

## **A Comparison of Waking Instruction and Posthypnotic Suggestion for Lucid Dream Induction**

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The following is a summary of the methodology, results and conclusions of a recently completed dissertation. More extensive explanation and discussion will be submitted for future publication here and in appropriate journals. The complete dissertation is available through University Microfilms.

The original purpose of this study was to evaluate two techniques for lucid dream induction in formerly non-lucid dreamers during one night in the sleep laboratory. However, efforts to correct a suspected flaw in one of these techniques fortuitously led to the development and comparison of four experimental conditions.

### Method

Subjects were 15 pairs of matched hypnotically susceptible females (ages 18-32) reporting recall of at least one dream a month and no prior experience with lucid dreaming. Only females were used since lucid dreaming appears to be more frequent among females than males (Gackenbach, in press; Hearne, 1978). All subjects were in the upper fiftieth percentile of hypnotic susceptibility as indicated by a score of 5 or above on the Stanford Hypnotic Susceptibility Scale, Form C (SHSS:C).

The initial methodology called for comparing the effects of lucid dream induction capacity via Waking Instructions (WI) with that of Waking Instructions plus Posthypnotic Suggestion (WI + PHS) (N = 15 per group). Posthypnotic Suggestion included generalized reinforcement of Waking Instruction and was individually administered by the experimenter the night of each subject's participation in the lab. PHS also provided a hypnotic encounter with a personalized "dream symbol" before going to sleep in the laboratory. During this encounter, subjects were instructed to ask for their symbol's help in becoming lucid during their dreams that night.

Personal Symbols were developed based on discussion of the subject's imagery which had occurred in response to item 6 of the Stanford Hypnotic Susceptibility Scale, Form C (viz., "go to sleep and have a dream about hypnosis"). The rationale given for development and use of this symbol was twofold. First, lucid dream induction was described as a process of enhancing cooperation between "waking" consciousness and "dream" consciousness, such that dream consciousness would be willing to allow the 'intrusion' of waking consciousness into its presence. Second, it was explained that the imagery being discussed reflected the subject's individualized view of her own dream consciousness, and that symbols based on this imagery could provide a useful "ally" in

eliciting the desired cooperation. Other than differences in the dream symbols themselves, hypnotic procedures and suggestions were the same for all participants.

The Original Waking Instructions (OWI) were likewise administered by the experimenters on the night of each woman's participation in the lab. OWI focused on maintaining an inquisitive attitude toward one's experience and on evaluating that experience throughout the night by constantly asking, "Am I dreaming now? Is this a dream?" In order to reinforce this focus, and to establish a habit of communication with the experimenter, OWI also directed subjects to give a prearranged ocular signal whenever they found themselves asking this question, regardless of how they themselves might answer the question. The intent was that the sleepers could then be wakened by the experimenters and receive feedback about whether or not they had indeed been dreaming, thus gradually increasing their awareness of subtle alterations in subjective experience as they approached the dream state. Subjects were also told to continue signaling every minute to a minute and a half for as long as they remained lucid, and that they would be wakened for a dream report about a minute and a half after what appeared to be their final signal.

Efforts to correct a suspected flaw in OWI (i.e., research participants' frequently reported failure to signal when uncertain whether they were awake or asleep) led to development of the Revised Waking Instructions (RWI). RWI consisted essentially of the following stepwise procedure:

- 1) Signal whenever you think you might be asleep (as opposed to "asleep and dreaming")
- 2) Signal only when you are asleep and are experiencing "imagery" of any sort (e.g., random or "hypnagogic" imagery)
- 3) Signal only when you are asleep and truly "dreaming".

The Revised Waking Instructions thus constituted a sort of biofeedback-like procedure wherein verbal feedback from the experimenter at the time of waking the women from their signaling served to guide the subjects' progression from one stage of learning to the next. Considerable attention was given to teaching the distinction between random, isolated imagery and true 'dreams', which were defined as the presence of an ongoing, 'hallucinated' scenario consisting a more or less linked series of events or experiences which the subject subjectively experienced as "real" rather than consciously made up or imagined.

Results

Ultimately, four experimental conditions were established and compared in this study:

- A. PHS + Owl (N = 8)
- B. PHS + Mix (N = 7)
- C. OWI only (N = 8)
- D. RWI only (N = 7)

There was no significant difference in the average level of hypnotic susceptibility between any of these conditions (A = 8.6, B = 9.3, C = 8.1, D = 8.7), nor were there any differences between these conditions with respect to age or level of dream recall reported prior to the experiment.

