

An effective lucid dreaming method by inducing hypnopompic hallucinations

Michael Raduga

Phase Research Center, Moscow, Russian Federation

Summary. Most people experience lucid dreams (LDs), which are dreams in which the dreamer is conscious and able to perceive vivid perceptions. There are many ways to induce LDs, but their levels of efficiency are far from satisfactory. In this study, we analyze the efficiency of an LD method that was tested in commercial events with hundreds of groups over 12 years. The main feature of the method is that hypnopompic hallucinations are induced that allow an LD plot to start directly from the bedroom upon awakening, which makes the LD feel like an out-of-body experience. Also, this method indirectly arouses consciousness in dreams. This method originated from the Tibetan dream yoga tradition and has been modified according to a strict sequence of specific actions. Data from 449 people, mostly novices, who tried this method over the course of two nights indicated that 484 attempts were successful. This method might help ordinary LD enthusiasts to get efficient practice and provide more research opportunities for studying lucid dreaming and the human brain.

Keywords: Lucid dreams, out-of-body experience, consciousness, REM sleep, hypnopompic hallucinations, induction methods, techniques.

1. Introduction

Most people, either involuntarily or intentionally, experience lucid dreams (LDs), which are dreams in which the dreamer becomes conscious during a dream scene and can change the plot of the dream (LaBerge, 1985). In a survey of 974 participants, 71% reported having experienced at least one LD at some point in their life, and 23% reported having LDs often (Raduga, Kuyava, & Sevchenko, 2020). This phenomenon happens almost exclusively during REM sleep, but LDs differ from common dreams in that they are characterized by increased activity in the brain's prefrontal zones in the 40-Hz band (Voss et al., 2009). LDs can occur during non-REM sleep, but such cases are too rare to be considered in the present work (Dane & Van de Caslte, 1984; Mota-Rolim et al., 2015; Stumbrys & Erlacher, 2012).

The study of LDs relates to disciplines like psychology, psychophysiology, and neurophysiology. Besides the scientific research applications and positive emotions that LD could provide, this phenomenon also has practical applications. For example, LD practices have been used to relieve permanent nightmares (Zadra & Pihl, 1997). In one case, LD helped remove chronic pain (Zappaterra, Jim, & Pangarkar, 2013). Movements made during LDs activate the correlated parts of the sensory-motor cortex (Dresler et al., 2011), meaning that motor skills can be trained during an LD, with observable results presenting themselves during wakefulness (Stumbrys, Erlacher, & Schredl, 2016). These examples

show that we need to study LDs more, as it could lead to useful discoveries and practical applications. Therefore, effective LD induction methods are necessary.

An LD can be perceived as an out-of-body experience (OBE) if its plot starts in the bedroom. A few research works have indicated that OBE and LD could be the same phenomenon (Levitan et al., 1999; Mahowald & Schenck, 2005). Moreover, both phenomena share REM sleep and consciousness (LaBerge et al., 1988; Nelson et al., 2007). These two factors are also characteristics of false awakenings (Barrett, 1991) and sleep paralysis (Dresler et al., 2012; Terzaghi et al., 2012; Voss et al., 2009). Mahowald and Schenck (2005) attempted to unite all states that share consciousness and REM sleep under the umbrella term *dissociated REM states*, but there is an alternative term with the same meaning: *phase state* or simply *phase* (Raduga, 2004).

All LD techniques could be divided into three main categorical methods based on when actual LD starts. These methods are the *direct method* or *DM* (applied upon falling asleep without prior sleep), the *indirect method* or *IM* (applied upon awakening), and the actual *lucid dreaming method* or *LDM* (applied by becoming conscious while dreaming) (Raduga, 2004). From this perspective, Stephen LaBerge's well-known WILD/DILD classification system has practical limitations because it ignores the IM concept in general and it aims only to LDM (LaBerge, Levitan, & Dement, 1986).

From a systematic review of 35 works on LD induction methods and techniques (Stumbrys et al., 2012), it can be seen that the majority of self-induction techniques (i.e., those without external help, drugs, or stimuli) are focused on LDM and include different kinds of actions during wakefulness or before falling asleep. Some of the most well-known features of these methods are rehearsing dreams, visualizing becoming lucid, intention, autosuggestion, and reality testing. In the above-mentioned meta-analysis, IM is described as the re-entering of a dream and consists of trying to get into LD without losing consciousness right after awakening through various mental practices like counting

Corresponding address:

Michael Raduga, Phase Research Center, Moscow, Russian Federation

Email: obe4u@obe4u.com

Submitted for publication: February 2020

Accepted for publication: January 2021

DOI: 10.11588/ijodr.2021.1.71170

and focusing on bodily sensations (Levitan, 1991). The first known IM description originates from the Tibetan dream yoga tradition (Wangyal, 1998) and is described in modern books (Monroe, 1985; Raduga, 2004).

The essential factors of IM efficiency are hypnopompic hallucinations, which are the opposite of hypnogogic hallucinations. Hypnopompic hallucinations are sensory or emotional perceptions that occur during the process of awakening and don't have a real physical basis (Cheyne et al., 1999). They can be very stable and might be considered as remnants of REM sleep. In theory, consciously experiencing or inducing them through specific mental actions upon awakenings could be a controllable way to experience LD. From this point of view, it could be stated that the presence of hypnopompic hallucinations is equal to the presence of LD, at least in terms of its stages without full dissociation. This exact statement was used when creating the specific IM algorithm for this study.

