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The Manifest Content of Self-Reported Lucid Versus
Non-lucid Dreams Among College Students

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A major research interest of mine has been in the
systematic content analysis of the lucid dream, and
probably stems from my own experiences with this
dream. This work started with my dissertation in the
mid-1970's and has continued. To date the majority of
my work involves asking people to evaluate their own
dreams. For instance I might ask, 'To what extent is
the dream you just had very recallable?' They are
then asked to evaluate their dream experience along a
likart-type scale. This is a well accepted procedure
in the personality literature in terms of the self
evaluation of internal experience. We are fairly
accurate judges of our own internal experiences.

However, what has rarely been done, and what I'm going
to report on today, is a lucid versus non-lucid dream
content analysis by independent judges. In a recent
<u>Lucidity Letter</u>, Foulkes called for just such an
analysis. Of course, the preference in such an
analysis would be for signal-verified lucid versus
sleep lab collected non-lucid dreams. An analysis of
that type of data on non-student samples is reported
on elsewhere (Gackenbach, in press). I'm going to
report on the content analysis of lucid and non-lucid
dreams using the Hall and Van de Castle system of
analyzing the manifest content. There are certainly
newer "process" oriented systems today, but I think
normative data on the manifest content of the lucid

dream needs to be obtained before we move on to a "process" approach.

I gathered, through lucid dream verification, dream diaries and various other self-report procedures, accounts of 443 lucid and non-lucid dreams from either students or adults. I eliminated some of these dreams. For instance, I took out the dreams of adults for several reasons: first, there were very few non-lucid dreams in that sample and second, they were all self selected and highly interested in dreams. Therefore, the adults were not as "normal" as the students and consequently, not directly comparable to Hall and Van de Castle's student norms. From the five student samples, I ended up with 132 lucid and 104 non-lucid dreams.

We trained three judges in a variation of the Hall and Van de Castle system. A colleague[1] and I developed a code book so the data could be entered into a computer thereby facilitating the use of standard statistical procedures for analyses of the data. Although this simplified a very tedious assessment procedure, we lost some of the subtleties obtainable with the original data recording procedure. The basic statistical analysis that I used throughout was a 2(type of dream: lucid, nonlucid) X 2(sex of subject: male, female) analysis of covariance in which the word count (number of words in the dream transcript) was the covariant. This was done in order to estimate dream recall. An obvious weakness with this estimation is that anyone with poor verbal skills would appear to have lower dream recall. However, since I had no other estimate of recall I was forced to use word count. It can be seen in Figure 1 that an analysis of variance of lucid versus non-lucid dreams by sex of subject on number of words further justifies using

Figure 1

Number of Words per Dream Transcript as a Function
of Sex of Subject and Type of Dream
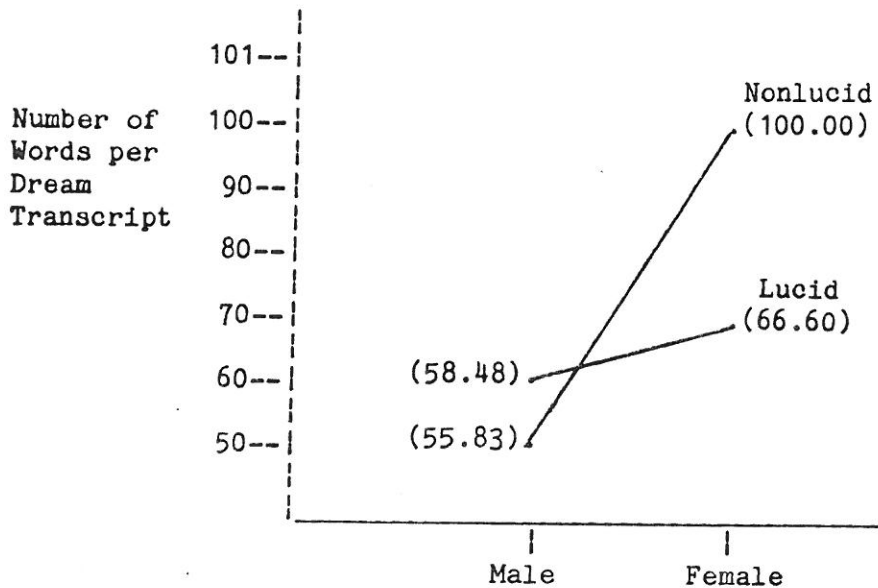
words as a covariant.   Specifically, there was a main
effect for type of dream, with more words in the non-
lucid dreams than in the lucid dreams.   That, in and
of itself, is provocative, because in study after
study, those asked to self evaluate the recallability
of their dreams have reported lucid dreams as more
recallable than non-lucid ones.   They may be more
recallable, but they seem to be shorter.   The effect
is totally accounted for by females, who, of
course, have better verbal skills.