The majority of participants in all conditions reported more than one lucid dream, and many subjects signaled more than once from each lucid dream. A complex measure of interrater reliability of signal detection between the experimenters and blind raters was found to be comparable to that reported in earlier studies by Hearne (1978) and LaBerge (1980).

Lucid dreams which were reported during the study were divided into three types, based upon when ocular signaling actually occurred:

- Unambiguous REM LD (UREMLD)--Lucidity and ocular signaling occurred during unambiguous REM sleep;
- Ambiguous REM LD (AREMLD)--Lucidity apparently occurred during unambiguous REM sleep, but ocular signaling occurred immediately after arousal from REM sleep;
- Non-REM LD (NREMLD)--Lucidity and ocular signaling occurred during non-REM sleep.

Substantiation and discussion of the above classification system, especially that of 'non-REM' lucid dreams, will be discussed elsewhere. It should be emphasized that all reports of random, isolated (hypnogogic) imagery were excluded from Analysis.

Table 1 indicated the number of each type of lucid dream reported in the various conditions, with the number of subjects reporting each type indicated in parentheses. Note that since most subjects reported more than one lucid dream, the total number of subjects indicated in Table 1 is greater than the total number of subjects in the study (n= 30).

Table 1	
<u>A( PHS + OWI)</u>	<u>C (OWI only)</u>
UREMLD = 3 (3)	UREMLD = 0 (0)
AREMLD = 4 (3)	AREMLD = 0 (0)

NREMLD = 9 (4)	NREMLD = 3 (1)
<u>B (PHS + RWI)</u>	<u>D (RWI only)</u>
UREMLD = 2 (2)	UREMLD = 3 (3)
AREMLD = 3 (2)	AREMLD = 3 (3)
NREMLD = 12 (7)	NREMLD = 6 (5)

The basic unit of measure for analysis was the number of subjects in each condition who reported a lucid dream (only two lucid dream reports were not verified by ocular signaling). Table 2 indicates the number of subjects in each condition who reported at least one lucid dream of one or more of the three types.

When compared to the effects of Original Waking Instructions (Condition C) (binomial test and Fisher’s exact test), each of the three other conditions were independently significant at the .05 level or better (it should be stressed that these three conditions all remain significant even if non-REM lucid dreams are excluded from analysis). Thus, since OWI alone (Condition C) was not successful, PHS (Condition A), PHS + RWI (Condition B) and RWI alone (Condition D), were all independently successful with these formerly non-lucid dreamers.

No statistically significant difference was found between any pairwise combination of these three techniques. That is, PHS, 11111 and their combination were all equally effective with respect to the number of subjects who reported lucid dreams. However, the five measures which are discussed below suggested that results associated with PHS (Conditions A and B) were qualitatively superior to those obtained with either form of Waking Instruction alone (Conditions C and D).

First, remember that participants sometimes signaled and were wakened prior to signaling from their first lucid dream. In what amounts to primarily the ‘PHS only’ condition (Condition A), the first signal given by all successful subjects occurred

Table 2	
<u>A (PHS + OWI)</u>	<u>C (OWI only)</u>
7	1
<u>B(PHS + RWI)</u>	<u>D (RWI only)</u>
7	6

during their first lucid dream. However, four of the six successful subjects using RWI only (Condition D), and all of the seven successful subjects using PHS + RWI (Condition B) signaled one or more times from non-lucid dream states (e.g., during hypnagogic imagery at sleep onset after initially going to sleep but prior to signaling from their first lucid dream. Thus PHS tended to require less ‘priming’ than did RWI. That is, PHS tended to establish dream awareness directly, without ongoing intervention from the

experimenter in the form of verbal feedback over the course of several awakenings. RWI, on the other hand, tended to first establish and refine subjects' sensitivity to the subjective changes which occurred during sleep onset and to then 'extend' this sensitivity into the ongoing awareness of dreaming.

