

Manifest Content Analysis of Sleep Laboratory Collected Lucid and Nonlucid Dreams

JAYNE GACKENBACH

Athabasca University and University of Alberta, Edmonton, Canada

I have addressed two questions over the last ten years in my research program into lucid dreams: who is the individual who spontaneously experiences the lucid dream, that is, to find out if there is something unique about that person; and what is unique about the psychological experience of lucid sleep consciousness, beyond the awareness itself. I'm going to be talking about the latter today. Specifically, I'm going to be comparing sleep laboratory collected rapid eye movement (REM) lucid and nonlucid dreams.

In these content analyses we used Hall and Van de Castle's (1966) system of analysis of the manifest content of the dream, focusing on a count of the act frequencies. We basically counted the number of elements. This is a simple kind of conceptualization of the psychological content of dreams but one we have used in the past because it allows comparison to normative samples and can be simplified for computer entry of the data. With this first look at the content of these dream experiences we can compare the data to both the classical literature on the psychological content of dreams as well as to the previous content analyses of questionnaire and dream diary collected lucid versus nonlucid dreams (Gackenbach, 1988).

The lucid dreams analyzed here are signal-verified, that is, with judge, technician and dreamer concurrence. For those of you who might not be familiar with the phrase "signal-verified" it means that the subjects signaled from REM sleep by means of a prearranged set of eye movements when they knew they were dreaming. Sleep laboratory technicians "read" the signal on a polysomnogram which was further verified by a concurrent report from the dreamer and examination of the record by an independent judge.

Table 1 lists the specifics of these two samples of dreams which were collected from three different sleep laboratories, although the majority of them are from the laboratory of my colleague, Stephen LaBerge. These 50 dreams are all from the REM sleep of twelve individuals. The nonlucid dreams are collected from two sleep laboratories, the majority from a sleep laboratory study we conducted in Iowa. These 28 nonlucid dreams, also all from REM sleep, are provided by seven people, all but one of whom had experienced dream lucidity. The major procedural qualifier that I would like to bring to your attention is that the majority of the nonlucid dreams were collected from lucid dreamers. We have preliminary indications from dream diary

data that lucid and nonlucid dreamers may dream somewhat differently while nonlucid in sleep.

We computed 135 analyses of covariance with the number of words in the dream transcript as the covariate. Word count is thought to provide a rough estimate of dream recall, but of course it is contaminated by verbal skills. However, because of the consistent superiority of recalling lucid versus nonlucid dreams (Gackenbach, 1988; Snyder & Gackenbach, 1988), one should always control for dream recall differences. For those of you who are not familiar with the Hall and Van de Castle system of dream content analyses I shall briefly summarize each of the scales before talking about our findings. The significant and conceptually interesting findings are summarized in Table 2.

Results

Hall and Van de Castle list five emotions which are looked for as expressed in dream transcripts: anger, apprehension, happiness, sadness and confusion. There were no differences between lucid and nonlucid dreams. This is somewhat surprising given the popular conceptualization of lucid dreams as joyful. In fact, we have data from self reports of emotions during lucid and nonlucid dreams which support this joyful aspect of lucidity (Gackenbach, 1978, 1988). What this finding points out is that the degree of joyfulness may be in the eye of the beholder, in this case the dreamer, which is not necessarily communicated vis-à-vis the written description of the dream.

Next are the four types of character scales identified by Hall and Van de Castle: number, sex, age and identity (see Table 3 for details of each character subscale). You can see in Table 2 that for most of the character subscales there were no dream type differences but that where there was a difference, lucid dreams had fewer characters. This is consistent with previous analyses on non-laboratory collected lucid versus nonlucid dreams (Gackenbach, 1988).

The next set of scales are achievement and environmental press, where achievement is scored for success, failure and total achievement while environmental press is scored for misfortune, falling, threat, accident, injury, death and good fortune. As can be seen in Table 2 there were two differences with regards to achievement, more success and total achievement imagery in lucid than in nonlucid dreams. Again, with regards with success, this is consistent with the non-laboratory or home dream diary collected lucid dreams. These also tended to have more success imagery.

