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The Effects of Traditional Zulu Healing Upon a Random Event Generator.

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ABSTRACT: This article presents the results to a study investigating how directed mental healing, by traditional healers (*izangoma*) in South Africa, impacted upon the functioning of a Random Event Generator. In one test condition, individual healers held the REG, and focused intention onto the device, attempting to administer healing as they would do with actual clients. In another condition, the device was held but not attended to. Control periods and further trials examining experimenter effects were also conducted. A non-directional effect that significantly exceeded chance expectancy was obtained $\chi^2(80)=113.023, p=.009$ during the healing condition, whilst none of the other conditions witnessed significant REG anomaly.

For many of the indigenous peoples of South Africa, sickness or emotional crisis precipitates a visit to a traditional healer. Of the estimated 250,000 such healers in South Africa (Edwards, 1999) two types should be differentiated: the *isangoma* (Zulu term) who uses mediumship, divination and psychic healing to diagnose and treat clients; and the *inyanga* who specialises in herbal medicines and potions. Edwards (2002) has pointed out that aside from alleged psi healing, *izangoma* (plural term) often prescribe conventional psychological interventions that are as effective as those from orthodox counsellors.

To become an *isangoma*, an individual receives a 'calling' from the ancestors who are believed to occupy the spirit world. It can happen at any point in life, but is most prevalent during adolescence. It is commonly characterised by a period of possession (where animal characteristics may be assumed) and emotional disruption manifested through vivid dreams, headaches, perceptions of mental illness and even motor dysfunction. After the calling, a period of apprenticeship will follow under an established healer, although this training may commence many years later. In turn, it can last from several months to several years, culminating in total rebirth (*ukuthwasa*). The healer is considered an incarnation of the ancestors and is deemed able to communicate with the spirit world and universe at large. For parapsychologists, *izangoma* represent a potentially rewarding test population - they see themselves as 'chosen' by the ancestors, and thus hold a resolute self-belief in their own psi abilities. The importance of self belief, both as a long term factor (e.g. Sheep/Goat - Schmeidler & McConnell, 1958), and as a short term one (Batchelder, 1984) has long been considered, and support has come from both the ESP and PK literatures (e.g. Lawrence, 1993; Gissurason & Morris, 1991).

Research into healing has typically focused on using biological target systems to measure effects. These systems have been varied, and have included bacteria (Nash 1984), mice (See Grad 1976), even salamanders (Wirth, Johnson, Horvath & MacGregor, 1992). Human beings have also been utilised, and a spectrum of measures, from nervous system response (e.g. Braud & Schlitz, 1983) to the associated effects of cardiac dysfunction and treatment (Byrd 1988) have been employed. A recent meta-analysis (Schmidt, Schneider, Utts & Walach, 2004), reviewed 36 studies, and provides limited support for the DMILS (Direct Mental Action into Living Systems) phenomena ($d=.11, p=.001$).

Healing can be considered a facet of the mind-matter phenomenon. Much of the work done within this field has utilised Random Event Generators, which are devices that generate truly random data streams, and which are believed to be open to influence by consciousness such that significant deviations from chance expectancy are alleged to be a measure of psi. REGs have been used to measure both unconscious (i.e. unintended) psi, as per FieldREG studies (e.g. Blasband, 2000; Nelson, Bradish, Dobyys, Dunne & Jahn, 1996; Nelson, Jahn, Dunne, Dobyys & Bradish, 1998; Radin, Rebman & Cross, 1996), as well as for volitional approaches (e.g. Schmidt, 1973). Whilst deviations from chance expectancy are typically small, the effects seem robust. A 1989 meta-analysis (Radin & Nelson), which was then updated in 2002 to incorporate almost 900 REG studies, calculated a

substantial p-value ($p < 10^{-50}$) in favour of anomalous effects proving real. File drawer effects notwithstanding, it is legitimate to assume that REG mind-matter effects are valid and replicable.

Many healing study protocols keep healer and healee physically apart during testing, and positive results lead to the supposition that effects are, in some way, derived from consciousness. In light of this, one might ask whether REGs could be used to measure healing. In 2004, a study by Radin, Taft and Young reported negentropic effects in REGs during healing practices, whilst a pilot study from the same year (see Lumsden-Cook, Edwards & Thwala; 2006) also uncovered anomaly. This second study was the precursor to the experiment presented below, and saw 4 *izangoma* attempt to 'heal' an Orion REG, under limited test conditions. The results showed a significant cumulative effect in the REG's output during healing phases (Stouffer $Z=2.531$, $p=.01$). The pilot and this full-scale study both stemmed from a desire to move research from the laboratory into the field, in order to boost ecological validity and to examine real world phenomena. The robustness of the REG approach enabled such ambitions to be realised. In addition, it can be noted that the experimenters' believe many participants would find comparable tests within a university setting as intimidating, and lead to perceptions of diminished power and ability.

The experiment detailed below presents the methodology employed in this formal study and the results obtained.