Though academic studies on IM are very rare, it deserves a significant amount of attention. The first reason for this is that the LD experience is more controllable through IM than through other methods because practitioners can achieve it by maintaining consciousness, not by gaining consciousness almost spontaneously in dreams, for example.

Second, IM might be one of the most accessible ways to achieve LD. For example, in research on achieving pain in LD and transferring it into wakefulness, 48% of volunteers reported LDM, 30% reported IM, and 20% reported DM (Raduga et al., 2020). Obviously, now LDM is more frequent, but this could be a side effect of IM and DM, as both of these methods require creating intention during falling asleep, which is a crucial factor for LDM, as mentioned above. This cross-correlation between methods will also be investigated in this paper.

Third, despite the lack of IM usage in scientific studies, ordinary LD practitioners from around the world use it and have even given it different names. For example, among English-speaking enthusiasts, IM is known as a "dream exit-induced lucid dream" (DEILD) ("Dream Exit Induced Lucid Dream," 2007). This mimics LaBerge's classification, which neglects this type of method. Because the term IM was published in a book a few years ago (Raduga, 2004), it is a major term in the present article.

The goal of this study is to demonstrate that IM could be effective and useful and that a specific IM algorithm can work after just one or two nights. The secondary goal is to show that practicing an IM routine could be an effective way to induce LDM (as a side effect).

Confirmation of these ideas would lead to three notable outcomes. First, it would improve the general understanding of the brain, consciousness, and dreaming processes. Second, it would produce an effective algorithm for LD research because of the possibility of obtaining more frequent or controllable results. Third, it would give LD enthusiasts a new way to improve their practical skills and gain more experience.

2. Methods

2.1. Research resource

The results from several commercial LD seminars were used to explore the possibility of IM efficiency. Only one specific IM algorithm was used: a dissociation attempt followed by

cycling a few mental techniques for one minute upon awakening (DCIM = Dissociation attempt and Cycling techniques in Indirect Method).

At first, the strict DCIM algorithm was written about only for LD enthusiasts (Raduga, 2009) but not as research. Prior to this publication, the algorithm has been widely used in commercial LD events since 2007. During this period, dozens of instructors have used it at hundreds of commercial online and live events, often in the form of three-day seminars with two nights of attempts. Most of these live events have taken place in Russia, Ukraine, Kazakhstan, and Belarus, but some seminars have been done in EU countries, the USA, Malaysia, Thailand, and some other countries. DCIM was effective for commercial use, as it led to quick results even during just the first night of attempts regardless of the previous experience of participants or their predisposition.

As DCIM three-day seminars were not designed for studying, not much data from them exists. However, in some cases, photos of charts with the final results were taken and saved. All these charts were created during the actual lessons in front of participants who were asked about their success. The present study considered charts only if (1) they showed the efficiency of specific parts of DCIM, (2) they were based on the article author's seminars, (3) the number of attendees and location of the event were known, and (4) the contact information and names of most of the attendees could be found. Only 12 charts satisfied all the requirements (see appendix).

2.2. DCIM algorithm

Figure 1 is a schematic DCIM algorithm, which was used with small deviations during seminars. In the narrative description, it consists of five major steps and a few tips that may substantially increase efficiency.

Step 1: Intention during falling asleep. Any period of sleep (e.g., daytime naps, nighttime or morning sleep) can be used for DCIM attempts. The main problem with DCIM is recalling the attempt upon awakening. To solve this problem, LD practitioners should induce the intention to use DCIM while falling asleep before actual attempts are made. To make this intention stronger, practitioners should mentally rehearse their actions before falling asleep and before subsequent awakenings with attempts. At the same time, they should think about their personal plan of action for LD. In some cases, autosuggestion techniques could be used. The goal of all of this is to have practitioners to create intention as the last action (or one of the last actions) before losing consciousness while falling asleep.

Step 2: Dissociation attempt upon awakening. If too many physical movements are performed upon awakening, this step can be skipped. Immediately after awakening, LD practitioners should, without using their physical muscles, try to dissociate by imagining or performing the following actions: rolling over, getting up, levitating, climbing out, falling down, and imagining already being dissociated in some place or at some object. All these actions are called *separation techniques* among LD practitioners, but in this article, they are referred to as *disassociation techniques*. Practitioners could use just one of them, but the practice is more effective if two or three of them are used, with each disassociation technique being performed for three to five seconds. If dissociation is achieved, a practitioner should start a plan of action for LD. If there is no result, the practitioner should proceed to the next step.

