Anomalous information access in the Ganzfeld: Utrecht - Novice series I and II

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Abstract

The results of the first 2 novice series are reported which precede a planned research programme of 4 series which is expected to stretch over a period of 2 years. In each of the two series 50 volunteers participated in a single standard Ganzfeld session with static targets. The over-all direct hit scoring rate was exactly at chance: 25%. Two factors related to the subjects that have been established as successful predictors in previous ganzfeld research were analyzed. Over 50% of the subjects were or had been practitioner of a mental discipline, like meditation. Those subjects scored above chance consistently in both series (32.1 % over both series, chi2 = 2.5; p= 0.11). Subjects who reported previous paranormal experiences did score non significantly better than subjects that did not report these experiences (27.3% vs 0% in series I and 27.5% vs 20% in series II). Subjects who reported PK events did perform significantly better than other subjects with a scoring rate of 52.8% (chi2=10.8, p=0.02). Psi-performance correlated negatively with geomagnetic activity in the first series (r=-0.28; p< 0.05) but not significantly so in the second series (r=-0.01, n.s.). The results, which seem to fit an over-all decline in effect size in the reported ganzfeld research with static targets (regression coefficient = -0.023, p=0.02) are discussed in the context of previous meta-analytic results. It is argued that decline effects constitute patterns in the elusiveness of psi.

1. Introduction

It is thought that the claim that psi-phenomena are real is mostly supported by results of a number of meta-analyses (Utts, 1991). The Ganzfeld meta-analyses are the most convincing because after the first meta-analysis in 1985 (Honorton, 1985), which reported an over-all scoring rate of 38% against 25% MCE, an automated Ganzfeld research programme was started which was designed to meet all possible skeptical criticism (Hyman & Honorton ,1986) and which yielded essentially similar and very significant results (Honorton, 1990). As a consequence it became even possible to publish a positive account of ganzfeld research in a mainstream conservative psychological journal (Bem, 1993).

This paper concerns the Utrecht Ganzfeld novice series I & II, which started in August 1992, and which are meant as training and selection series for a definitive Ganzfeld research programme. This latter programme will take off during the summer of 1993 and should achieve an over all significant result according to the estimated effect size

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However the Utrecht programme targets for more than another indication for the reality of psi phenomena. The programme will use meta-analytic techniques to get insight into the factors that play a role in the psi process. Therefore the research programme is split in series of 50 sessions. This amount of sessions is typical for the unit of analysis used in the previous meta-analyses (mean N of reported GF studies is 45.7). The factors of special interest are the target-material and its emotional and cognitive meaning for each individual participant (including experimenters and other staff) and also the personality field of all the persons involved in the study (Bierman, 1992).

In the two novice series presented in this paper all 100 subjects are new to this research paradigm. The experimenters were novices too.

2. Specific research questions of novice series.
The specific research questions for the novice series were

a)   Do the direct hit scoring rates fit with the previous meta-analyses?
        Previous meta-analyses predict direct scoring rates between 30% and 35%.

b)   Do previous predictors hold up?.
        Previous analyses showed a consistent correlation between reported personal psi experiences of the subjects and scoring in the Ganzfeld. Also previous experience with mental disciplines like meditation predicted positive scoring (Honorton & Scheckter, 1987; Broughton et al, 1990). Finally a meta-analysis on the relation between free-response experiments and global geo-magnetic activity has yielded significant correlations (Spottiswoode, 1990). Another established predictor, namely the familiarity of the sender, was not tested in the present research because nearly all subjects brought along a friend as sender.

c)   Does the composition of the experimental team make a difference?
        This question can be seen as a start of the research into the relation between psi and the (inter) personal fields of all participants.

d)   Does the target make a difference?
        This question can be seen as a start of the research of the impact of emotional and cognitive aspects of the target-material on scoring.

3. Procedure
The experimental procedure which was used in the series conformed to the generally accepted standards and was functionally identical to the procedure used by Honorton. For a detailed description is referred to the description given elsewhere (Honorton, 1990). A questionnaire asking for personal psi experiences and for training in one or more mental disciplines was distributed among the subjects.

3.1 Subjects
Hundred subjects (49 male, 51 female; mean age=24.7 sd=15.2) were orally recruited from courses given by the experimenters. The only criterion to participate was the subjects interest in Ganzfeld research. In nearly all cases they brought their own sender along.

