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Efficacy of Lucid Dream Induction For Lucid and Non-Lucid Dreamers

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The efficacy of a lucid dream induction (LDI) technique was evaluated. Two groups of subjects were introduced to Tholey's (1983) combined technique for lucid dream induction. One group had experienced lucid dreams while the other group reported never having experienced lucid dreams. Another group of non-lucid dreamers served as a non-treatment control group. Among previously non-lucid dreamers, a significantly greater proportion of subjects who were presented with the LDI technique reported a lucid dream. This group also reported more lucid dreams in total than the non-treatment control group. Among prior lucid dreamers, the technique was found to increase the number, relative to baseline levels, of lucid dreams reported. No significant differences between lucid and non-lucid dreamers were found in terms of dream recall, amount of attention paid to one's dreams, and degree of meaning attributed to one's dreams. Lucid dreamers reported a significantly greater number of nightmares and rated their dreams as being significantly less vivid than did non-lucid dreamers. These results are discussed in light of previous findings and new research directions suggested.

KEY WORDS: dreaming; lucid dreaming; nightmares.

INTRODUCTION

A person may realize that he or she is dreaming while still in the dream state. These dreams are known as lucid dreams, a term first introduced by van Eeden (1913). At times, lucid dreamers can recall voluntarily events from their waking life (i.e., their memory remains largely intact), they can reason, and they can move their dream bodies at will.

Lucid dreaming has been explored both experimentally and clinically. The sleep laboratory has been used successfully in investigating psychophysiological correlates of lucid dream content (e.g., Fenwick et al., 1984; LaBerge & Dement, 1982a; LaBerge & Dement, 1982b; LaBerge, Greenleaf & Kedzierski, 1983; Schatzman, Worsley, & Fenwick, 1988), and lucid dreaming has been found to be clinically

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useful in the treatment of nightmares (e.g., Brylowski, 1990; Galvin, 1991; Halliday, 1982; Tholey, 1988; Zadra & Pihl, 1992).

Therapists and researchers require techniques that will reliably induce lucid dreams. For example, a therapist may want a client who is unfamiliar with lucid dreaming to become lucid during a nightmare, or a psychophysiologist may want a habitual lucid dreamer to experience a lucid dream within the limited time available in the sleep laboratory. It is important to know how to reliably induce lucid dreams, because the ability to dream lucidly is a relatively rare phenomenon. For example, Snyder and Gackenbach (1988) conclude that little more than half of the general population has experienced at least one lucid dream, and only 21% report them at a frequency of one or more per month.

Although several methods have been suggested to induce lucid dreams, controlled studies of the efficacy of lucid dream induction (LDI) techniques are practically non-existent (see Price & Cohen, 1988). Moreover, a literature review revealed the absence of any such study in refereed journals.

To test the idea that lucid dreaming is a learnable skill, the efficacy of Tholey's (1983) combined technique for lucid dream induction was evaluated in subjects both with and without past experience of lucid dreams. Tholey's combined LDI technique was chosen for the following reasons: it incorporates elements from other techniques suggested by Tholey (1983) (i.e., intention, suggestion, and reflection techniques); it was found to be effective in inducing lucid dreams in previously non-lucid dreamers (Zadra, 1987); and pilot data have shown it to be more effective than using simple intention or autosuggestion techniques alone.

Tholey (1983) describes the combined technique as follows:

> (1) The subject should ask himself the critical question ("am I dreaming or not?") at least five to ten times a day.
> (2) At the same time the subject should try to imagine intensely that he is in a dream state, that is, that everything he perceives, including his own body, is merely a dream.
> (3) While asking himself the critical question the subject should concentrate not only on contemporary occurrences, but also on events which have already taken place. Does he come upon something unusual, or does he suffer from lapses of memory? A minute suffices to answer the question.
> (4) The subject should ask himself the critical question as a rule in all situations which are characteristic for dreams, that is, whenever something surprising or improbable occurs or whenever he experiences powerful emotions.
> (5) It is especially helpful in learning how to dream lucidly if the subject has dreams with a recurrent content. For example, if he frequently has feelings of fear or often sees dogs in his dreams, then he should ask himself the critical question concerning his state of consciousness whenever he finds himself in threatening situations or sees a dog in the daytime.
> (6) If the subject often has dream experiences which never or rarely occur in a waking state, such as floating or flying, then he should, while awake, try intensely to imagine that he is having such an experience, telling himself that he is dreaming.
> (7) If the subject has difficulty recalling his normal dreams, he should employ methods for improving dream recollection such as are described in recent literature on dreaming. In most cases, however, practice in attaining the critical-reflective frame of mind will improve the subject's ability to recall his dreams.
> (8) The subject should go to sleep thinking that he is going to attain awareness of dreaming while in this state. Any conscious effort of will must be avoided while thinking this thought. This method is especially effective when the subject has just awakened in the early morning hours and has the feeling that he is about to fall asleep again.