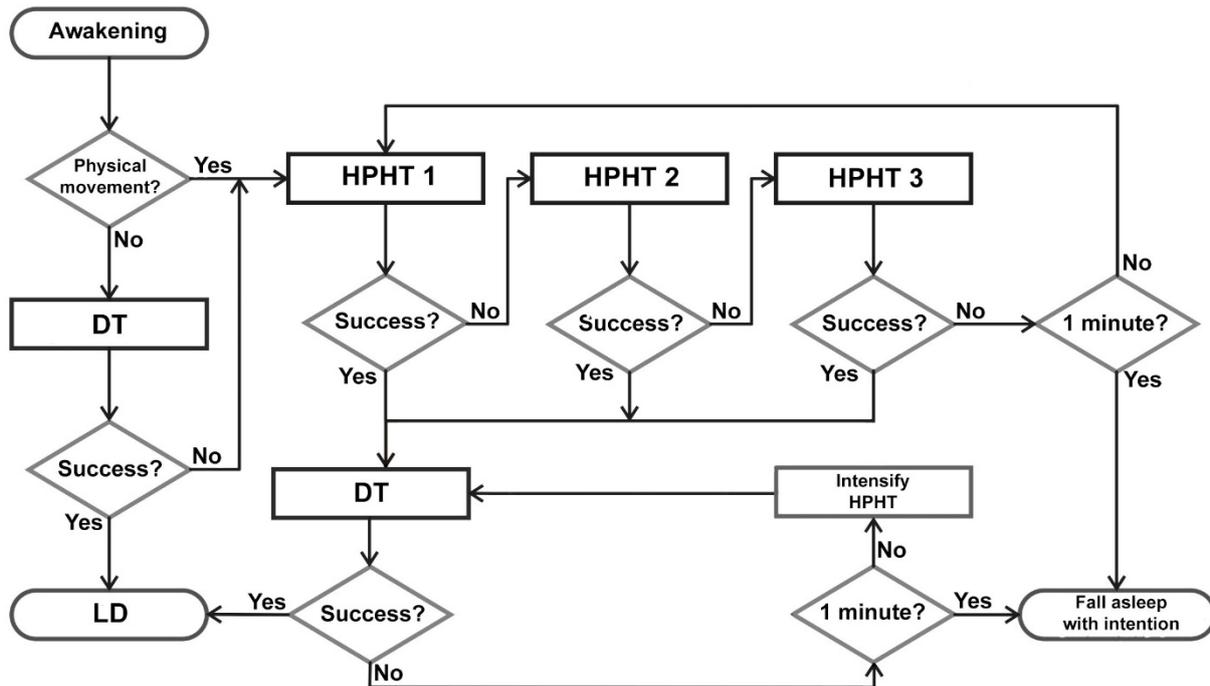


Figure 1. A schematic DCIM algorithm (DT = disassociation techniques; HPHT = hypnopompic techniques).

Step 3: Inducing hypnopompic hallucinations. At this moment, the practitioner should try two or more hypnopompic hallucination techniques (or *hypnopompic techniques*) for three to 10 seconds each. The hypnopompic techniques used must be two to four of the most familiar and most-often practiced techniques. A full list of hypnopompic techniques can contain dozens of options because it is easy to create them (Raduga, 2014); many of these are presented in Table 1. Although it's possible to see which hypnopompic techniques were used during analyzed seminars, this data was skipped in this research because the techniques were used in different combinations, making it impossible to compare their efficiency. At the following hypnopompic techniques were used the most often: phantom wiggling, observing images, imagined rotation, forced falling asleep, the swimmer technique, sensory-motor visualization, and visualizing the hands.

Almost all hypnopompic techniques consist of different kinds of mental actions that use motor skills, sensory perceptions, emotions, the vestibular system, memory, intention, and imagination for inducing hypnopompic hallucinations of any kind. Once a hypnopompic technique works (i.e., when stable hypnopompic hallucination appears), there are two possible outcomes: either a practitioner needs to use a disassociation technique again to finalize dissociation, or the practitioner spontaneously appears in an LD scene. If a disassociation technique doesn't work, the practitioner needs to go back and use a reliable hypnopompic technique, amplify it, and then try the disassociation technique again. If dissociation is achieved during this step, practitioners should start their plan of action for LD. If no result occurs, the practitioner should proceed to the next step.

Step 4: Cycling of hypnopompic techniques. After unsuccessfully trying to achieve hypnopompic hallucinations using two or more techniques, one should repeat them for one minute following the instructions given in Step 3. Very

often, a hypnopompic technique doesn't work on the first attempt but yields LD on the second, third, or any other cycle. If dissociation is achieved during this step, practitioners should start their plan of action for LD. If no result occurs, they should proceed to the next step.

Step 5: Finishing unsuccessful attempts. If none of the above steps have resulted in LD after one minute but there is a possibility of getting more sleep, a practitioner should fall asleep with the intention to make the same attempts during all next awakenings. This step helps the practitioner to make many controllable LD induction attempts in one night, morning, or daytime nap.

Useful tips. Several tips can be followed to improve DCIM efficiency. Some of them are as follows:

- Fewer physical movements should be made upon awakening and before attempts are made.
- More DCIM attempts should be made during the most appropriate time. It's best to wake up to an alarm approximately two hours before the final awakening, stay awake for five to 60 minutes, and then fall asleep again with the intention of making more attempts upon the next awakening (LaBerge et al., 1994).
- Attempts should be made on weekends, when people generally have more time for sleep and better opportunities to concentrate on their LD practice.
- Practitioners should imagine themselves in a different bodily position before and during attempts.
- If any hypnopompic hallucination appears immediately after awakening or during an attempt, practitioners should skip other actions and start to amplify these hypnopompic hallucinations and then try disassociation techniques.
- If a practitioner is too awake during an attempt, DCIM should be performed passively as a way to fall asleep, and disassociation techniques with hypnopompic techniques should be extended to 10 seconds or even more.