I'm going to go through the scales in the order that
Hall and Van de Castle present them and summarize our
findings, but first let me explain the construction of

the tables. There are two kinds of information on them
(see Table 1).   First are the proportions from the
Hall and Van de Castle normative data. Sometimes they
broke their data into more subtle categories than I
was able to because of the data entry system I
utilized. Next are proportions from my data, so the
reader can make comparisons between his normative data
and the lucid and non-lucid dream data presented here.
Both sets of proportions are further divided by sex of
subject.   However, these proportional figures are
misleading because dream recall is not controlled.
Consequently, there are some contradictions between
the proportions and the adjusted means, the third type
of information on these tables. The findings depicted
by the means are controlled for number of wordsin the
dream transcript. So I think that the means give a
more accurate picture.   However, it's always impor-
tant, in this kind of study, to provide normative data
comparisons. The only normative data in the original
Hall and Van de Caslte publication was proportions.
My comments will be primarily restricted to the
weighted means. The last type of information provided
on these tables is the F-ratios for effects involving
type of dream. The first findings of this large con-
tent analysis are shown in Table 1. No matter what
dream character characteristic is examined, number,
sex, age, or identity, there are fewer in lucid than
in non-lucid dreams.

We then examined the social interaction subscales the
findings from which are depicted in Tables 2 and 3.
Here the findings begin to get a little thin. The
first of the three social interaction subscales,
portrayed in Table 2, is aggression. As you look at
the total aggressive acts divided into more aggressive
(5-8) and less aggressive(1-4), in the proportional
data it looks like something might be happening.
However, when controlled for word count, there was
no difference between lucid and non-lucid dreams in
aggression. However, for friendly interactions (see
Table 3), the second kind of social interaction that

Table 1

Proportions, Selected Weighted Means and F-Ratios of Selected Character Subscales

VARIABLE	HALL & VAN DE CASTLE PROP.		PROPORTIONS LUCIDS		NONLUCIDS		MEANS LUCIDS		NONLUCIDS		F-RATIOS TOP=DREAM MAIN EFFECT / BOTTOM=DREAM X SEX INTER.
	M	F	M	F	M	F	M	F	M	F	
NUMBER:											
SINGLE	.687	.719	.835	.757	.755	.681	5.13[1]		6.21		$F(1,231)=6.13$, $p<.014$ / $F(1,231)=0.75$, n.s.
GROUP	.313	.281	.165	.180	.225	.269	1.25		1.86		$F(1,231)=21.11$, $p<.0001$ / $F(1,231)=2.14$, n.s.
SEX:											
MALE	.530	.372	.681	.221	.566	.255	4.23		5.39		$F(1,231)=7.85$, $p<.006$ / $F(1,231)=0.56$, n.s.
FEMALE	.258	.401	.132	.482	.162	.464	1.17		1.69		$F(1,231)=15.83$, $p<.0001$ / $F(1,231)=3.46$, n.s.
JOINT	.131	.133	.055	.059	.071	.189	0.22		0.54		$F(1,231)=16.07$, $p<.0001$ / $F(1,231)=2.57$, n.s.
INDEFI-NITE	.081	.093	.132	.239	.202	.092	5.61	6.41	6.76	8.92	$F(1,231)=1.56$, n.s. / $F(1,231)=9.09$, $p<.003$
AGE:											
ADULT	.973	.933	.987	.930	.963	.955	3.13		4.38		$F(1,231)=10.29$, $p<.002$ / $F(1,231)=0.17$, n.s.
TEEN	.006	.014	.000	.006	.000	.019	0.69		1.22		$F(1,231)=13.23$, $p<.0001$ / $F(1,231)=3.00$, n.s.
CHILD	.018	.042	.000	.041	.024	.019	0.20		0.46		$F(1,231)=12.25$, $p<.001$ / $F(1,231)=3.54$, n.s.

Table 1

Proportions, Selected Weighted Means and F-Ratios of Selected Character Subscales

Character							Selected Weighted Means				F-Ratio (1)	F-Ratio (2)
BABY	.003	.011	.013	.023	.012	.006	0.25	0.53	0.40	0.29	$F_{(1,231)} = 2.06$, n.s.	$F_{(1,231)} = 6.93$, $p < .009$
IDENTITY												
SELF	---	---	.472	.394	.404	.296		3.84		5.05	$F_{(1,230)} = 9.75$, $p < .002$	$F_{(1,230)} = 0.29$, n.s.
FATHER	.025	.032	.011	.005	.020	.020		0.69		1.22	$F_{(1,230)} = 12.95$, $p < .0001$	$F_{(1,230)} = 2.92$, n.s.
MOTHER	.024	.046	.000	.009	.010	.010		0.21		0.46	$F_{(1,230)} = 11.37$, $p < .001$	$F_{(1,230)} = 3.21$, n.s.
PARENTS	.011	.013	.000	.005	.000	.000	0.25	0.54	0.40	0.29	$F_{(1,230)} = 2.14$, n.s.	$F_{(1,230)} = 7.06$, $p < .008$
BROTHER	.011	.099	.011	.009	.010	.010					$F_{(1,230)} = 0.87$, n.s.	$F_{(1,230)} = 0.04$, n.s.
SISTER	.095	.169	.011	.027	.000	.036					$F_{(1,230)} = 0.98$, n.s.	$F_{(1,230)} = 0.50$, n.s.
HUSBAND	---	.009	---	.014	---	.005					$F_{(1,230)} = 0.81$, n.s.	$F_{(1,230)} = 0.34$, n.s.
WIFE	.008	---	.000	---	---	.000					$F_{(1,230)} = 1.72$, n.s.	$F_{(1,230)} = 1.11$, n.s.