(9) The subject should resolve to carry out a particular action while dreaming. Simple motions are sufficient (pp. 81-82).

Tholey (1983) conjectures that by following the techniques which are presented in his article, "subjects who never previously experienced a lucid dream will have the first one after a median time of 4 to 5 wk., with great interindividual deviation" (p. 82).

In addition to testing the hypothesis that lucid dreaming is a learnable skill, this study also investigated individual differences between lucid and non-lucid dreamers.

Belicki, Hunt, and Belicki (1978) as well as Zadra (1987) found no significant differences between lucid and non-lucid dreamers in the amount of attention paid to dreams and in personal meaning attributed to dreams. Inclusion criteria for the lucid dreaming group in both studies consisted of self-reporting past experience with lucid dreaming. However, frequency of lucid dreams was not recorded by Belicki et al., while Zadra did not verify that subjects had understood the concept of lucid dreaming. This latter point is particularly important since subjects frequently misunderstand what is meant by lucid dreaming (see Snyder & Gackenbach, 1988).

Although lucid dreams have been described as containing vivid and crisp imagery (Green, 1968), it is not known whether lucid dreamers rate their dreams (including their non-lucid dreams) as being generally more vivid than those of non-lucid dreamers.

The relationship between nightmare frequency and lucid dreaming was examined, because previous findings had shown these forms of dreaming to be significantly correlated (Spadafora & Hunt, 1990; Zadra 1987).

Finally, given that studies on sex differences and lucid dream ability have yielded mixed results (see Gackenbach, 1988b), the possibility of sex differences between lucid and non-lucid dreamers was also explored.

Research Hypotheses

Our first goal was to study the efficacy of Tholey's (1983) combined technique for lucid dream induction in subjects both with and without past experience of lucid dreams. These were our hypotheses:

I. Among subjects reporting no past experiences of lucid dreaming, a significantly greater proportion of those who received the LDI technique will experience at least one lucid dream than will those control subjects who did not receive the technique.

II. Among subjects reporting no past experience of lucid dreaming, those receiving the LDI technique will experience more lucid dreams than control subjects who did not receive the technique.

III. Among those subjects receiving the LDI technique, it will be more effective with subjects having previous lucid dream experience.

IV. For those subjects with past experiences of lucid dreams, the LDI technique will significantly increase the number of lucid dreams reported over an estimated baseline frequency.

Our second goal was to investigate individual differences between lucid and non-lucid dreamers on measures of amount of attention paid to dreams, personal meaning attributed to dreams, degree of vividness of dream experiences, and number of nightmares reported over the past year. Because of the lack of experimental work concerning individual differences on these measures, and methodological difficulties in comparing the few studies that have been done, no specific predictions concerning these variables were made. This part of the study was exploratory in nature.

METHOD

Subjects

Seventeen male and 30 female university students, aged 19-26, participated as volunteers. They were selected on the basis of self-reporting dream recall frequencies of five or more dreams per week. Each subject also met criteria (described below) for inclusion in either a lucid or non-lucid dreaming group.

Procedure

Subjects completed a Sleep/Dream Questionnaire, including questions about their dreams, dream recall, and general sleep habits. They were asked to estimate their dream recall frequency, the number of nightmares experienced over the past year, the total number of lucid dreams experienced, the number of lucid dreams experienced in the past year, and the number of lucid dreams experienced in the past six weeks. Subjects who claimed to have experienced at least one or more lucid dreams were instructed to write a dream description so that content validity could be assessed. The questionnaire also included questions in Likert scale format regarding dream vividness, attention paid to dreams, and degree of personal meaning attached to dreams.