Table 1. Types and Description of Hypnopompic Techniques.

Type	Name	Description
Based on movement	Phantom wiggling technique*	A person tries to move some part of the body (e.g., an arm, a leg, a shoulder, the head, or even the jaw) without moving a muscle and without imagining or visualizing anything. When movement arises, the main aim is to increase the range-of-motion as much as possible, but not necessarily the speed of movement or the portion of the body part being wiggled.
	Imagined movement technique	A person tries to feel some realistic movement by simply imagining that they are doing it. For example, this could be swimming, running, walking, flying, or peddling with the legs or arms.
Involving sight	Observing images technique*	A person peers into the void before the eyes without opening them. As soon as the person begins to see any imagery, the person tries to discern it better by defocussing sight, as if looking beyond the imagery. This makes it become steadier and more realistic.
	Technique of visualization	A person tries to realistically see and discern an object no more than six inches from the eyes.
	Technique of creating vision	He tries to see actual surroundings without opening their eyes.
Based on vestibular sense	Technique of imagined rotation*	A person tries to imagine that their body is rotating along the head-to-toe axis. The goal is to replace imagined sensations with real ones. Rotation may generally take place on any plane, but one should not try to visualize it or try to see oneself from the side, as the main emphasis is on one's own vestibular sensations. Turning the eyes to the side of the rotation will significantly increase the effectiveness of the technique.
	Swing-set technique	A person tries to feel that they are riding on a swing-set or that their body itself is rocking with the same range of motion. The primary goal is to achieve the realistic sensation of swinging and make 360-degree revolutions.
Involving hearing	Technique of listening-in	A person listens inside their head, trying to hear if there is any noise or background static. If a sound is heard, one must try to amplify it as much as possible through the same kind of passive listening.
	Technique of forced listening-in	A person actively tries to hear sounds or background static inside their head with all their might. If this works, the person tries to amplify the sounds as much as possible using the same kind of active listening.
	Technique of imagining sounds	A person tries to hear some specific sound inside their head. Someone's voice, familiar music, and the sound of one's own name being called work best of all. If a sound arises, then the practitioner tries to make it as loud as possible.
Based on tactile sensations	Smartphone technique	A person tries to feel some object in their hand (e.g., a smartphone, an apple, a TV remote control) while trying to achieve realistic sensations in full detail.
	Technique of imagined sensation	A person tries to feel tactile sensations on the body, starting with the sensation that someone or something is lying on the body and ending with the feeling of touching someone or something.
	Straining the brain technique	A person tries to strain their brain, either spasmodically or continually as if it were a muscle. This brings a feeling of real strain inside the cranium, in addition to pressure, noise, and vibrations.
	Technique of straining the body but not the muscles	A person tries to strain the body, but not the physical muscles. This causes internal tension, noise, and vibrations.
	Technique of bodily perception	A person tries to authentically feel that the body is being stretched apart, compressed, inflated, deflated, twisted, or otherwise distorted.
	Wind technique	A person imagines that the body is in a stream of strong wind and tries to feel how the air flows around either the entire body or just part of it.
Based on real movements and sensations of the physical body	Technique of eye movement	A person makes abrupt left-to-right or up-and-down eye movements. The eyes are kept closed the whole time. When the technique is performed properly, vibrations will occur.
	Forehead dot technique	Without opening the eyes, a person directs their gaze towards a dot on the center of their forehead. This is not to be a forced or excessively aggressive movement.
	Technique of breathing	A person focuses on the process of breathing and all of its aspects: the expansion and contraction of the chest cavity, the lungs filling with air, and the passage of air through the mouth and throat.
	Raised hand technique	A person raises a forearm from the elbow while lying down and simply falls asleep. Once the practitioner fades out of consciousness, the forearm will drop, indicating that disassociation techniques or other hypnopompic techniques can be performed.

(continued)

Table 1. Types and Description of ... (continued).