1. In all tables only weighted means for significant effects are presented.

Table 2

Proportions and F-Ratios of Aggressive Social Interactions Subscales

VARIABLES	HALL & VAN DE CASTLE PROP. M	F	PROPORTIONS LUCIDS M	LUCIDS F	NONLUCIDS M	NONLUCIDS F	MEANS LUCIDS M	LUCIDS F	NONLUCID M	F	F-RATIOS (TOP=DREAM MAIN EFFECT; BOTTOM=DREAM X SEX INTER.)
TOTAL AGGRESSION[1]	$\frac{402}{500}$	$\frac{337}{500}$	$\frac{26}{45}$	$\frac{53}{95}$	$\frac{23}{42}$	$\frac{30}{62}$	---	---	---	---	$F_{(1,231)}=0.48$, n.s. / $F_{(1,231)}=0.59$, n.s.
MURDER A8	.06	.02	.12	.06	.13	.00	---	---	---	---	$F_{(1,231)}=0.24$, n.s. / $F_{(1,231)}=0.40$, n.s.
ATTACK A7	.22	.15	.15	.11	.43	.13	---	---	---	---	$F_{(1,231)}=2.27$, n.s. / $F_{(1,231)}=2.87$, n.s.
CHASING- CONFINE A6	.15	.13	.15	.40	.26	.33	---	---	---	---	$F_{(1,231)}=0.58$, n.s. / $F_{(1,231)}=0.15$, n.s.
DESTRUCTION A5	.06	.04	.04	.06	.00	.00	---	---	---	---	$F_{(1,231)}=2.05$, n.s. / $F_{(1,231)}=0.005$, n.s.
SERIOUS THREAT A4	.05	.04	.08	.06	.00	.00	---	---	---	---	$F_{(1,231)}=2.89$, n.s. / $F_{(1,231)}=1.10$, n.s.
REJECTION A3	.18	.36	.12	.15	.13	.27	---	---	---	---	$F_{(1,231)}=0.00$, n.s. / $F_{(1,231)}=0.01$, n.s.
VERBAL A2	.18	.15	.15	.13	.00	.17	---	---	---	---	$F_{(1,231)}=1.04$, n.s. / $F_{(1,231)}=0.80$, n.s.
COVERT A1	.10	.11	.08	.04	.04	.10	---	---	---	---	$F_{(1,231)}=0.01$, n.s. / $F_{(1,231)}=0.14$, n.s.
TOTAL 5-8	.50	.34	.58	.62	.83	.47	---	---	---	---	$F_{(1,231)}=0.04$, n.s. / $F_{(1,231)}=1.89$, n.s.
TOTAL 1-4	.50	.66	.42	.38	.17	.53	---	---	---	---	$F_{(1,231)}=0.82$, n.s. / $F_{(1,231)}=0.63$, n.s.

1. Total number of acts per total number of dreams. Notation is also used in friendly and sexual interactions.

Table 3

Proportions, Selected Weighted Means and F-Ratios
of Friendly and Sexual Social Interactions Subcategories

