

## **Lucid Dreaming, Witnessing Dreaming, and the Transcendental Meditation Technique: A Developmental Relationship**

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The recent growth of interest in dream lucidity, reflected in descriptive and experimental research, has led to a consideration of the theoretical and practical significance this type of dream experience might have. Whereas some researchers have suggested that lucidity offers an important phenomenological tool for the investigation of dreaming processes (LaBerge, 1985), others have emphasized the similarities between lucidity and certain types of meditative states and have suggested that they may promote psychological development in related ways (e.g., Hunt, 1985; Hunt & Ogilvie, in press).

Alexander, Boyer and Orme-Johnson (1985) have recently postulated a theoretical model placing dream lucidity as a bridge between formal operations and "post-conceptual or post-language" development. They argue that the Maharishi Technology of the Unified field manifested by the practice of Transcendental Meditation (TM) promotes development of consciousness beyond symbolic thought. Specifically, they say, "We speculate that lucidity as typically experienced may reflect the further developmental deembedding and generalization of higher order self-reflective thought such that it can function in some form during the dream state. It is our impression that many if not most lucid dreams may result from activation of such functions of the intellect and ego. Nevertheless, some lucid experiences which have been reported may be of the purely self-referral witnessing type described by vedic psychology (p. 82)". Dream witnessing is similar to dream lucidity in that there is awareness of dreaming while dreaming. However, there seems also to be clear conceptual differences in that witnessing the dream also involves an "unbounded awareness," which is quiet, peaceful and nonparticipative.

In order to test this hypothesis, cognitive correlates of meditating and nonmeditating students who vary in the frequency with which they report awareness of dreaming while dreaming, in the form of lucidity and/or witnessing, were assessed. These correlates included intelligence, creativity, absorption in imagery, and field independence.

Results of several studies suggest that long-term practice of TM is correlated with increased fluid intelligence (Aron, Orme-Johnson, & Brubaker, 1981); creativity (MacCallum, 1977), absorption in imagery and field independence (Maharishi Technology of the Unified Field, 1984). Likewise, Snyder and Gackenbach (in press) concluded in a review of individual propensities associated with frequently experiencing dream lucidity that frequent lucid dreamers tend to be creative, especially women, and field independent. However, they found no relationship to absorption in imagery and an increase in spatial or perceptual intelligences in women but mixed relationships for types of intelligence among men.

It is hypothesized the TM meditators who frequently experience awareness of

dreaming while dreaming either as lucid dreaming or "witnessing" dreaming, will do better on all tasks than the nonmeditating, nonlucid/nonwitnessing individuals. Furthermore, those who meditate but do not frequently experience lucidity/witnessing and those who frequently have these dream experiences but do not meditate, will fall between the above two extreme groups.

## **Method**

Lower classmen at two midwestern Universities participated in the present study. These included 97 meditating freshmen from the Maharishi International University (MIU) and 126 nonmeditating Introductory Psychology students from the University of Northern Iowa (UNI). The latter were selected from a pool of about 800 introductory psychology students. Their selection was based on their frequency of experiencing lucidity, understanding of lucidity, and interest in meditation. Both groups were administered the Raven's Advanced Progressive Matrices test, a nonverbal measure of fluid intelligence; Cattell's Cultural Fair Test of Intelligence; the Torrance Test of nonverbal creative thinking; the Group Embedded Figures Test of field independence; the Tellegan Test of Absorption in imagery and a simple and choice reaction time task which can be scored in terms of intra-subject variability in performance. This latter has been found to be highly correlated with fluid intelligence as measured by other tests.

## **Results and Discussion**

Statistical analyses were carried out on 42 male and 57 female nonmeditators (UNI) and 32 male and 31 female meditators (MIU) who demonstrated understanding of the concept of dream lucidity. Additionally, in the case of the UNI students only those who reported no experience with meditation but moderate to high interest in it were selected for subsequent data analyses.

## **Sample Characteristic Analyses**

It can be seen in Table 1 that these samples differed in several ways. Although there were no differences in the relative distribution of sex of subject and handedness, the meditators from MIU were older and had more years of education, as did their fathers, than did the UNI students.