Type	Name	Description
Based on real movements and sensations of the physical body	Technique of forced falling asleep*	A person mimics falling asleep naturally while maintaining consciousness and then either employs other hypnopompic techniques or immediately tries disassociation techniques at the last second before fading out of consciousness. This technique can be used either on its own or in combination with other techniques.
	Technique of intention	A person enters LD solely through an intense and focused intention of immediately experiencing LD. Alternatively, this experience can be a calm, but desire must be felt constantly throughout the day.
Based on intention and feelings	Technique of recalling the state	When attempting LD entrance with or without techniques, a person tries to recall – and thus induce – the sensations of a previous LD experience.
	Technique of recalling vibrations	In order to induce vibrations, a person tries to simply recall the sensation of them in as much detail as possible. Intensely desiring vibrations can also induce them.
	Technique of translocation	A person immediately tries to employ the translocation technique in a stubborn and self-assured manner without using disassociation techniques.
	Technique of motivation	In order to have an LD entrance occur spontaneously or get techniques to work better, a person creates a very interesting and important plan of action to achieve an LD no matter what.
	Technique of fear	A person tries to recall something as scary or awful as possible and imagines it right next to the body – this is meant to evoke pure terror and horror, which will elevate to LD at the right moment.
	Technique of flight	A person tries to conjure the sensation of flying right from the bed.
	Technique of counting	In order to enter LD, a person counts down from 100. Depending on the hypnopompic techniques followed, the person should either try to keep attention focused on counting or try to achieve lapses in consciousness.
	Technique of dotting	A person moves their attention either to points on the skin atop of the largest joints of the body or to inside the joints themselves. The person should pause at each point for several seconds or breaths, trying to feel them as distinctly as possible.
	Swimmer technique*	A person tries to imagine the process of swimming in as much detail as possible, trying to feel all of the physical sensations of the process and even feel the water surrounding the body. Any swimming style may be used.
	Sensory-motor visualization technique*	A person should try to imagine as actively as possible that has already dissociated and is employing a technique for deepening LD, including the intensification of every sensation possible. The person should imagine that they are walking inside a room, scrutinizing everything from a close distance, touching something, and so on. That is, the person should immediately deepen the LD without obviously entering the LD.
Other and mixed	Rope technique	A person imagines that a rope is dangling above the body and that they are climbing it. Meanwhile, one should try to feel one's own arm movements, the touch of the rope, and the sensation of height. Visualization of the process may occasionally be added.
	Technique of visualizing the hands*	A person tries to feel their hands rubbing together as if trying to warm them. Meanwhile, it is important to try to feel the movement of the hands, the feeling of them coming into contact, and the sound of them rubbing together and to then try to see the whole process. The imagined hands should be rubbed at a distance of no more than six inches from the eyes.
	Alien abduction technique	A person imagines that aliens have invaded the bedroom and are grabbing their ankles, pulling them out of the physical body. Alternatively, the person imagines being pulled out of bed by a beam emanating from a spaceship.
	Sex technique	A person tries to feel the intimate sensations of the copulative act in as much detail as possible.
	Toothbrush technique	A person tries to feel brushing the teeth. The person tries to feel the movement of the hand, the sensation of the brush in the mouth, and the taste of toothpaste. The person can also try to add to the sensation by imagining himself standing in front of a mirror in a bathroom.
	Whispering pillow technique	Lying with an ear to the pillow, the person tries to hear sounds, melodies, and voices coming from it. The person can try to hear specific sounds or simply passively listen in to what's there.
	Hyperventilation technique	During an attempt upon awakening, a person takes several dozen quick and deep breaths, upon which disassociation techniques may work or the practitioner may be thrown into LD.

Note. * = techniques mostly used during analyzed seminars..

- If a practitioner is too sleepy during an attempt or has often fallen asleep during previous attempts, DCIM should be performed very actively; also, disassociation techniques with hypnopompic techniques should be shortened to three seconds.
- The whole DCIM algorithm can be separately rehearsed for 10 to 20 minutes during the day over a few days or weeks.
- No analysis should be performed during DCIM, as the practitioner should be fully concentrated on the actions themselves.
- If a practitioner cannot remember DCIM upon awakening or if awakenings are too rare, interval alarm clocks or apps can be used to gently wake up the practitioner every 20 to 60 minutes (an audio instruction to start an attempt could be used instead of melodies).
- New practitioners should perform attempts no more than two to three days per week, and they should stick to weekends if possible. For practitioners with a high percentage of effective attempts (apx. >50%), this point can be ignored.

3. Results

Twelve charts met all the requirements, and their outcomes were digitalized for analysis. The data show that 449 seminar participants intended to make attempts throughout the course of two nights and achieved 484 LDs (262 during the first night and 222 during the second night). For an average seminar with 37 participants, 40 LDs were achieved over two nights (22 during the first night and 19 during the second night) (Table 2).

The data reveal that 116 (24%) LDs were achieved through LDM, with an average of 10 LDMs every two nights for 37 participants. Also, 226 (47%) LDs were achieved only through disassociation techniques upon awakening (before applying hypnopompic techniques), with an average of 18 successful disassociation techniques every two nights for 37 participants. Furthermore, 142 (29%) LDs were achieved

through hypnopompic techniques, with an average of 12 successful cases of hypnopompic techniques usage every two nights for 37 participants.

A total of 98 participants were able to accomplish their predetermined plan of action in LD after the first night, and 64 were able to accomplish their predetermined plan after the second night (on average, seven of 37 participants per night (19%)). The average ratio of LDs per participant per two nights was 1.1, with a minimum of 0.5 and a maximum of 2.1 (Table 3).

4. Discussion

The main steps used in this study to investigate the effectiveness of achieving LD upon awakening were based on the DCIM algorithm. Specifically, these were disassociation attempts and cycling hypnopompic techniques for one minute right after waking up. An analysis was carried out on the results of 12 seminars that met the inclusion criteria.

Research goals

Although the analyzed results cannot be compared with those related to other LD methods and there was no control group, the main idea of IM efficiency has been confirmed as it pertains to at least one algorithm. DCIM can yield substantial results after just one or two nights of attempts. The secondary goal has also been achieved: the results show that IM attempts lead to unintentional LDM. This might work as a strong side effect of IM.

