performance of the RNG was statistically indistinguishable from theoretical chance expectation.

Design and Procedure

Participants were randomly divided into two groups of ten: The first group (the non-awareness group) was taught the meditation course for the first five weeks of the experiment while the second group, the awareness group, was taught the same meditation course for the next five weeks.

The chosen meditation for this experiment is called ''*Kundalini*'' which is one of Osho's (1997) active meditations. This is a 60-minute meditation divided into four stages (these are the instructions given for each stage):

1) *First Stage: 15 minutes*

Be loose and let your whole body shake, feeling the energies moving up from your feet. Let go of everything and become the shaking. Your eyes may be open or closed.

2) *Second Stage: 15 minutes*

Dance, in any way you feel, letting the whole body move as it wishes. Again, your eyes can be open or closed.

3) *Third Stage: 15 minutes*

Close your eyes and be still, sitting, observing your breathing.

4) *Fourth Stage: 15 minutes*

Keeping your eyes closed, lie down, observe your breathing and be still.

The meditation course was similar for both groups: participants and the experimenter met once a week, for five weeks, for an hour of meditation. Sixty minutes of music accompanied this meditation, a fact that ensured that all meditation sessions lasted exactly the same period of time. The meditation is promptly measured to run for sixty minutes and therefore the effect is hypothesised to be found within the boundaries of this specific time frame. The exact time of the beginning and end of the meditation was recorded by the experimenter. These 60 minutes of collected data from the RNG comprised the experimental data. In the 60 minutes before the session, alone in the room, the RNG recorded the control data.

One RNG (RNG1) was positioned in the corner of the room where the group was meditating. In the case of the non-awareness group, the machine was hidden inside a bag, while for the awareness group it was uncovered on a table. The awareness group not only viewed the machine but also received a detailed

explanation about the machine and the way it works. The second RNG (RNG2) was placed 2km from the meditation venue.

The computer-controlled, truly random, RNGs were programmed to generate two samples of 400 random bits per second in the two hours of testing, one hour before and one hour during the meditation. This resulted in 7200 samples for the control data (pre-session) that were compared with the 7200 samples of the experimental data (during group meditation).

Analyses and presentation of the results followed the approach taken by Radin et al. (1996) when performing the ''breathwork workshop'' experiment. In each sample (400 bits), the sum of ''1'' bits would be counted and this number would be transformed into a standard normal deviate: $z = (x - 200)/10$, where x represents the raw output, the expected mean is 200 and 10 is the expected deviation. The measure of order induced in the RNG is based on the formula $V = \Sigma z^2$ where the V is the sum of a sequence of z-squared scores and is a chi-square statistic. In this formula the V is chi-squared distributed with the same number of degrees of freedom as the number of z scores used in tohe sum. The last step was converting the V scores into a z score representing all samples; the V here is the number of degrees of freedom (df). For this purpose the following formula was used: $z = \sqrt{(2x^2)} - \sqrt{c;(2df - 1)}$.

Results

A summary of results for the non-awareness and awareness group is presented in Table 1 (with significant results indicated **in bold**). For the non-awareness group, all five control and experimental sessions in both RNGs show random data. For the awareness group, all five control sessions in both RNGs show random data; the experimental data in RNG1 is significant statistically while data derived from RNG2 is random. As a result of the fact that four tests are cited, and multiple testing might inflate the likelihood of finding a significant result, it should be noted that the significant data withstands correction for multiple testing.

Discussion

Results found in the non-awareness group contradict the suggested basic PK effect of Hypothesis 1. All five sessions, both for the experimental and the control periods, were found to be random. Results found in the awareness group, however, supported the suggested basic PK effect of Hypothesis 1. Three of the five sessions in the experimental period produced ordered output from the RNGs while the data from the five control sessions were random. The question is, why was there an effect of consciousness found for the second group and not for the first group? To find a possible explanation to this difference we need to discuss the second hypothesis, the issue of awareness.