VARIABLES	HALL & VAN DE CASTLE PROP. M	F	PROPORTIONS LUCIDS M	F	NONLUCIDS M	F	MEANS LUCIDS M	F	NONLUCIDS M	F	F-RATIOS TOP=DREAM MAIN EFFECT / BOTTOM=DREAM X SEX INTER.
TOTAL FRIENDLY	250/500	308/500	7/45	25/95	10/42	41/62	0.24	---	0.49	---	F(1,231)=5.93, p<.016 / F(1,231)=1.09, n.s.
MARRIAGE	.04	.08	.00	.04	.00	.02	---	---	---	---	F(1,231)=0.04, n.s. / F(1,231)=0.02, r.s.
PHYSICAL	.09	.08	.14	.04	.10	.07	---	---	---	---	F(1,231)=0.13, n.s. / F(1,231)=0.02, n.s.
INVITING, DATING	.08	.15	.00	.12	.30	.10	---	---	---	---	F(1,231)=1.64, n.s. / F(1,231)=0.58, n.s.
HELPING, PROTECTING, GIFT, LOAN	.42	.32	.86	.40	.30	.34	---	---	---	---	F(1,231)=0.30, n.s. / F(1,231)=1.72, r.s.
	.11	.10	.00	.00	.10	.02	---	---	---	---	F(1,231)=1.57, n.s. / F(1,231)=0.34, n.s.
VERBAL	.20	.19	.00	.24	.10	.39	---	---	---	---	F(1,231)=5.02, p<.026 / F(1,231)=1.61, n.s.
COVERT	.06	.08	.00	.16	.10	.05	0.05	---	0.16	---	F(1,231)=0.00, n.s. / F(1,231)=0.75, n.s.
TOTAL SEXUAL	73/500	19/500	1/45	3/95	4/42	3/62	---	---	---	---	F(1,231)=1.24, n.s. / F(1,231)=0.53, n.s.
INTERCOURSE	.27	.26	1.00	.33	.50	.00	---	---	---	---	F(1,231)=0.05, n.s. / F(1,231)=0.89, n.s.
PETTING	.18	.26	.00	.33	.25	.00	---	---	---	---	F(1,231)=1.79, n.s. / F(1,231)=0.70, n.s.
KISSING	.11	.21	.00	.33	.00	.67	---	---	---	---	F(1,231)=0.43, n.s. / F(1,231)=2.67, n.s.
SEXUAL OVERTURES	.30	.16	.00	.00	.25	.33	---	---	---	---	F(1,231)=0.05, n.s.
SEXUAL FANTASIES	.14	.11	.00	.00	.00	.00	---	---	---	---	

Hall and Van de Castle talk about, there were more
friendly interactions in non-lucid than in lucid
dreams when controlled for word count, particularly of
a verbal nature. Remember, we're not talking about the
person who has had hundreds of lucid dreams but rather
the dreamer whose had them now and again. Sexual
interactions show no dream type differences despite
claims to the contrary.

The characters who do these social interactions were
separately analyzed from the aggression, friendliness,
and sexuality subscales (see Table 4). For instance,
self aggressor versus other aggressor: was the self
or was another person being aggressed against?
With the exception of other as befriender, there was
no difference between lucid and non-lucid dreams in
character social interaction roles.

The activities analyses are interesting and pertain
somewhat to what Tore Nielsen was talking about (see
Table 5). Hall and Van de Castle list eight dif-
ferent activities: verbal, physical, movement,
location change, visual, auditory, expressive, and
cognitive. There are some dream type differences, but
first let's talk about the lack of differences. There
were no differences in verbal, physical or movement
activities. This would seem to imply no kinesthetic
differences, yet when people self evaluate a dream,
(i.e., 'Is there kinesthetic activity in your dream?',
with a definition of kinesthetic included, they self
evaluate their lucid dreams as more kinesthetic than
their non-lucid. This has been replicated several
times. But when judges read a transcript of these
dreams, they don't perceive any differences.
Furthermore, location change, another potential kines-
thetic activity, was judged to be more in non-lucid
than in lucid dreams. As with dream recall, this may
be another "eye of the beholder" phenonemen. For the
visual activities scale there is an interaction with
sex. Finally, lucid dreams in this student sample
were more auditory and cognitive than non-lucid

Table 4

Proportions, Selected Weighted Means, and F-Ratios of
Character Roles in the Three Types of Social Interaction

VARIABLES	HALL & VAN DE CASTLE PROP.		PROPORTIONS LUCIDS		PROPORTIONS NONLUCIDS		MEANS LUCID		MEANS NONLUCID		F-RATIOS TOP=DREAM MAIN EFFECT / BOTTOM=DREAM X SEX INTER
	M	F	M	F	M	F	M	F	M	F	
AGGRESSION:											
SELF AGGRESSOR	.31	.28	.19	.04	.12	.15	---	---	---	---	F(1,231)=0.11, n.s. / F(1,231)=2.28, n.s.
OTHER AGGRESSOR	.20	.20	.30	.41	.33	.35	---	---	---	---	F(1,231)=0.19, n.s. / F(1,231)=0.49, n.s.
SELF VICTIM	.48	.57	.28	.36	.26	.30	---	---	---	---	F(1,231)=0.54, n.s. / F(1,231)=0.24, n.s.
OTHER VICTIM	.20	.20	.22	.18	.29	.20	---	---	---	---	F(1,231)=0.06, n.s. / F(1,231)=0.25, n.s.
FRIENDLINESS:											
SELF BEFRIENDER	.45	.41	.36	.16	.20	.11	---	---	---	---	F(1,231)=0.08, n.s. / F(1,231)=0.26, n.s.
OTHER BEFRIENDER	.10	.16	.14	.34	.30	.39		0.14		0.36	F(1,231)=6.71, p<.01 / F(1,231)=0.62, n.s.
SELF BEFRIENDED	.45	.46	.14	.32	.25	.31	---	---	---	---	F(1,231)=3.03, n.s. / F(1,231)=0.12, n.s.
OTHER BEFRIENDED	.10	.16	.36	.18	.25	.19	---	---	---	---	F(1,231)=2.12, n.s. / F(1,231)=1.07, n.s.
SEXUALITY:											
SELF INITIATOR	--	--	.00	.00	.37	.00	---	---	---	---	F(1,231)=2.49, n.s. / F(1,231)=2.80, n.s.
OTHER INITIATOR	--	--	.00	.50	.13	.50	---	---	---	---	F(1,231)=0.41, n.s. / F(1,231)=0.02, n.s.
SELF RECIPIENT	--	--	.00	.50	.13	.50	---	---	---	---	F(1,231)=0.41, n.s. / F(1,231)=0.02, n.s.
OTHER RECIPIENT	--	--	.00	.00	.38	.00	---	---	---	---	F(1,231)=2.49, n.s. / F(1,231)=2.80, n.s.