METHOD

Participants

Twenty *izangoma* (16 female, 4 male, ranging in age from 19 to 66; 4 of whom were still in apprenticeship) were recruited through an intermediary from the University of Zululand in KwaZulu-Natal, South Africa. Care was taken to source individuals with good local reputations, and to avoid possible fraudsters. Testing took place between October 29th and November 10th 2005, and each *izangoma* was tested either, at their own home or the home of a fellow healer, increasing ecological validity in line with the aims previously mentioned.

REG sampling took place in areas normally used for client consultations. As various *izangoma* had to travel and congregate for testing, they would often be present in the test space, waiting patiently for their turn during other people's trials. When this happened, individuals were briefed that only the individual holding the REG at any one time was to conduct healing. From observations and participant feedback, the experimenters were satisfied that no-one made efforts outside their turn. Each *izangoma* was paid for their participation.

Materials

To measure any psi effects, an Orion REG was connected via a one metre cable to a portable computer running a 333 MHz Intel processor. In turn, a custom written Quickbasic program sampled the Orion at 200 bits/sec. The first experimenter started the sampling process and the system automatically stopped after 5 minutes (an interval equivalent to some periods of real world healing). No system feedback was provided during testing, and researchers and participants remained blind to the data until the complete dataset was collected. At the completion of each trial, the raw data was converted into a Stouffer Z value (Cumulative deviation / (sqrt(number of trials)) / Standard Deviation), which provides a standardised value for REG trials across time.

Two analyses were chosen in advance. Firstly, directional anomaly was to be examined by cumulatively summing the data (e.g. all trials from one condition added together; looking at whether there was a significantly greater number of ones than zeros, or vice versa). This was represented as a terminal Stouffer Z. Secondly, evidence for non-directional effects (where significant individual trials might cancel each other out, because some were positive and some were negative) were assessed through Chi-squared analysis.

Procedure

Each participant completed eight REG trials, comprising of two conditions. 1) In the healing/intention condition, a participant held the REG and attempted to imbue it with the same directed mental healing that they might direct towards a client. 2) In the non-intention condition, the participant simply held the device, and did not consciously attend to it. In order to minimise potential boredom, and to prevent their focus gravitating towards the REG during these phases - individuals were asked about their 'calling' and background (via a verbally delivered questionnaire), and then allowed to chat freely on other subjects they wished to discuss.

Each participant's trial sequence was randomly generated using a pseudo REG, and comprised of four matched pairs of the two conditions. Thus a sample sequence might look like: (1) Healing, (2)

Non-Intention; (3) Healing, (4) Non-Intention; (5) Non-intention, (6) Healing; (7) Healing, (8) Non-Intention. Each trial was five minutes in length and was independently sampled.

Experimenter 2 was entirely responsible for briefing and interacting with participants. Before REG testing, each participant was told of the purpose of the experiment, namely: how the output of the REG system (which was represented as a tool for measuring consciousness) was affected by healing. Concepts of *ngqondo* (mind), *ukuzwa* (consciousness), *inhloso* (intention) and *ukwelapha* (healing) were employed to assist the briefing. *Izangoma* can be highly suspicious, not least when dealing with unfamiliar objects/technologies, and care was taken to act transparently and with honesty, and to take time in ensuring everybody was happy with the setup, and willing to attempt the task sincerely.

For each trial, the second experimenter would instruct the participant which condition to attempt (i.e. healing/non-intention), the first experimenter would start the REG, and the participant would be signalled to begin. The REG remained in the participant's hand for all eight trials (i.e. it was not picked up and put down).

No subject testing

As a control, a sequence of no-subject tests were conducted, corresponding to an equivalent number of intention/non-intention trials (n=80). In these, the REG system was sampled within a secluded environment, and to avoid potential unconscious confounds, only the first experimenter was aware of where and when these took place.

Experimenter testing

To gauge experimenter effects, each researcher involved in data collection completed 16 REG trials (8 healing/8 non-intention) under the same protocols as *izangoma*. To avoid boredom, experimenters did not complete an equivalent number of trials, as this would have entailed in excess of 13 hours of REG testing per person. Experimenters were free to use whatever strategy they deemed suitable for their healing trials, and each experimenter conducted their trials alone.

Experimenters' views.

Lumsden-Cook (2005, p134) has previously highlighted the usefulness of trying to gauge potential experimenter effects by detailing their preconceptions, expectations and perceived abilities during any study.

In this case, neither experimenter believed themselves to possess specific psi abilities, or to hold healing powers. In terms of research outcome, experimenter 1 hoped the data would show significant results for the healing condition (in light of the time, money and effort put into the project), whilst experimenter 2 thought significance was to be expected. It was not predicted whether the data would be directional or not. There was some concern that eight trials might be too much for some participants, and that effects would be washed out as boredom took hold (REG testing without feedback is not a particularly edifying experience), but having observed the first few trials, this was assuaged.