Subjects whose questionnaire responses indicated no past experience with lucid dreaming were divided into two groups which were matched for dream recall frequency and which contained about the same number of male and female subjects. A third group was formed of subjects who understood the concept of lucid dreaming (as evaluated through their lucid dream reports), who reported having had at least 10 lucid dreams, and who reported at least one lucid dream within the past year.

One non-lucid dream group was comprised of 6 male and 9 female participants. Subjects in this group were given a brief talk (prepared in advance) on lucid dreaming and were told that this was a study of the ease with which one could learn to have lucid dreams. They were asked to keep a weekly dream journal for the following six weeks and were given booklets in which to record their dreams. In order to help subjects who might find themselves in a prelucid dream, they were given a copy of Hearne's (1982) Ten Tests for State-Assessment. This instrument contains several criteria which can be used to determine whether or not the dreamer

is in fact dreaming. Subjects were instructed to try to have as many lucid dreams as possible. All pertinent questions asked by subjects were answered except those which concerned the topic of how to go about having lucid dreams. In other words, no overt instructions or techniques for lucid dream induction were provided. This group is henceforth referred to as the No Experience, No Technique group (NENT).

The other non-lucid dream group had 6 male and 10 female subjects. This group is referred to as the No Experience, Technique (NET) group. The lucid dream group had 5 men and 11 women, and is called the Experience, Technique (ET) group. Subjects in the NET (n = 16) and ET (n = 16) groups received the same talk on lucid dreaming as was given to the members of the NENT group. In addition, they were told that this was a study of a) the ease with which one could learn to have lucid dreams and b) the usefulness of a presleep lucid dream induction technique. Subjects in these two groups were given an additional talk on techniques believed to be useful when learning lucid dreaming. Tholey's (1983) intention and reflection techniques were discussed with respect to their roles in the combined LDI technique. A description of Tholey's combined technique was given to each subject. As was the case with NENT, participants in NET and ET also received a copy of Hearne's (1982) Ten Tests for State-Assessment. Both groups were also asked to keep a weekly dream journal over the following six weeks, and were given booklets in which to record their dreams. Subjects were instructed to make extensive use of Tholey's (1983) combined technique, and to try to have as many lucid dreams as possible.

To assure anonymity of dream journal submissions, all subjects were assigned random alphanumeric codes which were classified by group and sex on a master list.

All dream journals were evaluated by two independent raters blind to the subjects' sex and group membership. The journals were evaluated for: a) the number of dreams recalled; b) the number of pre-lucid dreams reported; c) the number of lucid dreams reported; and d) dream content accompanying the emergence of lucidity. Dreams were classified as pre-lucid if they met Green's (1968) definition as dreams "in which the subject adopts a critical attitude towards what he is experiencing, even to the point of asking himself 'Am I dreaming?' but without realizing that he is fact doing so" (p. 23). Dreams were classified as lucid when the subject realized that he or she was dreaming while still in the dream state. The evaluation of dream content accompanying the onset of lucidity was undertaken to see which types of dream events or emotions, if any, gave rise to lucidity. Categories included nightmares or dream anxiety, recognition of dream inconsistencies (including flying), strong positive emotions, and spontaneous lucidity (without an apparent reason).

RESULTS

Both raters agreed on the number of dreams reported for all 47 subjects. The percent agreement for the categorization of dream reports (non-lucid, pre-lucid,

Table I. Number of dreams, lucid dreams, and pre-lucid dreams reported for each group.

Group	n	Dreams recalled	No. Lucid	No. pre-lucid
NENT	15	599	2	6
Mean		39.93	0.13	0.40
S.D.		19.98	0.35	0.63
NET	16	624	23	13
Mean		39.00	1.44	0.81
S.D.		19.56	1.93	0.75
ET	16	637	110	23
Mean		39.81	6.88	1.44
S.D.		17.91	6.62	1.32

Note: NENT = no experience, no technique; NET = no experience, technique; ET = experience, technique.

lucid) was based on an item by item comparison over the entire sample of dreams reported by these 47 subjects. It was 98.82%.

A total of 1860 dreams was collected, of which 135 were lucid and 42 pre-lucid. The number of dreams, lucid dreams, and pre-lucid dreams reported for each of the three groups is presented in Table I.