Table 5

Proportions, Selected Weighted Means and F-Ratios of Activities Subscale

VARIABLES	HALL & VAN DE CASTLE PROP.		PROPORTIONS LUCIDS		PROPORTIONS NONLUCIDS		MEANS LUCIDS		MEANS NONLUCIDS		F-RATIOS TOP=DREAM MAIN EFFECT BOTTOM=DREAM X SEX INTER
	M	F	M	F	M	F	M	F	M	F	
VERBAL	.216	.262	.127	.188	.133	.217	----		----		F(1,231)=0.34, n.s. / F(1,231)=0.01, n.s.
PHYSICAL	.265	.195	.246	.239	.252	.175	----		----		F(1,231)=2.91, n.s. / F(1,231)=1.79, n.s.
MOVEMENT	.248	.251	.209	.196	.296	.243	----		----		F(1,231)=2.43, n.s. / F(1,231)=0.38, n.s.
LOCATION CHANGE	.082	.074	.045	.069	.096	.175	0.19		0.57		F(1,231)=16.09, p<.0001 / F(1,231)=2.67, n.s.
VISUAL	.118	.124	.075	.094	.061	.175	0.20	0.33	0.45	0.26	F(1,231)=5.33, p<.02 / F(1,231)=0.07, n.s.
AUDITORY	.016	.014	.037	.024	.007	.008	0.10		0.03		F(1,231)=4.62, p<.033 / F(1,231)=0.17, n.s.
EXPRESSIVE	.022	.034	.037	.015	.015	.057	----		----		F(1,231)=3.54, n.s. / F(1,231)=1.15, n.s.
COGNITIVE	.032	.046	.224	.175	.059	.065	0.64		0.24		F(1,231)=24.20, p<.0001 / F(1,231)=0.05, n.s.

dreams. The thought-like, non-REM type of sleep
mentation comes to mind with these last findings.

The achievement outcomes and environmental press
findings are portrayed in Table 6. I kept achievement
very simple; successful or failure. Basically there
was more success imagery judged to be in non-lucid
than in lucid dreams. There was no difference in
terms of failure. If you look at the various
Environmental Press subscales, i.e., 'Did death occur?
Was there injury? Was there an accident? or
Falling?', no difference emerged except for the
obstacles dimensions. There were more obstacles,
interestingly, in lucid dreams. This finding reminds
me of when Beverly was talking about how something
became an obstacle, and she kept crashing into things,
and until she learned to get through it and she is a
very sophisticated lucid dreamer.

Hall and Van de Castle identify five emotions for
dream content scoring (see Table 7). For the four
relatively negative emotions, there was no difference
as a function of dream type. Happiness was judged to
occur more often in non-lucid than in lucid dreams.
This is contrary to some earlier work, again with
dreamers self-evaluations.

For the descriptive elements subscales, i.e.,
chromatic, achromatic, etc., there were basically
no differences (see Table 8). Interestingly, and
surprisingly, non-lucid dreams were seen as having
more intense descriptive elements. This is somewhat
different from what I have been finding in previous
studies with self-evaluations. Furthermore, here lucid
dreams are seen as more cold, more descriptive
references to cold, than non-lucid dreams. This also
brings to mind the the characterizaton of the lucid
dream as thoughtlike, with a lack of the interper-
sonal involvement.