3.2 Task of subjects

The subject was instructed that he/she should report every impression that arose while the subject was in the ganzfeld state. The sender was asked to concentrate on the randomly selected target.

3.3 Target material

Target material consisted of 20 sets of 4 possible target-pictures. Each set was constructed so that the 4 pictures were quite distinct from each-other. No formal criteria were applied in this process but 5 independent judges took part in the construction process.

3.4 procedure in the light of skeptic criticism

Double-blind procedure.
Throughout the experiment the experimenter handling the subject was blind with respect to the target. The selection of the set and the target were controlled by a pseudo-random generator on a Macintosh computer which sent the information over the network to the co-experimenter who was responsible for the selection procedure and who also handled the sender.
The co- experimenter never met the main experimenter nor the subject before the subject had indicated his choice and this choice was registered in a score form.

Duplicate target sets
Judging by the subject was done using a duplicate target set not handled by the co-experimenter / sender in order to avoid any sensory clues like fingerprints etc.

4. Results

4.1 Direct scoring rates

The direct hit scoring rates for the two series were close to chance (table I) .

Table I
Direct scoring rates in the two series

series I				series II		
Frequency Distribution for hit/miss				Frequency Distribution for hits/miss		
	Count	Percent			Count	Percent
miss	37	74.000		miss	38	76.000
hit	13	26.000		hit	12	24.000
Total	50	100.000		Total	50	100.000

The corresponding effect sizes of 0.023 and -0.023 (Cohen's h, Cohen; 1988) do not contradict the previous research findings because they fall within the accumulated distribution of the effect sizes. However this is largely due to the fact that we include in this distribution the results of ganzfeld experiments since 1985 in which year the famous meta-analysis was published (Honorton, 1985). This addition of hitherto not meta-analytically treated data to the 1985-database results in a decrease of the estimated true effect size. The ganzfeld data since 1985 are in conflict with the data published in the 1985 meta-analysis as can be seen from Table II.

Table II
Comparison of old (pre-1985) and new (post-1985) ganzfeld experiments.

Group Info for H
Grouping Variable: old / new

	Count	Mean	Variance	Std. Dev.	Std. Err
old	28	.275	.207	.455	.086
new	19	.048	.039	.199	.046

Unpaired Means Comparison for H
Hypothesized Difference = 0
Grouping Variable: old / new

	Mean Diff.	DF	t-Value	P-Value	95% Lower	95% Upper
old, new	.227	45	2.044	.0468	.003	.451

This issue is further elaborated in the discussion section where we will argue that the accumulated ganzfeld database is best modelled through a linear decline of effect sizes rather than a distribution around a fixed effect size.

4.2 Results split for previous paranormal experiences

91 of the 100 questionnaires were returned. Subjects who had reported one or more paranormal experiences did score slightly above chance (27.3% in series I and 27.5% in series II). Telepathic and clairvoyant experiences did not separate hitters and missers with scoring rates of 25.4 and 24.5% resp. but subjects reporting precognition scored at 29.4%. The best predictor of scoring was previous PK experiences. 13 subjects reported to have experienced a PK event and they obtained 7 hits (scoring rate is: 53.8%, chi2=10.76, df=4, p=0.03; see table III). It should be realized that the quoted p-value is not corrected for the fact that we select here one out of the 4 psi-facilities.

Table III
PK experience as a predictor variable

Observed Frequencies for hit/mis, pk

	+	-	unknown	diffrnt	ms	Totals
mis	6	50	7	1	4	68
hit	7	11	5	1	0	24
Totals	13	61	12	2	4	92

Percents of Column Totals for hit/mis, pk

	+	-	unknown	different	missing	Totals
mis	46.154	81.967	58.333	50.000	100.00	73.913
hit	53.846	18.033	41.667	50.000	0.00	26.087
Totals	100.000	100.000	100.000	100.000	100.000	100.000

Summary Table for hit/mis, pk

Num. Missing	8
DF	4
Chi Square	10.763
Chi Square P-Value	.0294
G-Squared	•
G-Squared P-Value	•
Contingency Coef.	.324
Cramer's V	.342

4.3 Results split for mental disciplines

One of the questions asked for experience with mental disciplines. These concerned the traditional eastern mental disciplines (transcendental) meditation, yoga, zen, tai chi and shiatsu as well as more western trainings like relaxation, visualization, therapeutic touch and intuition training. The trend that practitioners of these disciplines tend to score better than non-practitioners was evident in both series.