4.1. Reasons for IM efficiency

A theoretical basis for IM efficiency is REM sleep closeness or its remnants upon awakening (Waters et al., 2016), which, when paired with mental actions, can lead to immediate results. With most other methods, the primary goal is to activate consciousness during REM sleep when IM practitioners had already achieved consciousness in REM sleep or very close to it. All that is left to do, then, is to use this opportunity, which often presents itself automatically upon

Table 2. Results of 12 Seminars by DCIM Parts and Total LD.

Event	Students (N = 449, \bar{x} = 37)	LDM (N = 116, \bar{x} = 9 (24%))	DT (N = 226, \bar{x} = 19 (47%))	HPHT (N = 142, \bar{x} = 12 (29%))	Total LD (Day 1/2) (N = 484, \bar{x} = 40)
1	55	15 (33%)	12 (27%)	18 (40%)	45 (20/25)
2	34	9 (23%)	23 (59%)	7 (18%)	39 (22/17)
3	31	3 (9%)	22 (63%)	10 (29%)	35 (22/13)
4	29	5 (33%)	4 (27%)	6 (40%)	15 (7/8)
5	35	9 (20%)	19 (41%)	18 (39%)	46 (28/18)
6	39	11 (14%)	50 (63%)	19 (24%)	80 (41/39)
7	72	28 (35%)	22 (28%)	29 (37%)	79 (43/36)
8	32	8 (21%)	18 (46%)	13 (33%)	39 (23/16)
9	35	6 (19%)	14 (45%)	11 (35%)	31 (14/17)
10	38	12 (32%)	21 (57%)	4 (11%)	37 (22/15)
11	20	5 (26%)	10 (53%)	4 (21%)	19 (8/11)
12	29	5 (26%)	11 (58%)	3 (16%)	19 (12/7)

Note. Event = # of the seminars; Students = number of participants of the seminars; DT = disassociation techniques; HPHT = hypnopompic techniques.

Table 3. Results of 12 Seminars by Ratio and Accomplished Plan of Action for LD.

Event	Ratio ($\bar{x} = 1,1$)	Plan for LD	
		Day 1 (N = 98, $\bar{x} = 8$)	Day 2 (N = 64, $\bar{x} = 5$)
1	0,8	7	2
2	1,1	8	8
3	1,1	9	7
4	0,5	4	4
5	1,3	9	4
6	2,1	16	11
7	1,1	18	5
8	1,2	8	6
9	0,9	4	5
10	1,0	7	3
11	1,0	2	6
12	0,7	6	3

Note. Event = # of the seminars; Ratio = total amount of achieved LD divided by quantity of participants; Plan for LD = predetermined in wakefulness plan of action for LD.

awakening. In other words, humans naturally get very close to experiencing LD upon awakening, and LD practitioners can effectively use this fact to achieve LD.

4.2. Achieving predetermined goals in LD

This study shows that LD induced by DCIM could have been of sufficient quality and duration to accomplish a predetermined plan of action (e.g., find somebody, translocate, experience an event). All of the seminars' participants were instructed to create a personal plan of action and follow it once they found themselves in LD, and this action was always counted per person, but not by achieved goals. This means that DCIM could be effectively used for more in-depth LD research in which practitioners will need to accomplish specific actions.

4.3. Limitations

Because of the type of analyzed data, this study aimed to explore possible IM efficiency in general; the aim was not to determine exact efficiency ranks. Many uncontrolled factors could have influenced the outcomes either positively or negatively. The most notable of these factors are described in the following paragraphs.

The first major limitation of the study is that the results were reported only as narrative data. No apparatus (e.g., EEG) was used to verify the actual appearance of consciousness during REM sleep. This means that the actual result might differ from the reported ones. Also, due to physiological factors, some reports could be made up. Another noteworthy limitation is related to the differences in volunteers' motivation from laboratory studies. In this case, commercial events were taken as a basis, and this might have potentially influenced participants' motivation to perform tasks, as well as the quality and credibility of the reports.

Another issue is that a single participant could have experienced many LDs each night by using different DCIM steps and then counted them separately. This is why the data could not be analyzed in terms of the number of people who achieved LD; instead, only the total number of LDs could be counted.

When looking at the DCIM outcomes separately, it should be kept in mind that hypnopompic techniques might have manifested significantly more prominently if no disassociation techniques had been used at the beginning of the algorithm, which accounts for almost half of the efficiency due to its usage at the most proper moment (i.e., during the first few seconds after awakening). This means that hypnopompic techniques could lead to a much greater fraction of LD outcomes in other IM algorithms.

A small fraction of the results on seminars was achieved during DCIM practice directly during the lessons (without prior sleep) or before falling asleep at home. These results should have been counted as DMs, but they were mixed with all other outcomes in the charts. As there was no way to separate these DMs from the other outcomes, they were considered as IM in this study. From another point of view, these rare results could be counted as a side effect of DCIM because they can happen during its rehearsal.

Not all participants could be asked about their results. Therefore, people who weren't asked might have experienced LD but did not record it. There was not always enough time to ask everybody about their experiences, and some people were too shy to share their personal experiences publicly. Furthermore, people did not always understand exactly what had happened to them, and they could not share their experiences for this reason.