Table 6

Proportions, Selected Weighted Means and F-Ratios of
Achievement Outcomes and Environmental Press Subscales

VARIABLES	HALL & VAN DE CASTLE PROP.		PROPORTIONS				MEANS				F-RATIOS
			LUCIDS		NONLUCIDS		LUCIDS		NONLUCID		TOP=DREAM MAIN EFFECT
	M	F	M	F	M	F	M	F	M	F	BOTTOM=DREAM X SEX INTER
ACHIEVEMENT:											
SUCCESS	.15	.08	.50	.30	.69	.60	0.08	0.23	----	----	F(1,231)=5.84, p<.016
											F(1,231)=0.01, n.s.
FAILURE	.15	.10	.50	.70	.31	.40	----	----	----	----	F(1,231)=0.08, n.s.
											F(1,231)=0.00, n.s.
ENVIR. PRESS											
DEATH	.08	.10	.18	.13	.13	.25	----	----	----	----	F(1,231)=0.07, n.s.
											F(1,231)=0.83, n.s.
INJURED OR ILL	.21	.25	.09	.13	.00	.17	----	----	----	----	F(1,231)=0.00, n.s.
											F(1,231)=0.56, n.s.
ACCID., DISTRUCT,			.09	.00	.13	.25	----	----	----	----	F(1,231)=2.60, n.s.
											F(1,231)=1.51, n.s.
LOSS OF POSSESSION	.25	.19	.00	.13	.13	.25	----	----	----	----	F(1,231)=0.01, n.s.
											F(1,231)=0.91, n.s.
THREAT FROM ENVIRONMENT	.13	.13	.18	.13	.38	.00	----	----	----	----	F(1,231)=0.13, n.s.
											F(1,231)=0.04, n.s.
FAILING	.05	.03	.27	.19	.38	.25	0.06	----	----	----	F(1,231)=3.9, p<.049
OBSTACLE	.28	.30	.18	.44	.00	.08	0.06	----	0.01	----	F(1,231)=0.03, n.s.

Table 7

Proportions, Selected Weighted Means and F-Ratios for the Emotions Subscale

VARIABLES	HALL & VAN DE CASTLE PROP.		PROPORTIONS LUCIDS		NONLUCIDS		MEANS LUCIDS		NONLUCIDS		F-RATIOS TOP=DREAM MAIN EFFECT BOTTOM=DREAM X SEX INTER
	M	F	M	F	M	F	M	F	M	F	
HAPPY	.195	.195	.176	.115	.261	.341	0.06		0.20		F(1,231)=5.99, p<.015 / F(1,231)=0.53, n.s.
SAD	.094	.129	.000	.058	.087	.045	---		---		F(1,231)=0.36, n.s. / F(1,231)=1.42, n.s.
ANGER	.156	.126	.470	.250	.261	.136	---		---		F(1,231)=1.00, n.s. / F(1,231)=0.08, n.s.
CONFUSION	.215	.178	.118	.173	.130	.318	---		---		F(1,231)=1.61, n.s. / F(1,231)=0.36, n.s.
APPREHENSION	.340	.372	.235	.404	.261	.159	---		---		F(1,231)=0.63, n.s. / F(1,231)=2.02, n.s.

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Table 8

Proportions, Selected Weighted Means and F-Ratios for the Descriptive Elements Subscales

VARIABLES	HALL & VAN DE CASTLE PROP.		PROPORTIONS LUCIDS		NONLUCIDS		MEANS LUCIDS		NONLUCID		F-RATIOS (TOP=DREAM MAIN EFFECT, BOTTOM=DREAM X SEX INTER)
	M	F	M	F	M	F	M	F	M	F	
MODIFIERS:											
CHROMATIC	.067	.114	.21	.04	.21	.07	----	----	----	----	F(1,230)=0.26, n.s. / F(1,230)=0.05, n.s.
ACHROMATIC	.039	.046	.00	.01	.04	.06	----	----	----	----	F(1,230)=3.21, n.s. / F(1,230)=0.33, n.s.
LARGE	.180	.133	.13	.004	.12	.05	----	----	----	----	F(1,230)=0.15, n.s. / F(1,230)=0.05, n.s.
SMALL	.095	.078	.11	.04	.07	.06	----	----	----	----	F(1,230)=0.13, n.s. / F(1,230)=0.74, n.s.
INTENSE	.295	.300	.00	.02	.02	.11	----	0.02	----	0.28	F(1,230)=3.60, p<.05 / F(1,230)=1.37, n.s.
WEAK	.051	.038	.01	.03	.03	.02	----	----	----	----	F(1,231)=0.31, n.s. / F(1,231)=0.39, n.s.
FILLED	.016	.015	.02	.17	.01	.04	----	----	----	----	F(1,231)=0.35, n.s. / F(1,231)=0.13, n.s.
EMPTY	.008	.002	.01	.02	.02	.00	----	----	----	----	F(1,231)=1.00, n.s. / F(1,231)=2.80, n.s.
STRAIGHT	.004	.004	.00	.09	.00	.004	----	----	----	----	F(1,231)=2.45, n.s. / F(1,231)=1.72, n.s.
CROOKED	.012	.013	.00	.09	.04	.00	----	----	----	----	F(1,231)=2.08, n.s. / F(1,231)=2.76, n.s.