Table IV
Mental discipline as predictor variable

Observed Frequencies for hit/miss, mental discipline

	-	+	Totals
hits	6	18	24
mis	29	38	67
Totals	35	56	91

Percents of Column Totals for hit/miss, mental discipline

	-	+	Totals
hits	17.143	32.143	26.374
mis	82.857	67.857	73.626
Totals	100.000	100.000	100.000

 For the eastern disciplines the direct hit rate was 32.14% (30.0% in series I and 34.6% in series II). The corresponding chi2 values were non-significant. When the western disciplines were included the percentages dropped slightly to 30.9% (30.6% in series I and 31.2% in series II).

Table V
Mental discipline + western trainings as predictor variable

Observed Frequencies for hit/miss, mental+

	-	+	Totals
hits	3	21	24
mis	20	47	67
Totals	23	68	91

Percents of Column Totals for hit/miss, mental+

	-	+	Totals
hits	13.043	30.882	26.374
mis	86.957	69.118	73.626
Totals	100.000	100.000	100.000

Tai Chi practitioners scores best: 50% (N=8). Closely followed by practitioners of yoga, transcendental meditation and zen (N= 33, N=7 and N=11 resp) who scored around 42%.

4.3.1 The two factor model
There were 48 subjects that reported previous paranormal experiences **and** who were practitioners of a mental discipline. They scored 16 hits (33.3%). The results obtained with this combination of two factors therefore were hardly better than for the factor 'mental discipline' alone. The refinement of also requiring previous psi experience only removed 8 subjects (and 2 hits) from the sample.

It should be stressed that none of these figures were significant. They are reported here in order to facilitate future meta-analyses.

4.4 Correlation with geomagnetic data
In previous research correlations have been found between geomagnetic activity and performance in free response trials (Spottiswoode, 1990). Low activity yielded higher scoring rates. This trend was confirmed in the first of the two series (table VI).

Table VI
Product-moment correlation of session's z with geomagnetic activity

series I	series II

Correlation Matrix
 	
        z   solar
z   1.000 -.280
solar -.280 1.000
50 observations were used in this computation.
 	
   Fisher's r to z
 	
         Correlation   P-Value
z, solar   -.280   .0487
50 observations were used in this computation.
	Correlation Matrix
	
	        z solar
	z 1.000 -.010
	solar -.010 1.000
	50 observations were used in this computation.

For series I the AA-index was taken to represent geomagnetic activity because the PA-index was not available for all dates. For series II the PA-index was used.

4.5 Results split for experimental team

In total there were 4 main and 5 co- experimenters that managed more than one session. An ANOVA with these two factors as independent and the z-score for the sessions that they ran as dependent variables did not yield an indication that the composition of the team nor the (co-) experimenter was a factor that contributed to the results of the sessions (F-team=. 0.49, F-exp=1.2, F-coexp=0.38; all n.s)

The three most successful teams (HG/DB, RW/DB, and DB/RW) that could be identified and which incidentally were composed of the 3 last authors of this paper obtained an over-all direct hit scoring rate of 44% in 27 sessions but even after this selection a t-test on the z-scores of the sessions of these teams was not significant (mean z= 0.323, t=1.874, p=0.072).

4.6 Were there specific successful targets?

The random selection of the sets proved to result in a balanced distribution of selected sets. Most sets were selected between 4 and 6 times with the exception of set-13 which was selected only once (a hit). Because there were 80 possible targets in 100 sessions a formal analysis of successful targets is impossible since a large number of targets were never selected.

Target 02-B was selected twice and in both cases resulted in a hit. It concerns a snow covered plain with humps which upon closer observation appear to be swans covered with snow. The picture associates highly with clouds.

Target 14-C was selected three times with two hits. This target depicted the remains of 5 children after a earthquake with a mother figure crying over them. One subject reported the story of a close friend who was in a mine during the Hiroshima bombing and when he came above ground the whole world was shattered. This subject was the only one who cried during the Ganzfeld session.