A one-way analysis of variance of the mean number of dreams reported for each group revealed no significant differences ($F(2,44) = 0.011$, $p > .05$). No sig-

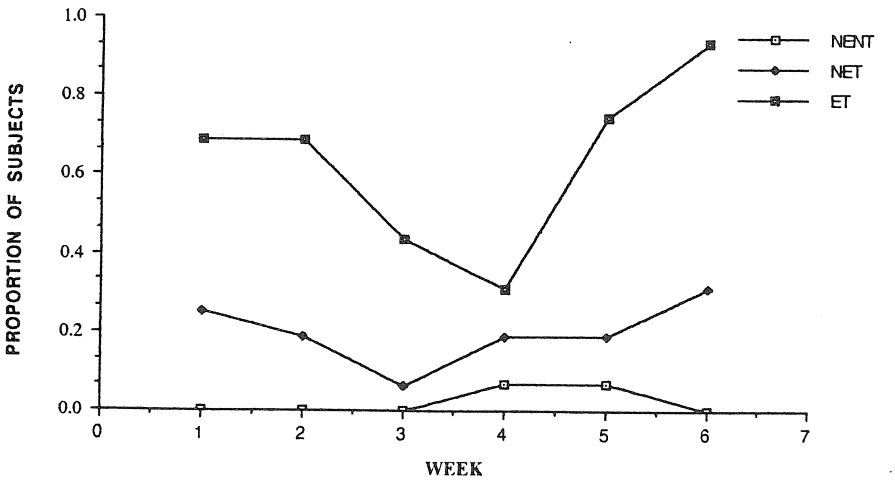

Fig. 1. Proportion of subjects per group who reported one or more lucid dreams as a function of time.

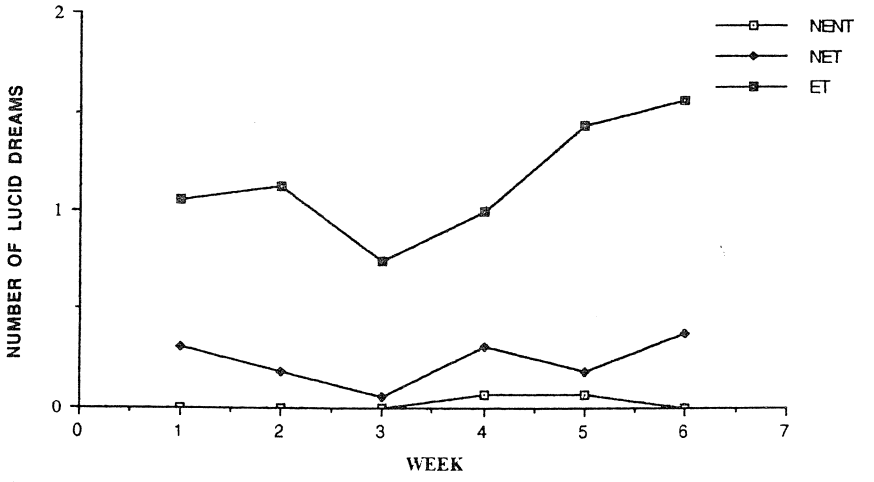

Fig. 2. Mean number of lucid dreams reported per person, per group as function of time.

nificant differences were found in amount of attention paid to one's dreams ($F(2,44) = 1.47$, $p > .05$), meaning attached to one's dreams ($F(2,44) = 0.23$, $p > .05$), estimated nightmare frequency ($F(2,44) = 2.68$, $p > .05$), or dream vividness ($F(2,44) = 3.08$, $p > .05$) although the one-way ANOVA for dream vividness approached significance ($p = .056$). There were no noticeable regularities in the pattern of means for these variables across groups.

The proportion of subjects in each group reporting a lucid dream as a function of time is presented in Figure 1. Figure 2 illustrates the mean number of lucid dreams reported per person, per group as a function of time.

Nonparametric tests were used to compare the number of lucid and pre-lucid dreams reported by the 16 subjects in each of NENT and NET groups. A significantly greater number of lucid dreams was reported by the NET group (Mann-Whitney $U = 64.5$, $p < .05$). There was no significant difference in the number of pre-lucid dreams reported (Mann-Whitney $U = 82.5$, $p > .05$).