<b>Table 1 Meditator-nonmeditator Sample Comparisions</b>			
<b>Sample/Means/Numbers</b>			
<b>Variable<sup>1</sup></b>	<b>Non Meditator</b>	<b>Meditators</b>	<b>Statistic</b>
<b>Sex of Subject:</b>			
<b>Males</b>	<b>42</b>	<b>32</b>	<b><math>\chi^2(1)=1.09, n.s.</math></b>
<b>Females</b>	<b>57</b>	<b>31</b>	
<b>Handedness:</b>			
<b>Right</b>	<b>83</b>	<b>49</b>	<b><math>\chi^2(2)=1.35, n.s.</math></b>
<b>Left</b>	<b>10</b>	<b>7</b>	
<b>Mixed</b>	<b>5</b>	<b>6</b>	
<b>Age</b>	<b>19.49</b>	<b>26.29</b>	<b><math>t(158)=6.19, p&lt;.0001</math></b>
<b>Dream Recall Per Week</b>	<b>5.06</b>	<b>6.21</b>	<b><math>t(156)=1.78, p&lt;.077</math></b>
<b>Dream Diary Interest</b>	<b>4</b>	<b>2.94</b>	<b><math>t(159)=5.71, p&lt;.0001</math></b>
<b>Number of Years of Education</b>	<b>5.65</b>	<b>6.63</b>	<b><math>t(145)=2.74, p&lt;.007</math></b>
<b>Father's Education</b>	<b>2.78</b>	<b>4</b>	<b><math>t(125)=3.96, p&lt;.001</math></b>
<b>Mother's Education</b>	<b>2.7</b>	<b>3.02</b>	<b><math>t(125)=1.28, n.s.</math></b>
<b>Father's Income</b>	<b>\$38,613.64</b>	<b>60,714.28</b>	<b><math>t(56)=1.15, n.s.</math></b>
<b>Mother's Income</b>	<b>\$12,882.35</b>	<b>14285.71</b>	<b><math>t(39)=0.49, n.s.</math></b>
<b><sup>1</sup>A high number indicates more dreams per weeeek, more interest in keeping a dream journal, and more years of education for self, father, and mother.</b>			

Interestingly, although the MIU students recalled more dreams per week they were less interested in keeping a dream journal than the UNI sample. This is not surprising when one considers that the leader of the Transcendental Meditation (TM) movement, Maharishi Mahesh Yogi, has thus far advised his followers that they should not attend to their dreams (Alexander, C. personal communication). Table 2 gives the actual distribution of subjects in terms of lucidity frequency and meditation categories.

Lucid Frequency	Meditation Experience			No Meditation Experience		
	Unclassified	TM-Sidhi	TM only	High interest	Moderate Interest	No Interest
All night	0	0	0	2	1	1
Most nite	1	1	2	2	2	0
1+/night	1	8	4	5	2	0
1+/week	2	9	8	11	8	2
1+/month	1	4	2	6	8	1
1+/3 months	0	1	1	3	0	0
1+/6 months	0	1	0	3	2	0
1+/year	0	1	2	0	0	0
<1/year	0	2	0	2	0	0
1/lifetime	0	2	1	0	0	0
Never	4	2	0	6	26	6

This is based on only those subjects for whom lucidity verification was obtained. The MIU sample was broken into TM and TM-Sidhi practitioners. The latter represent a more advanced level of meditation. Please note that despite the pivotal role of "witnessing" the dream (a more complex form of dream lucidity) six of the MIU students reported never having had a lucid dream. Of these six only one said they witnessed their dreams but did not dream lucidly. The other five reported neither experience. Likewise, note the presence of four individuals from the UNI sample who reported continual lucidity.

The relationship between the incidence of these two types of dreams, lucidity and witnessing, is portrayed in Table 3.

Variables/ Statistics	Medit.	Non-Medit.
	5.36	6.89
	6.96	8.09
	t	t
Lucidity (1)	(55)=	(84)=
Witnessing	-3.52,	-3.83,
t-value	p <.001	p <.001
Partial Cor (Dr. recall controlled)		
No. of Sub	.59	.41
Level of	82	53
Signif.	p <.001	p <.002
1. Low Score indicates more frequency of lucid/wit. occurrence.		

For both samples lucidity was reported as occurring more frequently than witnessing. Additionally, meditators reported more lucid and witnessing dreams (low score was high number) than nonmeditators.

**Primary Analyses**

The major statistical analyses are summarized in Table 4.

Table 4: Adjusted Means & F-Ratios on Reaction Time, Intelligence, Creativity & Imagery Measures as a Function of Lucidity % Meditation						
Variables	Hi Lucid No Med.	Hi Lucid Medit.	Lo Lucid No Med.	Lo Lucid Medit.	No Lucid No Med.	F-Ratios
<b>Reaction Time:</b>						
Choice Rx Time (x)	45.127 c	337.26 a	412.99 bc	363.28 ab	508.05 d	F(4, 103)=12.46, p<.0001
Choice Rx Time (Standard Dev)	227.42 b	84.97 a	271.03 b	147.92 a	268.88 b	F(4,103)=5.70, p<.0001
Rx Time Slope (Speed Info. Processing/Load)	51.07 b	18.72 a	45.34 b	19.74 a	69.42 c	F(4,103)=12.05, p<.0001
<b>Intelligence:</b>						
Raven's Matrices	18.81 a	11.08 b	17.50 a	10.53 b	18.28 a	F(4,103)=28.40, p<.0001
Cattell's Culture Fair Test	115.22 b	68.48 c	125.66 b	67.92 c	112.86 b	F(4,83)=63.43, p<.0001
<b>Torrance Creativity:</b>						
Elaboration	54.57 b	70.65 a	65.04 a	71.02 a	46.76 c	F(4,101)=15.04, p<.0001
Resistance to Premature Closure	79.78 b	57.66 a	54.03 a	51.18 a	93.21 b	F(4,101)=6.69, p<.0001
Total Creative Strengths	11.41 bc	8.89 a	9.43 ab	8.40 a	12.35 c	F(4,104)=2.96, p<.023
<b>Imagery:</b>						
Group Embedded Fig	11.28 b	15.66 a	1037 b	15.40 a	10.51 b	F(4,111)=7.51, p<.0001
Tellegan's Absorption in Imagery	24.23 ab	25.82 a	23.45 ab	21.80 b	18.61 c	F(4,106)=8.63, p<.0001
1 Means with the same letter do not significantly differ. For all these one-way analyses self-reported dream recall frequency was the covariate while for reaction time and intelligence additional covarites of education and age were added.						