5. Discussion
5.1 Decline of effect size: is psi an illusion or is it elusive?

If we take a global look at the present series there is no clear sign of any paranormal effect in the data. As argued in the results-section the direct scoring rates however do not invalidate previous meta-analysis. Actually, if we compare the present results with novice series from other laboratories the global chance results are to be expected. So it seems to early to draw negative conclusions from this chance result.

However, the point remains that the 17 Ganzfeld experiments reported since the first meta-analysis in 1985 and for which we could infer the effect size that we were able to locate, **do** conflict with the outcomes reported in that 1985-analysis which incorporated 28 studies (table II). In fact the effect-sizes do regress to chance expectation as can be seen from the linear regression analysis (figure 1). The studies in the updated database are given in the appendix.

figure 1
regression plot of all published effect sizes 'h'

Y = 2.108 - .023 * X; R^2 = .114
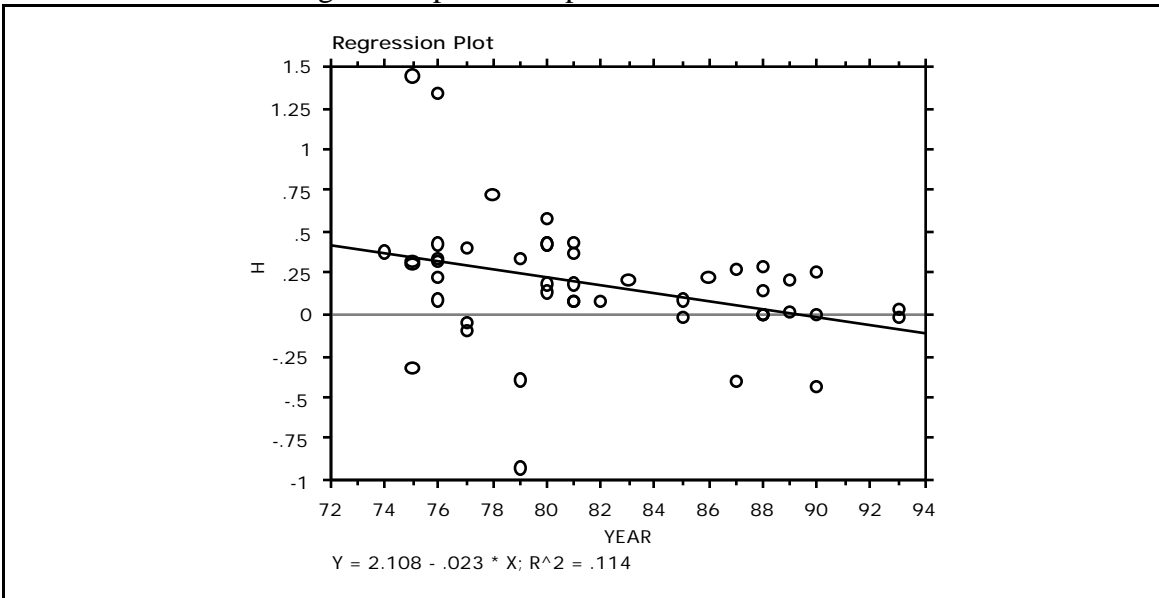
The regression is on itself significant (p= 0.02)

table VII
Fit of all published effect sizes of ganzfeld research (excluding present series) with a linear regression model.

Regression Coefficients
H vs. YEAR

	Coefficient	Std. Error	Std. Coeff.	t-Value	P-Value
Intercept	2.108	.803	2.108	2.625	.0118
YEAR	-.023	.010	-.337	-2.402	.0205

The 95% confidence interval for the regression-coefficient is from -0.043 to -0.004. The residual RMS is 0.368. The analysis is not sensitive for the removal of three outliers. In

fact the analysis is conservative because part of the data produced by PRL using dynamic targets (which runs counter to the decline effect) is included twice in the database because it is unclear which auto-ganzfeld data from the final publication (Honorton et al, 1990) had been reported before.

As a control a second order non-linear regression analysis was performed which gave no improvement in the fit of the data (residual RMS = 0.370). None of the coefficients in this control analysis was significant.

We conclude that the best model for the development of static ganzfeld effect sizes in time is a linear regression to chance.