Next let's look at the activities subscales which include: physical activities while being still, movement by the self, and location change, as well as verbal, expressive, visual, auditory and thinking activities. Here we found a difference favoring lucid

dreams (see Table 2) in the "Physical (still)" subscale, which I think is largely accounted for by the task. You've got to move your eyes in order to have a signal verified lucid dream! Usually there is some reference in the dream transcript to the signaling procedure, which would be scored as "physical (still)." Interestingly, this is consistent with the non-laboratory lucid dreams where the demand characteristic was not present. Probably the magnitude of the difference, but not the entire finding, is accounted for by the demand characteristic. With regards to location change, which was also consistent with the non-laboratory data, there was a small and marginally significant difference favoring nonlucid dreams. However, in the non-laboratory dreams we also found differences for auditory and cognitive activities. That is, lucid dreams collected from home diaries and from questionnaires showed more cognitive and auditory kinds of activities than nonlucid dreams. This failure to emerge in the laboratory dreams is problematic, as these findings have been some of the most robust to date (Gackenbach, 1988). Perhaps the absence of a large enough sample of nonlucid dreams from nonlucid dreamers accounts for this lack of a difference.

In Table 4 we have a series of social interactions: sexual, friendly and aggressive. Let me point out that for the aggression subscales I summarized what I considered to be the relatively physical range, not all physical but more aggressive, and the relatively less physical range, into two sum scores. We found two dream type differences: friendly assistance and covert aggression were higher in nonlucid than in lucid dreams. If you don't have many people in a dream you are less likely to get interactions of any kind. I would like to bring your attention to the lack of a difference in the sexual activities subscales. Contrary to what has been proposed by a few individual lucid dreamers as characteristic of lucid dreams in general (Garfield, 1974; LaBerge, 1985) in this sample of laboratory dreams and in the dream diary and questionnaire data we found no differences in sexuality (Gackenbach, 1988). Further, in personal communication with Paul Tholey, who has been working with dream lucidity for 30 years, he concurs that sexuality is not naturally inherent to dream lucidity. This isn't to say that it isn't possible; it's just not a knee-jerk reaction to dream consciousness.

Table 5 lists the dream element subscales for which we totalled positive modifiers and negative modifiers for two further subscales. Also found here are references to time as well as the number of negative and positive words in the dream. We found lucid dreams had significantly more positive modifiers. This is certainly consistent with the notion that lucid dreams are experientially more joyful dream experiences. However, these findings are inconsistent with the non-laboratory data where nonlucid dreams were found to be more achromatic than lucid dreams. These findings are complex and perhaps are best conceptualized in the context that most of the elements subscales failed to evidence a dream type difference. Finally, I have listed three marginally significant findings with regards to time. Lucid dreams from this sample of laboratory dreams had fewer old, young and event date references than nonlucid dreams. These findings are consistent and support the commonly held notion of the felt timelessness

of the lucid dream experience.

Let's consider dream bizarreness next. There are four basic conceptual ways in which we have looked at bizarreness: Animate Characters, Inanimate Environment, Transformations, and Metamorphoses (see Table 6 for the details of the subscales for each). You can see in Table 2 that three of the subscales from Animate Characters, one from Inanimate Environment and one from Transformations approached or reached conventional levels of significance. In terms of the magic subscale (i.e., impossible acts or magic by animate characters such as animals or babies talking or people flying) from Animate Characters we found a difference that was consistent with the non-laboratory findings as well as for the Transformation sum score. However, for the most part we found no bizarreness difference as a function of dream type.