Sixteen one-way analyses of covariance were computed on reaction time (simple and choice means and standard deviations, and slope), intelligence (scores on Raven's and Cattell's scales), creativity (seven subscale and total scale scores on the Torrance) and imagery (Group Embedded Figures and Tellegan's Absorption Scales). In all cases dream recall was the covariant and for the reaction time and intelligence tests education of self and age were additional covariants. One-way analyses of covariance were chosen because of the presence of a large number of nonlucid dreamers in the UNI sample but a very small number of nonlucids in the MIU sample (i.e., for some variables there was information on only one MIU nonlucid dreamer). Consequently, two-way analyses of covariance were not possible. Furthermore, previous research on types of lucid dreamers clearly indicates the importance of separately attending to the nonlucid dreamer (Snyder & Gackenbach, in press).

It can be seen in Table 4 that sample differences dominated the 10 significant findings. The meditators from MIU had better choice reaction time (mean, standard deviation, and slope), were more field independent (GEFT), and had higher elaboration scores from the Torrance Test of Nonverbal Creativity. They also scored significantly lower than the nonmeditators on the two tests of intelligence and two of the Torrance subscales. The intelligence findings may be due in part to the open admissions policy at MIU, UNI has academic criteria for admission, as well as the large segment of the MIU students who are not from the United States. Relative to the UNI sample, the MIU sample is quite heterogeneous.

Of primary interest here are the findings reflecting lucid dreamer type differences. For only the Tellegan's Absorption in Imagery Scale did these differences weigh heavier than sample differences. Across sample, the more frequently an individual reported having lucid dreams the more they reported being absorbed in their imagery. For all the other variables dreamer type differences were primarily accounted for by the nonlucid nonmeditators. Specifically, they were significantly slower on the choice reaction time for task (mean) and had a higher slope inferring a slower speed of information processing per load. However, there were no dreamer type differences in intra-subject variability (standard deviation). For this variable the model suggested by Alexander placing dream lucidity as a developmental precursor to witnessing as manifested through the practice of TM is upheld. That is, meditators manifested the fastest choice reaction times and speed of information processing (lowest slopes) while high and low frequency nonmeditating lucid dreamers were next followed by nonmeditating nonlucid dreamers.

However, the hypothesized positive relationship between choice reaction time and fluid intelligence is suspect because the UNI sample outperformed the MIU sample on the two intelligence measures. In the case of the Cattell this was mediated, although confusingly, by dreamer type. The sample/dreamer type relationships were mixed for the creativity subscale scores. The nonlucids had the highest creative strengths scores but the lowest elaboration scores.

In conclusion, this study further demonstrates the importance of accounting for lucid/nonlucid dreamer type differences and has partially supported Alexander et al's

(1985) model of lucidity as a stepping stone to higher states of awareness.

## References

- Alexander, C.N., Boyer, R.W., Orme-Johnson, D.W. (1985). Distinguishing between transcendental consciousness and lucidity. *Lucidity Letter*, (2), 68-85.
- Aron, A., Orme-Johnson, D. & Brubaker, P. (1981). The Transcendental Meditation program in the college curriculum: A 4-year longitudinal study of effects on cognitive and affective functioning. *College Student Journal*, (2), 140-146.
- Hunt, H. (1985). A comparative psychology of lucid dreams. *Lucidity Letter*, (1), 1-2.
- Hunt, H. & Ogilvie, R. (in press). Lucid dreams in their natural series: Phenomenological and psychophysiological findings in relation to meditative states. In J.I. Gackenbach and S. La Berge (Eds.), *Lucid dreams: New research on consciousness during sleep*. N.Y.: Plenum.
- La Berge, S. (1985). *Lucid dreaming*. Los Angeles: Jeremy Tarcher.
- Mac Callum, M.J. (1977). The transcendental meditation program and creativity. In D.W. Orme-Johnson and J.T. Farrow (Eds.), *Scientific research on the Transcendental Meditation program: Collected papers*; Vol. 1, Rheinweiler, W. Germany: MERV Press.
- Maharishi Technology of the Unified Field (1984). Results of scientific research on the Transcendental Meditation and TM-Sidhi Program, Fairfield, Ia: MIU Press.
- Snyder, T.J. & Gackenbach, J.I. (in press). Individual differences associated with lucid dreaming. In J.I. Gackenbach and S.P. La Berge (Eds.), *Lucid dreaming: New research on consciousness during sleep*, N.Y.: Plenum.