Among subjects with no previous lucid dreams, only 2 of 15 subjects who did not learn the LDI technique reported a lucid dream, while 9 of 16 who did learn the technique reported having dreamt lucidly. Of the 16 subjects who reported previous lucid dreams, all experienced at least one lucid dream during the study.

Separate Yate's corrected chi-square analyses were used to determine whether the LDI technique, and past experience with lucid dreaming, affected the number of subjects who reported lucid dreams. The probability of experiencing lucid dreams was significantly influenced by access to the LDI technique ($X^2(1) = 4.50$, $p < .05$), as well as by past lucid dream experience ($X^2(2) = 6.58$, $p < .02$).

Four subjects in the NET group, and five in the ET group, reported dreams that were initially pre-lucid in which some of Hearne's (1982) Ten Tests for State-Assessment helped them to finally conclude that they were in fact dreaming. These tests included attempting to fly, examining their surroundings for incongruities, and attempting to alter a detail in the scenery. Thus, the tests suggested by Hearne for determining whether or not one is dreaming did help to change some pre-lucid dreams into lucid dreams.

A t-test was used to compare the mean number of lucid dreams reported by the ET group during the 6-week study (mean = 6.88, S.D. = 6.62) with the mean number of lucid dreams which this group reported having experienced for six weeks immediately prior to the study (mean = 4.19, S.D. = 6.31). There was a significant increase ($t(31) = 3.55$, $p < .002$).

Subjects from the NENT and NET groups were combined in order to study sex-related differences in lucid dreaming among subjects with no previous lucid dream experience. The NENT group was included since two subjects did dream lucidly during the study. There were no significant sex-related differences in the relative proportions of men and women who reported either no lucid dreams, or at least one such dream during the study ($X^2(1) = 1.58$, $p > .05$).

Data from the NENT and NET group were combined and compared with data from the ET group to allow for comparisons of individual differences between lucid and non-lucid dreamers. One-way ANOVAs with orthogonal contrasts revealed no significant differences in dream recall ($F(1,44) = 0.003$, $p > .05$), amount of attention paid to one's dreams ($F(1,44) = 1.82$, $p > .05$), or degree of meaning attributed to dreams ($F(1,44) = 0.12$, $p > .05$). Dreamed vividness, however, was significantly higher for non-lucid dreamers ($F(1,44) = 6.03$, $p < .05$). The lucid dreaming group reported an average of 24.75 (S.D. = 31.35) nightmares over the past year, compared to the non-lucid dreamers' estimate of 9.81 (S.D. = 13.53). To reduce the observed differences in variance, nightmare values were transformed by taking their square root. Then an F-test was performed on the transformed values. The F obtained ($F(1,44) = 5.71$, $p < .05$), indicates that lucid dreamers reported a significantly greater number of nightmares than did the non-lucid dreamers.

When studying dreams for content accompanying the emergence of lucidity, it was found that in 28% of the cases, lucidity appeared spontaneously or for no apparent reason. The observation of incongruities within the dream gave rise to lucidity in 44% of the lucid dreams reported, while nightmares or anxiety dreams accompanied the onset of lucid dreaming in 23% of dreams, and positive emotions accounted for the remaining 5%.

DISCUSSION

Efficacy of the LDI Technique

Hypothesis I, postulating the benefits of Tholey's (1983) combined LDI technique for subjects without previous lucid dream experience, was supported. More

subjects who learned the LDI technique experienced at least one lucid dream, than did subjects who were not instructed in the technique. During the six weeks of this study, 9 of the 16 subjects in the NET group reported one or more lucid dreams. This is consistent with Tholey's (1983) suggestion that people using the LDI technique experience their first lucid dream after a mediam time of four to five weeks. Hypothesis II was also supported since among subjects reporting no history of lucid dreams, those with the LDI technique reported more lucid dreams than those who did not learn the technique. Taken together, these findings show that lucid dreaming is a learnable skill, and that the combined technique for lucid dream induction is effective in learning this skill. Given that no sex-related differences were found with respect to ability to learn lucid dreaming, these conclusions appear to be true for men and women.