Finally, I am going to speak about three scales which I find particularly interesting and are not part of the Hall and Van de Castle system: palpable or body sensations, control of dream content and emotional, physical and cognitive balance. In this sample of dreams we found that there was more dream control in lucid dreams, which is consistent with self report and dream diary non-laboratory dreams. Despite the sensitive issues surrounding dream control while lucid individuals reliably report being able to evidence this dream characteristic. There was also more balance in lucid than in nonlucid dreams. This is a characteristic of dream lucidity I initially identified in factor analyses of lucid dream content in my dissertation (Gackenbach, 1978) and have since shown is an individual difference variable related to the ability to dream lucidly (Gackenbach, Snyder, Rokes, & Sachau, 1986).

Summary and Conclusion

As with the non-laboratory content analyses by independent judges, the most important point to keep in mind is that lucid dreams are more like nonlucid dreams than dissimilar. The nature of the difference does not seem to be due to chance. By chance we would expect seven out of one hundred and thirty five analyses to be significant. We've got 17 at the .05 level. Consequently we conclude that there is a difference which is meaningful but perhaps not substantive. Interestingly if one looks at dream type differences as evaluated by the dreamer both from dream diaries and the laboratory, large dream type differences have consistently emerged (Gackenbach, 1988). It can be seen in Table 7, in a new set of this type of data which have been previously unreported, that the results of a brief questionnaire, which was given to four individuals to fill out both at home and in the laboratory after they had awakened from a dream, support this self-evaluation trend. Of the 183 dreams evaluated along 12 dimensions 11 showed dream type differences. Many of these scales are essentially

the same ones that the independent judges were asked to use to evaluate the dream. So the extent to which lucid and nonlucid dreams differ may be largely in the eye of the beholder.

While we are looking at Table 7 let me say more about it. We are not only looking at lucid/nonlucid dream type differences here, but you can see that it is further broken down into the nonlucid dreams of lucid ($n = 2$) versus nonlucid ($n = 1$) dreamers and the lucid dreams of a single sophisticated TM meditator. This data is drawn from a study examining the differences between dream lucidity and dream witnessing (Gackenbach, Moorecroft, Alexander & LaBerge, 1987). Please note two things beyond what I have already mentioned. First, the nonlucid dreams of the two lucid dreamers differed from the nonlucid dreams of the one nonlucid dreamer in three ways. They were more recallable, which may be due to their greater bizarre-ness and novelty. We distinguished between these two concepts in the questionnaire. Regarding bizarreness, we simply asked the dreamers how bizarre they found the dream to be, whereas with novelty we asked them to evaluate the dream in terms of how different from ordinary waking experiences they found it to be. This dreamer type difference in novelty for nonlucid dreams has also been found by Harry Hunt and myself in a larger sample of students who participated in a two week home dream diary study. The bizarreness question was not asked in that study. It would seem in order to have the propensity to dream lucidly one must dream oddly in general! Regarding the dreams of the single TM subject, the conceptual framework for these findings can be found in the June, 1987 issue of *Lucidity Letter*.

We did one last set of analyses in order to try to account for dreamer type differences in both lucid and nonlucid dreams. Specifically, we split the laboratory collected dream samples into five groups. These are delineated in Tables 8 and 9. We compared three types of lucid dreams under three different circumstances to two types of nonlucid dreams under two different circumstances. Keep in mind that the dreams of three of these groups are from one subject each and that the number of dreams available for analyses were very small for two of the groups. For these reasons these analyses must be approached tenuously. As before, 135 analyses of co-variance were computed on the five groups' manifest content subscale scores with number of words in the dream as the covariate. Fewer scales reached conventional levels of significance and in fact, the differences could be accounted for by chance factors. The differences which did emerge were largely accounted for by the lucid dreams collected from the lucid dreamers. Most noteworthy, the dream control difference is accounted for by the difference between the lucid dreams of lucid dreamers and the nonlucid dreams of the one nonlucid dreamer. The lucid dreams of the TM subject and the nonlucid dreams of the lucid dreamers did not differ from these two extremes. This suggests that dream control of lucid dreams may be a function of individual difference variables, that is, of

the style of dreaming regardless of the state of dreaming.

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