Second, all REM—associated lucidity (i.e., UREMLDs and AREMLDs) in the non-PHS condition (Conditions C and D) occurred prior to three A.M. and no later than the third REM period of the night. Yet 6 of the 14 REM-associated lucid dreams in two PHS conditions (Conditions A and B) occurred between 3 AM and 7 AM and during the fourth to the sixth REM periods of the night. This was true despite the greater frequency of four or more REM periods having occurred in the non-PHS conditions than in the PHS-related conditions. It is thought that most spontaneous lucid dreaming occurs during the later REM periods of the night (Garfield, 1971; Hearne, 1978; LaBerge, 1980; VanEeden, 1969). Since late REM periods are typically more emotionally involved than early REM periods, it may be "easier" to have a lucid dream during an early, less emotionally distracting REM period. PHS-induced lucidity may therefore be more 'potent' than that induced via involvement with effective (i.e., "Revised") waking instructions.

In this connection, it was also noted that when compared with either PHS 'alone' (Condition A) or RWI alone (Condition D), the combination of PHS and RWI (Condition C) tended to produce fewer REMLDs and to produce more NREMLDs. Thus the combination of PHS and RWI appeared to restrict or localize lucid dreaming to NREM sleep. This finding was attributed to the reinforcing effect of PHS on increased awareness of sleep onset phenomena which was so strongly emphasised in the Revised Waking Instructions. This emphasis may have tended to narrow the dreamer's focus to NREM dreams.

A third measure of qualitative difference between PHS and non-PHS effects was that post experimental levels of lucid dream frequency were higher in the PHS related conditions (Conditions A and B) than in the non-PHS related conditions (Conditions C and D). This was true both in terms of the number of subjects reporting lucid dreams at various follow-up times and in terms of the number of post experimental lucid dreams reported per person.

Fourth, as indicated by the participants subjective reports and by the length of time between multiple ocular signals (when they occurred), lucidity tended to last longer within a given dream in the PHS related conditions than in the non-PHS related conditions.

And fifth, the lucid dreams of the PHS related conditions showed higher levels of intensity, personal relevance and personal involvement than did those of the non-PHS conditions. That is, affect and visual imagery tended to be more vivid and intense,

experimentation within the dream and manipulation of dream content occurred more frequently, and dream content had more personal relevance and immediacy than was typically the case in the lucid dreams of those not exposed to PHS.

Nonetheless, it should be emphasized that with all three successful induction techniques (PHS, RWI and PHS + enduring benefits of lucidity were demonstrated on nightmares and other forms of negative affect within dreams. For example, one PHS subject was able to end a life history of recurrent nightmares through independent use of her lucidity training at home.

One final qualitative difference of note between PHS and WI related conditions was the manner in which lucidity was usually triggered. PHS tended to induce lucidity by altering dream content in a form which the individual was trained to recognize (e.g. inclusion of the dream symbol), while WI tended to alter the dreamer's tendency to be critically aware of ongoing experience in general.

### Conclusions

It is important to remember that the results of this study may not be widely generalizable, since the study sample represents only females in the upper fiftieth percentile of hypnotic susceptibility. Nonetheless, it is now apparent that dream lucidity is not simply an innate ability. Some hypnotically susceptible subjects can learn to dream lucidly within one night in the sleep laboratory and can maintain and even extend this learning well beyond the laboratory experience.

It also now appears that the range of sleep physiology which can accompany lucid dreaming includes NREM sleep. While NREM lucid dreams have not been prevalent in earlier laboratory studies, their presence in this study was probably due to the focus in Revised Waking Instructions on sleep onset phenomena combined with the experimenters' clear communication to subjects that dreaming can occur in both REM and NREM sleep. Non-REM lucid dreams are clearly possible, and in some instances, their level of intensity and emotional involvement is comparable to or even exceeds that typically experienced in REM lucid dreams.

With respect to specific techniques, both Posthypnotic Suggestion and Revised Waking Instructions can produce lucid dreams in equal numbers of subjects, but PHS in conjunction with personal symbols appears to induce a more clinically potent and enduring form of lucid dreaming. Combining PHS and RWI appears to interfere with the optimal performance of both techniques.

It should also be remembered that signaling played a significant role in eliciting and sometimes even maintaining lucidity. Since signaling was also reported to help reactivate lucidity at home following the experiment, efforts to communicate with the waking world

from the dream state may be an important key to eliciting dream lucidity.

And finally, with respect to clinical and personal applications, the induction of lucid dreaming shows considerable promise, since it can establish and enhance a new level of active cooperation between waking and dreaming consciousness. Given the apparent occurrence of ocular signaling in immediate proximity to “delta wave” (stage 3 and 4) sleep, lucidity training may even have potential for the treatment of night terrors and sleep walking.

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