A priori hypothesis

Izangoma healing periods would be correspond to significant anomaly in the output of the Random Event Generator.

RESULTS

Results data

Table 1 (below) shows the REG data for all participants and conditions.

TABLE 1

REG DATA ACROSS ALL CONDITIONS

	Participant Testing		Control	Experimenter Testing	
	Izangoma (INTENT)	Izangoma (NO INTENT)	No subject. REG tested in seclusion	(INTENT)	(NO INTENT)
Number of Trials. (5 mins each, 200 bits/sec)	80	80	80	16	16
Number of Participants.	20	20	0	2	2
Standard Deviation Across Trials.	7.039	7.017	7.084	7.005	7.030
Number of Significant Trials. (SZ exceeding +/- 1.96, 2-tail level)	9	4	3	1	0
<u>Analysis for Directional Anomaly</u>					
Cumulative Deviation Across All Trials (bits)	-435	-913	338	-45	819
Cumulative Stouffer Z	-0.399	-0.840	0.308	-0.093	1.682
<i>p-value</i> (2-tailed)	0.690	0.401	0.758	0.926	0.093
<u>Analysis for Non-Directional Anomaly</u>					
χ^2	113.023	77.120	73.865	12.199	17.634
Degrees of Freedom	80	80	80	16	16
<i>p-value</i>	0.009	0.570	0.672	0.730	0.346

Overall, the only condition to witness significant REG anomaly was the healing one. There were nine independently significant trials (range: +2.91 to -2.99, SZ values), and the experimental hypothesis was confirmed ($\chi^2(80)=113.023$, $p=.009$). No other condition produced a significant end-result.

Results from the questionnaire

A questionnaire was verbally delivered to each participant during testing, and the following emerged. On average, the calling came between 15 and 16 years of age, and apprenticeship took one year (based on qualified *izangoma* only). Twelve of the twenty healers felt that the healing powers came from within, whilst eight felt that the power came through them, from outside forces (i.e. the ancestors).

As the *izangoma* were required to hold the REG, they were asked whether they would normally make physical contact with their clients. Seventeen answered that they would. Asked how they felt after healing (e.g. tired, content, etc.), the most common response was that the healer felt happy or relieved that the client had been helped. A quarter of respondents said that they felt tired if the client had not been helped at the session end.

Participants were also asked if they thought themselves capable of influencing the REG, sixteen said they could, two said it depended on the ancestors, and two said they thought not, (from the eight healing trials attempted by these two *izangoma*, one was significant). Finally, nineteen of the

participants said they were 'happy' with their calling (i.e. did not want another job). There were no meaningful correlations between responses and the REG's output.

Discussion and Concluding Remarks

Initially, it is worth pointing out that, from observations and talks with the participants, the experimenters were satisfied that all participants attempted the REG healing task sincerely. In turn, this may explain why an *izangoma* who felt unable to influence the device still produced a significant trial, as she 'gave it a go' despite reservations.

The results overall suggest that psi functioning may occur during periods of healing, although the structure of the supporting data (non-directional) is in contrast to that from the pilot study where only cumulative anomaly was uncovered.

In many ways, asking *izangoma* to heal REGs is artificial. Healing by its definition, assumes an interaction with a biological system wherein some measure of wellbeing improves. Nonetheless, using objective measuring systems such as REGs allows researchers to rule out a potential artefact from conventional healing studies. Although these experiments are often double blinded, with healees initially unaware of their involvement, one cannot preclude the idea that unconscious ESP (operating under a mechanism such as the Psi Mediated Instrumental Response – Stanford & Thompson, 1974), enables the participant to pick up trial relevant information. In turn, the very knowledge that they are being healed/prayed for, might facilitate placebo effects in said individual through self-healing (via stress reduction and subsequent immune response, etc). Conversely, it is difficult to envisage REGs manipulating their outputs, in line with a concept of sentient expectancy.

Positive results require us to consider the source of the effect. Perhaps holding the REG, or some other environmental factor may be responsible? Previous research has suggested that the act of holding an REG does not precipitate anomaly (Lumsden-Cook, Edwards & Thwala, 2005), nor that environmental factors such as electro-magnetic fields or temperature hold sway (Nelson, Bradish & Dobyms, 1989; tests were not specifically conducted with Orion REGs). Thus one can take the working position that effects stem primarily from consciousness, and as the experimenter trials proved null, that the *izangoma* were the source. In spite of this, it should be pointed out that this experiment generally conformed to the experimenters' hopes and preconceptions. Whether this is coincidental, the result of effective forecasting, or the product of a data sorting mechanism (e.g. Decision Augmentation Theory, e.g. May, Utts & Spottiswoode, 1995) is unclear.

Assuming that a data sorting mechanism is not responsible, the research detailed here provides credibility to the notion that traditional Zulu healing incorporates some level of psi functioning. Further studies might want to draw comparison data from other tribes, and from altogether different cultures.

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