

Hypnotic, Prolucid, Lucid, and Night Dreaming: Individual Differences

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Two Representational Codes: Priming Effects

For almost two decades, clinical and cognitive psychologists have been concerned with the hypothesis that there are two fundamentally different modes for representing knowledge in the mind (Paivio, 1971). One representational code, verbal and propositional, may dominate during wakefulness, while the other, imagistic and analog, may be more prominent during dreaming. But as Ahsen (1988) points out, words appear in dreams and metaphors, pervade speech; both representational systems appear to be at work both night and day. If we are to understand human cognition, we must understand the relationship of these two representational codes to each other. Ahsen's application of psycholinguistic analysis to imagery is thus appropriate and promising.

In Ahsen's "prolucid" technique, subjects are asked to re-image a dream while keeping their mother or father ("parental filters") in mind. These re-experienced dreams are then compared to the original, for alterations that may be therapeutically revealing. The prolucid technique can be recognized as a variant on the priming paradigm familiar in cognitive psychology

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(Meyer & Schvaneveldt, 1971). For example, primes such as RIVER and MONEY lead to different interpretations of an ambiguous target word such as BANK. Verbal priming has been shown to affect a wide variety of cognitive processes (e.g., perceptual organization, the deployment of attention, free association, recall and recognition, and the interpretation of ambiguous stimuli). So there is every reason to expect that the prime such as "mother" would affect the content of a dream image—quite aside from any psychodynamic effects of the word "mother."

Before any special claims can be made about the effects of "mother" and "father" on dream imagery, it would seem necessary to compare the impact of a number of different sorts of primes on the imagery-generation process. Would abstract primes ("courage," "cowardice") differ from concrete ones ("lion," "mouse")? Would primes related in content to the original dream differ from unrelated primes? Would verbal primes differ from visual primes? Most important, however, would the effects on imagery differ systematically from the effects on creative *verbal* processes such as free association, sentence-writing or story-telling? Whether the topic is prolucid dreaming (in which attention is focused on the dream image) or prolucid semantics (in which attention is focused on a word selected from the dream), nomothetic investigation here would be a useful complement to Ahsen's ideographic approach.

Because emotions are often difficult to express in words, it may be particularly interesting to study the effects of affect-laden primes upon imagistic versus verbal processes. Although Ahsen assumes that dreams are generally affect-rich, the relationship between affect and imagery is not well understood (e.g., Lang, 1984; Leventhal, 1984). Ahsen's paradigm, however interesting it may be for exploring the imagery process and dynamics of individual subjects, is limited in its ability to provide us with general knowledge of affect-representational processes because the "parental filters" are confounded with particular affective associations in individual parent-child dynamic interaction histories. It would be useful first to know how simpler affective material is represented and processed verbally and imagistically.

Instructed or Manipulated "Dreaming": Lucid, Hypnotic, Prolucid

Now that we have identified the "prolucid" technique as a priming paradigm, we can also place it in its proper context as one of several sorts of experimental instruction or manipulation attempting to influence subsequent imagery processes. Each of these techniques offers some methodological advantages but each also poses particular difficulties.

Presleep experiences have been manipulated in attempts to influence night dream content (for reviews, see Arkin, Antrobus, & Ellman, 1978),

with moderate success. Presleep rehearsal and self-suggestion of intentions or expectations for particular sorts of dreams have been advocated. For example, lucid dreamers employ presleep self-suggestions to recognize when they are dreaming and to then control the dream content according to their predetermined intention (LaBerge, 1985). Presleep posthypnotic suggestion has also been employed to influence subsequent dream content. Hypnotic suggestions have also been given for dreams, often on a specified topic, during hypnosis (for reviews, see Hilgard & Nowlis, 1972; Moss, 1967; Tart, 1965a, 1965b).

Although Ahsen noted the similarity of his procedure to lucid dreaming, in that the subject actively interacts with the dream content, proclucid dreaming is perhaps most similar to hypnotic dreaming, in that it occurs during wakefulness rather than during sleep, that it is begun at the experimenter's request, and that the content is guided to at least some extent by the experimenter's instruction. Like hypnotic dreaming, proclucid dreaming lacks some of the features of night dreaming (including lucid dreaming), most notably sleep and the usual accompaniment of REM physiology. But Foulkes (1985) has argued that there is probably only one dream-generation system at work in REM, non-REM, and waking dream-like imagery sequences. If so, hypnotic and proclucid procedures offer the advantages of convenience of accessibility and the lack of time delay between the experimental manipulation and the onset of the imagery.

But what advantage does proclucid dreaming offer over hypnotic dreaming? Proclucid dreaming occurs outside of a hypnotic context, and begins with a recalled night dream rather than simply imaging a dream anew. So the original, unmanipulated dream serves as a sort of control dream against which the "filtered" imagery is compared. Whether these are sufficiently distinctive or advantageous features for the study of waking imagery to warrant departing from hypnotic investigations is yet to be demonstrated. The advantage of hypnotic manipulations is the large body of evidence on significant stable individual differences in responsiveness to hypnotic suggestions, including suggestions for dreaming.