The total number of participants each day was lower than the number counted. Most participants were counted only on the first day, which is when DCIM instructions were presented. For almost all seminars, some people missed the second or third lesson, which is when the results were gathered. Experienced and new practitioners alike attended the seminars. In theory, more experienced people could have had more chances to successfully implement DCIM, but there is no data to confirm this. Although newcomers weren't counted in the data, they made up the majority of participants for all seminars. Due to the commercial nature of the seminars, it was possible to count only visible results that could satisfy participants' expectations. Technically, LD was achieved much more often in the forms of semi-dissociation or sleep paralysis, but the study did not consider these outcomes.

Although the DCIM algorithm doesn't look complicated at first glance, people very often don't follow it precisely because they misunderstand parts of it or they forget some steps upon awakening. As a result, they skip steps, perform steps at the wrong time, or spend too much or not enough time on some steps. For this reason, the outcomes of this study do not represent actual DCIM implementation but the overall intention to perform it.

The overall results from any particular seminar were strongly dependent on emotions and motivation, which the speaker could influence. There is no specific data on this matter, but from speakers' subjective points of view, there is always a direct correlation between the number of attempts and the achievement of positive outcomes. For this reason, the true effectiveness of DCIM is hard to calculate, as it could vary depending on participants' moods.

When considering the results of the study, it must be noted that seminar participants made attempts for only two consecutive nights. Surely, the results could be more dramatic if people tried DCIM for a week or for a month.

Some LDs achieved during the seminars were very short or blurry, but they were still counted as positive results. Although full dissociation while maintaining consciousness was achieved, those experiences could not be used for implementing the predetermined plan of action, which should be considered as a benchmark for a high-quality LD.

4.4. Conclusions and Directions for Future Research

The results show that DCIM and IM, in general, could be considered as perspective methods for achieving LD. The results of the study cannot be compared with the efficiency of other methods, and there was no control group. Nevertheless, the results describe the potential of IM to induce LD even during the first night of attempts.

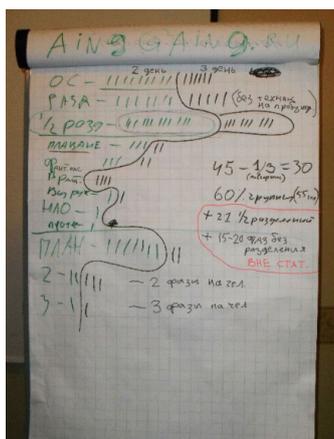
It appears that the Tibetan dream yoga tradition has a practical basis of regularly inducing LD with a high level of control. It is quite interesting to see that ancient spiritual practices could be so relevant in the modern world and in science. This conclusion should open our minds to other spiritual or ancient practices, as some of them could contain relevant yet unknown ideas that can make life better.

Although the results of the present study help us to better understand the brain, consciousness, dreaming, and sleeping processes, we still need to research IM more. To this end, we need to fix all the problems apparent in this study (e.g., insufficient data for individual participants, unclear descriptions of the quality of achieved LD, absence of a control group, no comparison with other methods). Most importantly, further studies should compare IM or DCIM with other methods. We also need more research to improve IM algorithms. Eventually, IM could become not only a useful tool for LD enthusiasts, but it could also make LD more achievable and controllable when studying the phenomenon, its nature, and its application. DCIM looks like a potential tool for LD and brain research.