Is there an explanation for this regression? One explanation which will unavoidably be put forward by the skeptics is that in general quality of the studies did improve and hence a regression to chance results was to be expected because psi is an illusion. At this moment in the history of parapsychology the field is extremely vulnerable because meta-analyses of the Ganzfeld research are reported by mainstream scientific journals as the major (or even only) piece of substantial evidence (McCrone, 1993) and we have the risk that these claims are going to backfire.

5.1.1. Patterns in elusivenesss

To make things worse a regression of effect size is not unique in Parapsychology. It has for instance been observed with the correlations between DMT and psi performance and informal analyses done by the first author revealed a number of significant regressions eg. in the electrodermal research of the Mind Science Foundation (with a regression coefficient of -0.034; p<0.05) . James Spottiswoode analyzed a large number of free response trials and also found a significant decline with a regression coefficient of -.057 (p=0.014). The effectsizes in the anomolous cognition database of the Princeton PEAR group decline over years with a regression of even -0.085 (p=0.0006; Spottiswoode, 1993). A psychological explanation put forward by some parapsychologists is that declines are caused by decreasing enthusiasm (see the discussion on the electronic conference system PDL). This could for instance explain the significant decline in PK performance of operator 1 in the PEAR RNG studies. However in the case of the Utrecht Ganzfeld series the experimenters were all enthusiast novices.

Another possible explanation might be that psi-performance correlates with some slowly changing global variable like geomagnetic activity. In the present series I we found such a correlation with daily fluctuations. But a major researcher on the correlation between geomagnetic indices and psi feels that those correlations are too weak to account for the observed declines (Spottiswoode, 1993).

It is remarkable that all the regression coefficients are between -0.025 and -0.09 while the general predicted zero effect size is in the eighties. This might indicate that we have found a pattern in the elusiveness of psi.

5.2 Predictors of psi in the ganzfeld

The best thing that can be said about the present results is that they support the predictive value of the practice of mental discipline and to a lesser degree the predictive value of previous paranormal experience (especially PK). Broughton et al (1990) found similar results and this is generally seen as a confirmation of the earlier findings of the PRL

research (Honorton, 1987). However in the FRNM database, like in the present series but unlike the PRL database, there is is no over-all psi effect. This implies that the hitting by the success group is counterbalanced by missing of the non-success group. It is too easy to interpret this as a confirmation and ignore the fact that from a global perspective no psi occurred. In some ways these findings are reminiscent to findings like the sheep-goat effect where in the course of time over-all effects disappear and only internal effects remain. It seems tat this is another pattern of elusiveness.

5.3 Future research
For the present series further analyses relating the some personality measures as measured with the neo-PI (Costa & McCrae, 1985) with psi-performance are presently being done in order to asses the three factor model. For the forthcoming series dynamic targets will be included as target-material in order to restore global above chance scoring rates.

Acknowledgement

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APPENDIX
Updated Ganzfeld database

First Author	Yr	Title	Journal	Effectsize
Ashton	81	A 4-subject study in the GF.	JSPR 51(787) 12-21	.37
Braud	75	Free response GESP performance during an experimental hypnagogic state induced by visual and acoustic GF techniques: A replication and extension	JASPR 69(2) 105-113	.31
Child	79	Psi missing in free response settings	JASPR 73 273-289	-.93
Honorton	76	Length of isolation and degreeof arousal as probable factors influencinf information retrieval in the GF	RIP 75 184-186	1.33
Honorton	74	Psi-mediated imagery and ideation in an experimental procedure for regulating perceptual input	JASPR 68 156-168	.38
Palmer	75	The influence of psychological set on ESP and OBE	JASPR 69(3) 193-213	-.32
Palmer	77	Scoring Patterns in an ESP GF experiment	JASPR 71(2) 121-145	-.05
Palmer	79	An ESP GF experiment with transcedental meditators	JASPR 73(4) 333-348	-.40
Raburn	75	Expectation and transmission factors in psychic functioning	unpub. thesis	1.44
Raburn	75	,,	,,	.32
Rogo	76	ESP in the GF: an exploration of parameters	RIP 75 174-176	.09
Rogo	76		RIP 75 174-176	.32
Rogo	76	The use of short duration GF to facilitate psi-mediated imagery	EJP 1 72-77	.22
Sargent	80	Exploring psi in the ganzfeld	Paraps.Monogr.-17	.13
Sargent	80	,,	,,	.42