The ordered data in the experimental period was found only in the awareness group and not in the non-awareness group. The difference between the

TABLE 1
A Summary of Results for the Non-Awareness and Awareness Groups

RNG1 − local						RNG2 − distant					
Control			Experimental			Control			Experimental		
V	*z*	*p*	*V*	*z*	*p*	*V*	*z*	*p*	*V*	*z*	*p*
Non-awareness group											
7070	−1.08	0.86	7163	−0.3	0.62	7217	0.15	0.44	7034	−1.98	0.32
7308	0.9	0.18	7211	0.1	0.46	7137	−0.51	0.7	7220	0.18	0.43
7193	−0.05	0.52	7217	0.15	0.44	7221	0.18	0.43	7141	−0.48	0.68
7331	1.09	0.13	7141	−0.48	0.68	7213	0.12	0.45	7190	0.07	0.53
7142	−0.47	0.68	7320	1	0.16	7070	−1.08	0.86	7213	0.12	0.45
Awareness group											
7111	−0.73	0.77	**7684**	**3.96**	**0.00004**	7313	0.95	0.17	7128	−0.59	0.72
7275	0.63	0.26	7290	0.74	0.23	7040	−1.33	0.91	7171	−0.23	0.59
7160	−0.32	0.62	**7511**	**2.56**	**0.0052**	7324	1.03	0.35	7379	1.49	0.07
7152	0.39	0.65	**7641**	**3.62**	**0.0002**	7137	−0.51	0.7	7171	−0.23	0.59
7061	−1.15	0.88	7380	1.49	0.07	7276	0.64	0.26	7319	0.99	0.16

	Summary			
	RNG1 control	RNG1 experimental	RNG2 control	RNG2 experimental
Non-awareness	$V = 7208$ $z = 0.07$ $p = 0.47$	$V = 7210$ $z = 0.08$ $p = 0.46$	$V = 7171$ $z = -0.24$ $p = 0.59$	$V = 7160$ $z = -0.33$ $p = 0.63$
Awareness	$V = 7152$ $z = -0.4$ $p = 0.66$	$\boldsymbol{V = 7501}$ $\boldsymbol{z = 2.48}$ $\boldsymbol{p = 0.0066}$	$V = 7216$ $z = 0.13$ $p = 0.44$	$V = 7234$ $z = 0.28$ $p = 0.39$

experiences of the awareness and non-awareness group participants should be considered. The awareness group participants had the RNG prominently positioned in the room, which might have created more interest and challenge. The non-awareness group participants were not aware of the machine and therefore had no such challenge of affecting it. At the same time we need to consider that this is the claim lying at the heart of the discussion concerning ''awareness of the machine'' as a moderating variable. The difference found between the data of the awareness and non-awareness groups might be attributed to the difference between their experiences. Although it seems to be an important question this issue has not been addressed in former studies at all. No previous experiment can be found where the experimenter compares data which has been collected when a group of participants are aware of their target and then collect the data, under similar conditions, when a similar group of participants are not aware of the target. These intriguing results, presented in this study, hint that the difference of experience, being aware in comparison with not being aware of the random environment, might be a moderating variable in the influence of PK. It also implies that by acknowledging some facet in our

environment our consciousness becomes more coherent and effective in its ordering influence on that target.

The third hypothesis was not supported by the data from the non-awareness group where no difference was found in the experimental data between RNG1 and RNG2 (both generated random data). Data found for the awareness group, on the other hand, appears to support Hypothesis 3 (again strengthening the importance of awareness) insofar as RNG1 (local) produced significant deviations from randomness compared with the random data produced by the distant RNG2. This result may suggest that consciousness is more effective in its immediate and local environment but at the same time it still allows the possibility that with a large group, consciousness effect might be detected in distant areas in somewhat diminished capacity. Former studies exhibit contradictory results; Dunne and Jahn (1992), for example, support the claim that distance is meaningless for anomalous effects while Nelson (1999) supports the completely opposite idea when he shows that local machines react to a certain event while distant ones do not. The issue of distance is controversial and this paper's awareness group results, by showing significant data in the local machines and non-significant in the distant machines, contribute to the argument by strengthening the idea that a local target is influenced more coherently than a distant one. For future PK research, this does not mean that distant machines are not being affected, only that they might be less sensitive to such effects in comparison with local ones.

The expectations of the experimenter should be considered here. The experimenter in this study has been aware of the condition which is being tested. The expectations that arise out of the particular condition might have modulated the results and any follow-up of this study should carry a double-blind procedure, where both the participants and the experimenter are not aware of the specific condition which is being tested in the session.

The data presented here demonstrate how different influencing factors might work together to determine the influence of consciousness on random environments, the level of PK effect. These different factors create, symbolically, an equation where each factor provides a variable that is influencing the final result. This paper has presented a number of variables but the equation is still fairly vague. Much more work is needed in order to unravel the uncertainties and discover more influencing factors so that the equation might become easier to work with and future consciousness-PK studies might produce more stable and replicable experimental results.

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