The disadvantage shared by all of these methods is that the specific effects of the manipulations are hard to discriminate from responses to the demand characteristics of the experimental situation. Dream researchers and hypnosis researchers are generally sensitive to this issue and attempt to design paradigms to address it. Unfortunately, Ahsen offers no account of what the subject believes is being asked of him or her in the proclucid situation, nor of the extent to which the imagery process is being affected by the "mother" prime, and the extent to which it is being affected by the subject's construal of the experimenter's beliefs about how that manipulation *ought* to affect the imagery.

Individual Differences in Responsiveness to Dream Instructions

Early hypnosis research found wide individual differences in the ability to have dream-like experiences in hypnosis, and these are correlated with general hypnotizability (Hilgard, 1965). More recently, investigators have begun to explore a general ability that may underlie responsiveness to any instructions or manipulations for dream or dream-like experiences, including hypnotic dreaming. For example, Evans and his colleagues (Evans, Gustafson, O'Connell, Orne, & Shor, 1969, 1970) found responsiveness to hypnotic-like suggestions administered to sleeping subjects to be correlated with hypnotizability — although Perry, working with Evans, subsequently failed to replicate this association (Perry, Evans, O'Connell, Orne, & Orne, 1978). Similarly, Belicki and Bowers (1982) showed a relation between hypnotizability and responsiveness to nonhypnotic suggestions for dream change. Lucid dreaming may be an activity not often attempted or typically pursued by most subjects. Dane and Van de Castle (1987) obtained confirmed lucid dreaming (through physiologically-monitored eye signals) in only 7 of 20 experienced lucid dreamers, but in 21 of 30 hypnotizable subjects (claiming no prior lucid dream experiences) given posthypnotic and/or waking instructions.

Two studies by Nadon and his colleagues (Nadon, Hoyt, & Kihlstrom, 1987; Nadon, Laurence, & Perry, 1987) also suggest that subjects' self-reported cognitive control over their own night dreams correlates positively with hypnotizability, and that this relation is partially independent of imagery preferences (Isaacs, 1982). Some of our preliminary work also indicates, however, that self-reported cognitive control over dreams is related to self-reported ability to recall night dreams. It is unclear if the ability to control dreams engenders better recall or if superior recall leads some subjects to report that they have control over their dreams. In either case, self-reports of access to night dreams, either by a priori control or by a posteriori recall) appears to be related to hypnotic ability.

Given these findings, some caution must be taken in generalizing results from current prolucid investigations. Volunteers for imagery research may be particularly talented at manipulating their imagery; but they also may be particularly sensitive to experimental demand characteristics. High on the agenda of prolucid dreaming research should be attention to these sorts of individual differences.

Rather than being a nuisance variable, however, we see individual variability in the ability to control imagery processing to be a variable of considerable interest in itself. Also worthy of further investigation are individual differences, not in ability, but in preference, or habitual tendency, to think or represent meaning in imagery rather than verbal code (Isaacs, 1982); also, flexibility, or appropriate or efficient use of imagery versus verbal representation for particular types of cognitive problems

(Crawford, 1981). Both of these variables have been shown to correlate with hypnotic ability. Further investigation of imagery processes, whether hypnotic or prolucid, may also proceed more economically if subjects are first selected for their ability to produce waking dreams upon request.

Dissociation Versus Association of Image and Word: Therapeutic Resolution

Many clinicians would agree with Ahsen that something positive often, or at least sometimes, occurs when psychotherapy patients talk about their dreams, or when a bit of mental content is translated from imagery into words — particularly if that material is laden with negative affect. In fact, Pennebaker and his colleagues (Pennebaker & O'Heeron, 1984; Pennebaker & Beall, 1986), in a recent series of studies, found that subjects who merely wrote about a traumatic event which they had never disclosed to anyone had better physical health in the following six months than those who did not disclose. This suggests that mere verbalization of significant affective material may have a beneficial effect.

If there is an advantage in "translating" imagery into verbal representation, it may be that information previously available in only one system now becomes available in both and, dually represented, stands a greater likelihood of more adaptive resolution, since it now has access to sequential analytical problem-solving that is more appropriate for the particular problem. Perhaps material which has been subjected to more extensive processing becomes more available to brain systems controlling behavior. For example, Foulkes (1985) suggests that in night dreams diffuse mnemonic material is subjected to unifying narrative organization. Perhaps just defining a nagging problem, whether finding just the right word, or just the right image metaphor to represent the problem, is a relief in itself; perhaps the subject is then at least half way to a resolution. Putting the problem into words may also make the problem easier to communicate to others, who can be expected to then be helpful, offering suggestions or support to the communicator.

Although the problem of translating imaginal codes to verbal ones is important, it may not be sufficient for therapeutic progress. For example, as Galin (1974) has suggested, the transfer of affect-laden information from the right (imagistic?) to the left (verbal?) hemisphere may be actively inhibited. Then again, a translation from the imaginal to the verbal format may not guarantee accessibility to consciousness (Hilgard, 1977; Hoyt, 1988; Kihlstrom, 1984, 1987). Closer study of the relationships between images and words, between emotions and mental representations of each type, and between conscious and unconscious mental processes, particularly among individuals with the ability to control these processes, may lead us closer to facilitating therapeutic resolutions.

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