Sargent	80	,,	,,	.42
Sargent	80	,,	,,	.58
Sargent	80	,,	,,	.18
Sargent	81	Response structure and temporal incline in gf free response gesp testing	RIP 81 79-81	.07
Sargent	81	GF psi optimazation in relation to session duration	RIP 80 82-84	.07
Sargent	81	GF ESP Performance with variable duration testing	RIP 81 159-160	.44
Schmitt	78	Free Response ESP during GF stimulation: The possible influence of menstrual cycle phasse	JASPR 72(2) 177-182	.73
Sondow	79	Effect of associations and feedback on psi in the gf: is there more than meets the judges eye?	JASPR 73(2) 123-150	.34
Sondow	81	Target qualities and affect measures in an exploratory psi gf	RIP 81 82-85	.18
Terry	76	Psi information retrieval in the GF: 2 confirmatory studies	JASPR 70(2) 207-217	.34
Terry	76			.42
Wood	77	Free response GESP performance folowing gf stimulation.....	EJP 1 80-93	-.10
York	77	The DMT as indicator of psychic performance as measured by aa	RIP 75 48-49	.40
Milton	88	A possible directive role of the agent in the gf	EJP 7(2-4) 193-214	.29
Houtkoope r et al	88	Why the GF is conducicve to ESP: a study of OT and the percipient order effect	EJP 7(2-4) 169-192	0.00
Murre et al	88	A GF psi experiment with control condition	JoP 52(2) 103-125	.15
Haraldsson et al	85	Perceptual defensiveness, GF and the percepient-order effect	EJP 6(1) 1-17	.08
Sargetn et al	82	Response structure and temporal incline in GF free response gesp testing	JoP 46(2) 85-110	.07
Palmer et al	90	A GF experiment with subliminal sending	RIP 90? 50	-.43
Kanthaman i et al	90	An experiment in GF & dreams: confirmatory study	RIP 90? 56-61	0.00
Milton	84	The effect of agent strategies on the percipients experience in the ganzfeld	RIP 84 1-4	•
Stanford	84	Cognition and mood during GF: the effects of extraversion and noise vs silence	RIP 84 4-7	•
Honorton	85	First timers: an exploration of factors affecting initial psi GF performance	RIP 85 28-32	-.02
Honorton	86	GF target retrieval with an automated testing system: a model for initial GF success.	RIP 86 36-39	.22
Stanford	87	Psychological response to the GF-esp setting: the role of noise vs silence ...	RIP 87 36-40	•
Dalen	87	A prototypical GF psi experiment with a control condition	RIP 87 40-43	•
Stanford	88	Session based verbal predictors of free-response esp performanmance in the GF	RIP 88 79-84	0.00
Kanthaman i	88	An experiment in gf and dreams with a clairvoyant technique	RIP 88 84-88	0.00
Munson	87	FRNM Ganzfeld: an attempted replication	RIP 87 44-47	-.41
Broughton	89	Assessing the PRL success model on an independent database	RIP 89 32-35	.02
Honorton	89	Psi GF experiments using an automated testing system: an update...	RIP 89 25-32	.21

Schlitz	90	ESP & Creativity in an exceptional population	RIP 90 45-49	•
Bierman	87	A test on possible impliations of the OT's for GF research	EJP 7 1-11	.27
Bierman	83	The effect of GF stimulation and Feedback in a clairvoyance task.	RIP 83	.21
Bierman	93	Anomolous information access in the GF	RIP 93	-.02
Bierman	93	,,	RIP 93	.02
Honorton	90	Psi Communication in the Ganzfeld ...	JoP 90, 54, 99-139	0.26 (dynamic targets alone)

Variance Comparison for H
Grouping Variable: old / new
Hypothesized Ratio = 1

	Var. Ratio	Num. DF	Den. DF	F-Value	P-Value	95% Lower	95% Upper
old, new	4.903	27	14	4.903	.0018	2.107	10.188