There may be several reasons why 2 of the 15 subjects in the NENT group reported having lucid dreams. Simply being introduced to the possibility of lucid dreaming may in itself cause some people to experience lucid dreams. According to Gackenbach (1988a), this is not uncommon. Also, the subjects in the NENT group (as in the other two groups) had been instructed to try to have lucid dreams during the study. Since the NENT subjects did not have any LDI techniques to use, they may have used self-generated autosuggestion. Finally, the mere requirement to pay attention to one's dream and to keep a dream diary may have been enough to trigger lucid dreaming.

As expected, the LDI technique was more effective for subjects who had previous experience with lucid dreams. This is not surprising given that they were already familiar with the dream state they were trying to achieve. Subjects in the NET group, who experienced their first lucid dream during the study, would be expected to have more lucid dreams in the future through continued use of the LDI technique. This presupposes that the LDI technique is equally effective both for subjects who had their first lucid dreams through the use of a LDI technique, and for those who had previously developed the ability to dream lucidly (i.e., without the aid of any techniques). Whether or not this is true has yet to be empirically tested.

The last hypothesis was also supported, namely, that the LDI technique would significantly increase the number of lucid dreams reported by subjects with past experience in dream lucidity. But the generality of this comparison is limited. The number of lucid dreams reported during the study was obtained through an evaluation of dream journals. By contrast, the baseline frequency data was obtained through retrospective estimation. It has been shown that nightmare frequency is retrospectively underestimated, when retrospective estimates are compared with more objective measures (Wood & Bootzin, 1990). It may be that subjects underestimated the number of lucid dreams they had during the six weeks prior to the study. Thus, the conclusion that the combined LDI technique significantly increased the number of lucid dreams experienced by lucid dreamers is tentative at best.

Examining dream content just preceding the onset of lucid dreaming showed that 44% of lucid dreams occurred following the observation of dream incongruities. Examples of such inconsistencies included flying, interacting with people known to be dead, finding oneself in the wrong city or in an unknown place, and dreaming

of possessions not available in real life. Emergent lucidity was also accompanied by anxiety or nightmares (23%) or by strong positive affect (5%). In the remaining 28% of the cases, dream lucidity appeared spontaneously. Although lucid dreaming was once thought to emerge predominantly from nightmares or anxiety dreams (Green, 1968), our results confirm those of Gackenbach (1982; 1988b) which have shown this to be untrue.

Subjects' reports of lucid dreams varied in frequency across the six week period, as shown in Figures 1 and 2. For both the NET and ET groups, the number of subjects who reported having a lucid dream was highest at the beginning and end of the six week study. Similarly, the total number of lucid dreams reported for the NET and ET groups was greatest at the beginning and end of the study. This pattern does not covary with overall dream frequency, since the number of dreams reported by each group was about the same throughout the six week period, and showed no systematic tendency to increase coincidentally with increases in the reported number of lucid dreams. It is often reported that two important factors in experiencing lucid dreams are high dream recall (Belicki, Hunt, & Belicki, 1978; Gackenbach, 1978; LaBerge, 1985) and high motivation (Garfield, 1974; LaBerge, 1980; 1985). The observed distribution of both the number of lucid dreamers and the number of lucid dreams reported over the six weeks may have been related to motivation. Specifically, it may be that the subjects were, on the whole, more motivated at the beginning and end of the study than during the middle. In fact, most of the subjects had mid-term exams during weeks 2 and 3 of the study. Such scholastic concerns may well have interfered with subjects' attempts at lucid dreaming.

Lucid vs. Non-lucid Dreamers

No significant differences were found in the amount of attention paid to dreams or the degree of meaning attributed to dreams between lucid dreamers and non-lucid dreamers. This is consistent with results reported by Belicki, Hunt, and Belicki (1978). Belicki et al. however found lucid dreamers to report significantly more dreams than did non-lucid dreamers, while no differences in dream recall frequency between these two groups were found in our study. This discrepancy may be due to the fact that both lucid and non-lucid subjects in our study were selected on the basis of having high dream recall frequency. This inclusion criteria was not used in the Belicki, Hunt and Belicki (1978) study.

Non-lucid dreamers rated their dreams as being significantly more vivid than did lucid dreamers. This appears counterintuitive, because habitual lucid dreamers report their lucid dreams as containing crisp imagery, lifelike sensations, and intensification of color (Green, 1968). However, subjects in this study were not asked to differentially rate the vividness of lucid and non-lucid dreams. The dream vividness rating was based on experiences with dreams in general. Dream vividness ratings vary depending on whether vividness is measured by questionnaires (as in this study) or by morning-after dream reports (Gackenbach, 1988b). Though there are several studies of perceptual differences in lucid vs. non-lucid dreams (see Gackenbach, 1988b), no previous studies comparing general dream vividness between

lucid and non-lucid dreamers were found in the literature. The implications of our finding that non-lucid dreamers rate their dreams as more vivid than lucid dreamers requires further research.