Table 8

Proportions, Selected Weighted Means and F-Ratios for the Descriptive Elements Subscales

									F-Ratio
HOT	.005	.008	.18	.07	.03	.004	---	---	F(1,230)=2.76, n.s.
									F(1,230)=2.10, n.s.
COLD	.007	.008	.02	.06	.00	.00	0.05	0.00	F(1,230)=5.42, p<.02
									F(1,230)=0.05, n.s.
FAST	.036	.021	.01	.01	.00	.02	---	---	F(1,230)=2.41, n.s.
									F(1,230)=3.37, n.s.
SLOW	.007	.007	.04	.004	.03	.01	---	---	F(1,230)=0.00, n.s.
									F(1,230)=0.26, n.s.
OLD	.040	.042	.08	.11	.23	.26	0.25	0.85	F(1,230)=3.60, p<.05
									F(1,230)=0.17, n.s.
YOUNG	.051	.042	.01	.08	.10	.03	---	---	F(1,230)=0.07, n.s.
									F(1,230)=1.54, n.s.
PRETTY, GOOD	.052	.071	.02	.37	.03	.12	---	---	F(1,230)=0.42, n.s.
									F(1,230)=0.31, n.s.
UGLY, BAD	.035	.058	.16	.16	.04	.13	---	---	F(1,230)=0.46, n.s.
									F(1,230)=0.25, n.s.
TEMPORAL REF.:									
UNIT OF TIME	---	---	.82	.86	.92	.39	---	---	F(1,230)=0.14, n.s.
									F(1,230)=2.81, n.s.
DATING AN EVENT	---	---	.18	.14	.08	.61	---	---	F(1,230)=2.34, n.s.
									F(1,230)=1.27, n.s.
NEGATIVE SCALE									
NEGATIVE WORD	---	---	.92	.93	.69	.42	---	---	F(1,230)=0.86, n.s.
									F(1,230)=0.29, n.s.
NEGATIVE PREFIXES	---	---	.08	.07	.31	.58	---	---	F(1,230)=3.04, n.s.
									F(1,230)=1.26, n.s.

The bizarreness scales are not from Hall and Van de
Castle. We added these scales because the question of
bizarreness in contemporary lucidity research is often
examined. We used four bizarreness subscales. For the
animate characters (see Table 9), the non-lucid dreams
were judged to be more bizarre than the lucid ones.
We would expect this given the thoughtlike notion just
touched upon and originally characterized by Green.
For the inanimate scale, again non-lucids were more
bizarre than lucids. The two other types of bizarre-
ness examined were (see Table 10): (1) dream
transformations, which showed no difference and (2)
variations on metamorphosis, which also showed no
difference.

Finally, we added three scales which were of interest
based on previous research in the area: palpable
sensations, control and balance (see Table 11). There
was no difference in the sensations of touch and body
nor was there for dream control. Again I wonder if
the "eye of the beholder" isn't at work here. Several
studies have shown that self-evaluated lucid dreams
are perceived as more controlable. But in the reading
of the dream transcript the judges didn't see any
difference, which surprises me.

For balance, I got a difference in the opposite direc-
tion of one I would have predicted. Again, as Tore
said, it may be a poor question. Finally, we also
looked at the within dream method used to trigger
lucidity (see Table 12). Specifically, we classified
lucid dreams within each sex as either nightmare
triggered, incongruent elements triggered or sensation
of the "dreamlikeness" triggered. Of the 136 lucid
dreams analyzed, most (71%) were triggered by the
"dreamlikeness" of the dream.

To conclude, I see two problems with this data.
First, I collapsed the non-lucid dreams of lucid
dreamers with the non-lucid dreams of non-lucid

Table 9

Selected Weighted Means and F-Ratios for Animate Characters
and Inanimate Environment Bizarreness Scales

VARIABLE	MEANS				F-RATIOS	
	LUCIDS		NONLUCIDS		TOP=DREAM MAIN EFFECT	
	M	F	M	F	BOTTOM=DREAM X SEX INTER	
ANIMATE CHARACTERS (SUM)	0.30		0.55		$F(1,231)=4.76$, $p<.03$	
					$F(1,231)=3.34$, n.s.	
Appearance in a dream of monsters and alien beings					$F(1,231)=0.00$, n.s.	
					$F(1,231)=1.14$, n.s.	
Appearance of fictional, dead or prominent characters unknown personally dreamer	----		----		$F(1,231)=1.55$, n.s.	
					$F(1,231)=0.14$, n.s.	
Absence of or inappropriate clothing, tools or implements	----		----		$F(1,231)=2.82$, n.s.	
					$F(1,231)=0.59$, n.s.	
Distorted or disfigured body parts not present in reality	----		----		$F(1,231)=0.31$, n.s.	
					$F(1,231)=0.23$, n.s.	
Impossible acts or magic by animate characters	----		----		$F(1,231)=2.36$, n.s.	
					$F(1,231)=2.02$, n.s.	
Wrong on in appropriate role of dreamer or other characters	----		----		$F(1,231)=0.89$, n.s.	
					$F(1,231)=0.52$, n.s.	
INANIMATE ENVIRONMENT SUM	0.05		0.15		$F(1,231)=3.83$, $p<.05$	
					$F(1,231)=0.28$, n.s.	
Violation of physical laws by inanimate objects	----		----		$F(1,231)=1.67$, n.s.	
					$F(1,231)=0.03$, n.s.	
Realistic objects but in the wrong place	----		----		$F(1,231)=2.68$, n.s.	
					$F(1,231)=0.29$, n.s.	
Inappropriate or fantastic combination of environmental features	----		----		$F(1,231)=0.42$, n.s.	
					$F(1,231)=0.11$, n.s.	