Experimental team composition
Results of ANOVA

Type III Sums of Squares

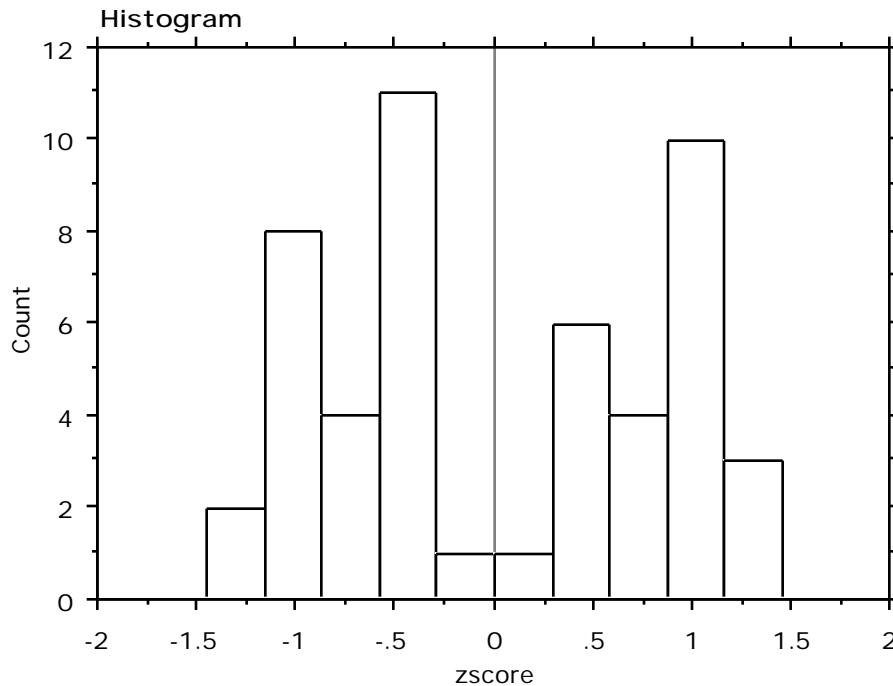| Source	df	Sum of Squares	Mean Square	F-Value	P-Value
pl	5	5.996	1.199	1.359	.2492
apl	9	3.012	.335	.379	.9418
pl * apl	8	3.505	.438	.496	.8553
Residual	77	67.968	.883		

Dependent: z

z-scores

Frequency Distribution for zscore

From ( )	To (<)	Count
-1.447	-1.157	2
-1.157	-.866	8
-.866	-.575	4
-.575	-.284	11
-.284	.007	1
.007	.298	1
.298	.588	6
.588	.879	4
.879	1.170	10
1.170	1.461	3
	Total	50

Histogram

The receiver is placed in a reclining chair in an acoustically-isolated room. Translucent ping-pong ball halves are taped over the eyes and headphones are placed over the ears; a red floodlight directed toward the eyes produces an undifferentiated visual field and white noise played through the headphones produces an analogous auditory field. It is this homogeneous perceptual environment that is called the *Ganzfeld* ("total field"). In order to reduce internal somatic "noise," the receiver typically also undergoes a series of progressive relaxation exercises at the beginning of the ganzfeld period.

The sender is sequestered in a separate acoustically-isolated room, and a visual stimulus (art print, photo-graph, or brief videotaped sequence) is randomly selected from a large pool of such stimuli to

serve as the target for the session. While the sender concentrates on the target, the receiver provides a continuous verbal report of his or her ongoing imagery and mentation, usually for about 30 minutes. At the completion of the ganzfeld period, the receiver is presented with several stimuli (usually four) and, without knowing which stimulus was the target, is asked to rate the degree to which each matches the imagery and mentation experienced during the ganzfeld period. If the receiver assigns the highest rating to the target stimulus, it is scored as a "hit." Thus, if the experiment employs judging pools containing four stimuli (the target and three "decoys" or control stimuli), then the hit rate expected by chance is .25.

ollowing a 14-minute period of progressive relaxation, the receiver underwent ganzfeld stimulation while describing his or her thoughts and images aloud for 30 minutes. Meanwhile, the sender concentrated on a randomly selected target. At the end of the ganzfeld period, the receiver was shown four stimuli and, without knowing which of the four had been the target, rated each stimulus for its similarity to his or her mentation during the ganzfeld.

The static targets included art prints, photographs, and magazine advertisements;

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Regression Coefficients
H vs. YEAR

	Coefficient	Std. Error	Std. Coeff.	t-Value	P-Value
Intercept	2.108	.803	2.108	2.625	.0118
YEAR	-.023	.010	-.337	-2.402	.0205

Regression Plot

$Y = 2.108 - .023 * X; R^2 = .114$