

## **The Relationship of the Lucid Dreaming Ability to Mental Imagery Experiences and Skills**

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A review of research pertaining to the relationship of waking imagery abilities and experiences to the lucid dreaming ability will be presented. This work includes both spontaneous waking images such as hypnagogic images, hallucinations and daydreams and experimentally produced waking images, such as mental rotation tasks.

### Spontaneous Waking Imagery

Regarding hypnagogic images, Hearne (1983) reports that in a small sample of lucid dreamers, 82% reported experiencing images and 77% reported experiencing sounds while falling asleep. Relatedly, in two student samples, for women only, the frequency of experiencing dream lucidity correlated, positively with the frequency of experiencing hypnagogic (Hearne, 1978) and hypnapompic images (Gackenbach, 1981). There is strong support that lucid dreamers are likely to experience sleep transition (hypnagogic and hypnapompic) images.

Blackmore (1983) reports that experiencing lucid dreams was positively associated, both quantitatively and qualitatively, with experiencing waking hallucinations while Gackenbach (1981), who controlled for dream recall, found more reports of these types of hallucinations among students who are frequently lucid. However, Hearne (1978) noted no relationship between frequency of dreaming lucidly and frequency of a body—schema hallucination.

The strongest association between lucidity ability and waking hallucinations is with regards to the out—of—body experience (OBE; the experience of while awake perceiving the self as located outside the physical body). In a review of the concordance literature, Irwin (in press) summarizes the empirical relationship between OBEs and lucidity:

Taken as a whole the surveys clearly evidence a statistical dependence between lucid dreams and OBEs. Eight of ten samples yielded a significant result and one of the nonsignificant studies claims a significant correlation between OBEs and a more detailed categorization of the frequency of lucid dreams. Further all sets of data are in the same (positive) direction. A meta—analysis of the ten survey results confirms the level of empirical testimony to the relationship. Using the Stouffer technique the combined significance level of the cited findings is of the order of 10 to the —16 power.

Relatedly, OBE experiencers have been shown to evidence better spatial abilities than

nonexperiencers (Cook & Irwin, 1983).

The final type of spontaneously experienced imagery examined in relation to lucidity is that of daydreams. Frequency of daydreams was positively correlated to frequency of lucid dreams for men only by Hearne (1978) and for both sexes by Gackenbach, et al (1983). No relationship was found between vividness of daydreams and lucidity by Hearne (1978). However, Gackenbach (1981) did find a positive relationship for this daydreaming dimension among men. Finally, in two samples, Gackenbach (1978; 1981) found no relationship between the degree of emotionality and realism of daydreams and frequency of dreaming lucidly. To summarize, the experiences of waking and sleep transition hallucinations are clearly related to the lucidity ability whereas daydreaming experiences are not.

### Induced Waking Imagery

The aforementioned analyses are largely based on the relationship between types of act frequencies (dreaming and images) with little attention to their qualitative aspects or to the extent of control over these imagery events. Vividness and control, rather than frequency of occurrence, are the two major dimensions along which mental imagery abilities have been traditionally assessed.

The data are mixed for vividness. On the one hand, Hearne (1975) found no relation to lucidity for three vividness items and Blackmore (1982) reported no differences between lucid and nonlucid dreamers for Bett's vividness of imagery scale scores. On the other hand, our research group found that when dream recall and social desirability were controlled and understanding the concept of lucidity was ensured, males who frequently report dreaming lucidly also report more vivid tactile images as ascertained by the tactile images subscale of the Bett's inventory. Relatedly, Hearne (1983) found that the majority of his lucid dreamers sample reported moderate to clear vividness for visual and auditory imagery tasks while a significant positive relationship for a visualization task when subjects were asked to perform the task from a familiar angle was noted by Blackmore (1983).

Regarding control, neither Hearne (1978; 1983), Blackmore (1982), nor our research group found any relationship between self—reports of imagery control and lucidity ability. Blackmore (1982) and our group administered Gordon's control of imagery questionnaire while Hearne asked several imagery questions which were obviously related to control. However, when a more accurate assessment of control of imagery abilities is utilized, such as, performance on mental rotation tasks, a different picture emerges. Several tasks have been developed which require the subject to mentally rotate a two or three dimensional object in order to correctly identify its mate. Our research group found no relationship between performance on a simple two—dimensional task and lucidity frequency in two samples (student and adult) where dream recall was controlled. However, in a more difficult two— dimensional mental rotation task for adult women, when dream recall and handedness were controlled, the frequency of

experiencing prelucid dreams was significantly positively correlated with performance. In the same study, our group determined that skill on a three—dimensional mental rotation task was positively related to lucid dreaming frequency for women.

In none of the aforementioned tasks was a relationship found for men except in Gackenbach et al (1983). In this study our group found that when dream recall, education and sex—role identity (i.e., relative masculinity and femininity) are controlled a lack of the ability to mentally rotate a difficult two—dimensional image was significantly correlated with the frequency of having lucid dreams.

In conclusion, the frequency of experiencing dream lucidity is clearly related to the frequency of two spontaneous waking imagery phenomenon; sleep transition and waking hallucinations. The vividness and control of waking images is not as clearly related to lucidity frequency. However, when imagery control is assessed by performance on a mental rotation task a clear positive relationship appears for women.

## References

- Blackmore, S.J. Imagery skills and lucid dreaming ability. Lucidity Letter, 1982, 1(2), 5.
- Blackmore, S.J. A survey of lucid dreams, OBE's, and related experiences. Lucidity Letter, 1983, 2(3), 1.
- Cook, A.M. & Irwin, H.J. Visuospatial skills and the out—of—body experience. Journal of Parapsychology, 1983, 47, 23—35.
- Gackenbach, J.I. A Personality and cognitive style analysis of lucid dreaming. Unpublished doctoral dissertation, Virginia Commonwealth University, 1978.
- Gackenbach, J.I. Unpublished data, 1981.
- Gackenbach, J.I., Curren, R., LaBerge, S., Davidson, D., & Maxwell, P. Intelligence, creativity, and personality differences between individuals who vary in self—reported lucid dreaming frequency. Paper presented at the annual meeting of the American Association for the Study of Mental Imagery, Vancouver, June, 1983.
- Hearne, K.M.T. Lucid dreams: An electrophysiological and psychological study. Unpublished doctoral dissertation, University of Liverpool, 1978.
- Hearne, K.M.T. Features of lucid dreams: Questionnaire data and content analyses (1). Journal of Lucid Dream Research, 1983, 1(1), 3—20.
- Irwin, H.J. Out-of—the—body experiences and dream lucidity: Two views: Part I: Empirical perspectives. In J.I. Gackenbach and S. LaBerge (Eds.), Lucid dreaming: Research on consciousness during sleep, N.Y.: Plenum, in press.

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