Table 10

F-Ratios for Dream Transformation and Metamorphosis Bizarreness Scales

VARIABLE	MEANS LUCIDS M	LUCIDS F	NONLUCIDS M	NONLUCIDS F	F-RATIOS (TOP=DREAM MAIN EFFECT / BOTTOM=DREAM X SEX INTER)
DREAM TRANSFORMATION (SUM)	----	----	----	----	F(1,231)=2.18, n.s. / F(1,231)=0.02, n.s.
An object suddenly appears or disappears	----	----	----	----	F(1,231)=1.23, n.s. / F(1,231)=0.04, n.s.
A sudden shift backward or forward in time	----	----	----	----	F(1,231)=2.18, n.s. / F(1,231)=0.98, n.s.
A person suddenly appears or vanishes but the entire dream scene is unaltered	----	----	----	----	F(1,231)=0.03, n.s. / F(1,231)=0.27, n.s.
Scene shift where the environment is altered without the character having moved	----	----	----	----	F(1,231)=0.63, n.s. / F(1,231)=1.01, n.s.
METAMORPHOSIS SUM	----	----	----	----	F(1,231)=1.03, n.s. / F(1,231)=0.86, n.s.
From one person to another	----	----	----	----	F(1,231)=0.00, n.s. / F(1,231)=2.18, n.s.
Animal to person or vice-versa	----	----	----	----	F(1,231)=0.03, n.s. / F(1,231)=0.07, n.s.
Inanimate to animal and vice-versa	----	----	----	----	F(1,231)=0.03, n.s. / F(1,231)=0.05, n.s.
From one object to another	----	----	----	----	F(1,231)=0.03, n.s. / F(1,231)=2.09, n.s.

Table 11

Selected Weighted Means and F-Ratios for Palpable Sensations,
Dream Control and Dream Balance

VARIABLE	MEANS				F-RATIOS
	LUCIDS		NONLUCIDS		TOP=DREAM MAIN EFFECT
	M	F	M	F	BOTTOM=DREAM X SEX INTER
Palpable Sensations:					
Touch and Body Sensations	----		----		F(1,231)=0.07, n.s. F(1,231)=0.09, n.s.
Control Over Dream Content	----		----		F(1,231)=0.42, n.s. F(1,231)=0.92, n.s.
Balance (physical, psychological, and intellectual)	5.20		6.95		F(1,231)=4.07, p<.045 F(1,231)=0.88, n.s.

Table 12

Within Dream Methods to Obtain Dream Lucidity As a Function of Sex of Subject

SEX OF DREAMER	WITHIN DREAM METHOD TO GE LUCID				
	Nightmare	Incongr.	Dreamlike	Other	
Males	5	5	33	0	43
Females	20	10	58	5	93
	25	15	91	5	93

dreamers. It may be that the non-lucid dreams of non-
lucid dreamers are quite different from the non-lucid
dreams of lucid dreamers. In fact Harry Hunt and I
have some preliminary data on oddness of dreams, which
supports this idea. That is, lucid dreamers non-lucid
dreams are less "odd" by their own evaluations, than
the non-lucid dreams of non-lucid dreamers. I'm
beginning to suspect that lucid dreamers have a dif-
ferent dreaming style. This fits into the waking
imagination, and the imaginary/spatial kinds of
stylistic differences that we have found between
dreamer types.

Secondly, I think that some of these transcripts,
excluding the dream diaries, were the result of
someone being asked for a lucid dream in which no
recognition phrase was included. So we called it non-
lucid. Could it, in fact, have been a lucid dream
that didn't have our criteria for lucid dream
definition.

References

Gackenbach, J. I. (in press). The psycological con-
    tent of lucid versus non-lucid dreams. In J. I.
    Gackenbach and S. P. LaBerge (Eds.), Lucid
    dreaming: New research on consciousness during
    sleep. N.Y.: Plenum.

Dream Psychology: Operating in the Dark

Alan Moffitt, Sheila Purcell, Robert Hoffman
Ross Pigeau and Roger Wells

Sleep Laboratory
Carleton University

The questions I want to address today concern the
scientific significance of lucid dreaming, especially
for our understanding of the function of dreaming.