Lucid dreamers reported a significantly greater number of nightmares experienced during the past year than had non-lucid dreamers. Hunt (1989) suggested that lucid dreams and nightmares are similar because affect is enhanced in both types of dreams. Hunt thinks that some people may be naturally inclined towards having very vivid, emotionally intense, and physically realistic dreams. These people are likely to experience lucid dreams and/or nightmares. Hunt's hypothesis that various cognitive dimensions determine whether intense affect will result in either positive or negative dreams has been supported by a recent two-part study by Spadafora and Hunt (1990).

The first part showed that estimates of lucid, archetypal, and nightmare dreams all correlated significantly with each other and with frequency of dream recall. But not all lucid dreamers experienced nightmares and vice versa. As a follow-up, Spadafora and Hunt were able to select subgroups of subjects who reported primarily lucid dreams, nightmares, or archetypal dreams. Nightmare sufferers, by comparison with lucid and archetypal dreamers, scored significantly lower on measures of imagination, proclivity to mystical experience, spatial skills, and physical balance.

In light of Spadafora and Hunt's results, we suggest that the lucid dreamers in the ET group of this study had cognitive skills and physical capacities (i.e., physical balance) which fell in between the skills and capacities of lucid dreamers or nightmare sufferers. In other words, while the lucid dreamers in this study were prone to intensified dreaming, they were a mixed group by Spadafora and Hunt's definition, and their cognitive processes led to both lucid dreams and nightmares.

Based on previous literature, Galvin (1990) outlined several psychological characteristics shared by lucid dreamers and nightmare sufferers:

> ... it seems that both lucid dreamers and nightmare dreamers are: especially sensitive in perceptual ways, more androgynous, more focused on the self, and more open to inner change and to higher arousal states than most other people. Both of these dreamer types appear to have more permeable and less rigid perceptual boundaries, sex-role boundaries, and boundaries around intense self-experiences than do others (p. 73).

These traits are part of Hartmann's (1984; 1991) personality dimension of "boundary thickness" which refers to overlap ("thin-ness") or separation ("thickness") between mental states. Nightmare sufferers were described by Hartmann (1984) as having "thin" or "permeable" boundaries.

Galvin (1990) used Hartmann's (1985) Boundary Questionnaire (BQ) to investigate the boundary characteristics of relatively nightmare-free lucid dreamers, nightmare sufferers, and a control group who experienced neither nightmares nor lucid dreams. The lucid dream and nightmare groups had significantly thinner boundaries than the controls. Galvin also found that lucid dreamers had a more coherent psychological sense of self (as measured on the Self-Coherence Subscale of the BQ) than nightmare sufferers.

Galvin's findings suggest that the lucid dreamers in this study may have had boundary characteristics similar to those of nightmare sufferers. There is no evi-

dence, however, to suggest that lucid dreamers necessarily have a stronger sense of self than nightmare sufferers, only that individuals who suffer from nightmares have less self-coherence than individuals who are relatively nightmare-free. Our data suggest the need of extending Galvin's research into boundary characteristics and psychological self-coherence. In addition to the lucid dreamers who are nightmare free, and the nightmare sufferers who do not experience lucid dreams, a group of lucid dreamers who are also nightmare sufferers need to be included.

SUMMARY

The results of this study suggest that lucid dreaming is a learnable skill, and that Tholey's combined LDI technique is effective in acquiring this skill. This technique also appears to be effective in increasing the frequency with which occasional lucid dreamers have such dreams. These conclusions appears to be true for men and women.

Lucid and non-lucid dreamers did not differ significantly on measures on dream recall, attention paid to dreams, and degree of meaning attributed to dreams. The two groups did, however, differ in report dream vividness and nightmare frequency. Non-lucid dreamers had more vivid dreams and had fewer nightmares than the lucid dreamers. Further research is required to better understand the relation between lucid dreaming and nightmares.

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