References

- Barrett, D. (1991). Flying dreams and lucidity: An empirical study of their relationship. *Dreaming*, 1, 129-134.
- Cheyne, J. & Rueffer, S. & Newby-Clark, I. (1999). Hypnagogic and Hypnopompic Hallucinations during Sleep Paralysis: Neurological and Cultural Construction of the Nightmare. *Consciousness and cognition*, 8, 319-37.
- Dane, J., Van de Caslte, R. (1984). A comparison of waking instruction and posthypnotic suggestion for lucid dream induction. *Lucidity Letter* 3.
- Dream Exit Induced Lucid Dream. (2007, February 20). Retrieved from <https://www.dreamviews.com/induction-techniques/32682>
- Dresler, M., Wehrle, R., Spoormaker, V. I. et al. (2012). Neural correlates of dream lucidity obtained from contrasting lucid versus non-lucid REM sleep: a combined EEG/fMRI case study. *Sleep*, 35:1017-1020.
- Dresler, M., Koch, S., Wehrle, R., Spoormaker, V., Holsboer, F., Steiger, A., Sämann, P., Obrig, H., & Czisch, M. (2011). Dreamed Movement Elicits Activation in the Sensorimotor Cortex. *Current biology : CB*, 21, 1833-7.
- LaBerge, S. (1985). *Lucid dreaming. The power of being awake and aware in your dreams*. Los Angeles, CA: Tarcher.
- LaBerge S., Levitan L., Brylowski A., Dement W. (1988). "Out-of-body" experiences occurring during REM sleep. *Sleep Research*, 17,115.
- LaBerge, S., Levitan, L., Dement, W.C., 1986. Lucid dreaming: Physiological correlates of consciousness during REM sleep. *J. Mind Behav.* 7, 251-258.
- LaBerge, S., Phillips, L., & Levitan, L. (1994). An Hour of Wakefulness Before Morning Naps Makes Lucidity More Likely. *NightLight: Lucidity Institute Newsletter*, 6.
- Levitan, L. (1991). Between wakefulness and sleep. *NightLight*, 3(4), 4, 9-11.
- Levitan, L., LaBerge, S., DeGracia, D.J. & Zimbardo, P. (1999). Out-of-body experiences, dreams, and REM sleep. *Sleep and Hypnosis*, 1, 186-196.
- Mahowald, M. W. & Schenck, C. H. (2005). Insights from studying human sleep disorders. *Nature*, 437: 1279-1285.
- Monroe, R. (1985). *Far Journeys*. Garden City, New York: Doubleday.
- Mota-Rolim, S.A., Brandão, D.S., Andrade, K.C., de Queiroz, C.M.T., Araujo, J.F., de Araujo, D.B., Ribeiro, S. (2015). Neurophysiological features of lucid dreaming during N1 and N2 sleep stages: Two case reports. *Sleep Science*, 4, 215.
- Nelson, K., Mattingly, M., & Schmitt, F. (2007). Out-of-body experience and arousal. *Neurology*, 68, 794-5.
- Raduga, M., Kuyava, O., & Sevchenko, N. (2020). Is there a relation among REM sleep dissociated phenomena, like lucid dreaming, sleep paralysis, out-of-body experiences, and false awakening?, *Medical Hypotheses*, 144(3).
- Raduga, M., Zhunusova, Z., Shashkov, A., & Sevchenko, N. (2020). Achieving pain during lucid dreaming and transferring it into wakefulness. *Dreaming*, 30(3), 246-256.
- Raduga, M. (2004). Вне тела [Out-of-Body]. Moscow: Sputnik +. < <http://www.ozon.ru/context/detail/id/20300586> >
- Raduga, M. (2009). Школа внетелесных путешествий [School of Out-of-Body Travel]. St. Petersburg: Ves'.
- Raduga, M. (2014). The Phase: Shattering the Illusion of Reality. CreateSpace Independent Publishing Platform. Part III.
- Stumbrys, T. & Erlacher, D. (2012). Lucid dreaming during NREM sleep: Two case reports. *International Journal of Dream Research*, 5, 151-155.
- Stumbrys, T., Erlacher, D., Schädlich, M. & Schredl, M. (2012). Induction of lucid dreams: A systematic review of evidence. *Consciousness and cognition*, 21, 1456-75.
- Stumbrys, T., Erlacher, D., & Schredl, M. (2016). Effectiveness of motor practice in lucid dreams: a comparison with physical and mental practice. *Journal of Sports Sciences*, 34, 27-34.
- Terzaghi, M., Ratti, P. L., Manni, F. and Manni, R. (2012) Sleep paralysis in narcolepsy: more than just a motor dissociative phenomenon? *Neurological Sciences*, 33: 169-172.
- Voss, U., Holzmann, R., Tuin, I., & Hobson, A. (2009). Lucid Dreaming: A State of Consciousness with Features of Both Waking and Non-Lucid Dreaming. *Sleep*, 32, 1191-200.
- Wangyal, T. (1998). *The Tibetan yogas of dream and sleep*. New York: Snow Lion Publications
- Waters, F., Blom, J.D., Dang-Vu, T., Cheyne, J., Alderson-Day, B., Woodruff, P., & Collerton, D. (2016). What Is the Link Between Hallucinations, Dreams, and Hypnagogic-Hypnopompic Experiences? *Schizophrenia Bulletin*, 42, 10.1093.
- Zadra, A. & Pihl, R. (1997). Lucid Dreaming as a Treatment for Recurrent Nightmares. *Psychotherapy and Psychosomatics*, 66, 50-5.
- Zappaterra, Mauro & Jim, Lysander & Pangarkar, Sanjog. (2013). Chronic Pain Resolution After a Lucid Dream: A Case for Neural Plasticity?. *Medical Hypotheses*, 82, 10.1016.

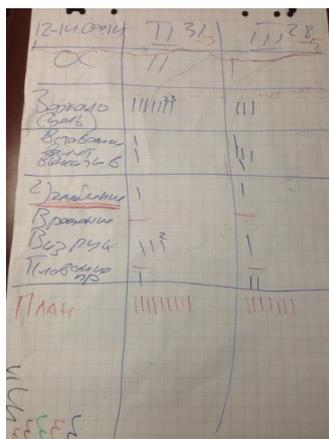
Appendix



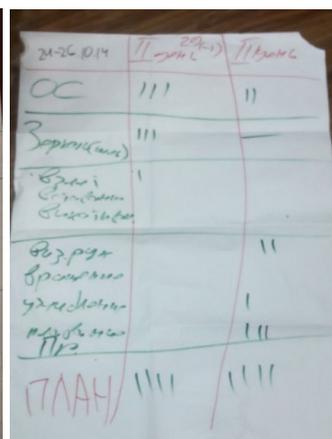
seminar #1
(Moscow, started on March 25, 2011)



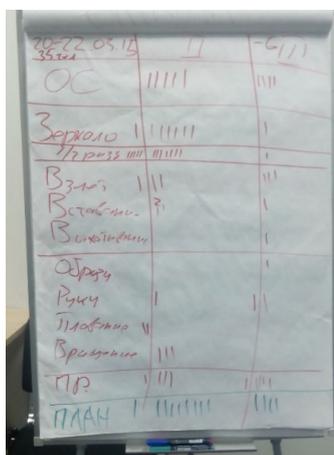
seminar #2
(Moscow, started on February 28, 2014)



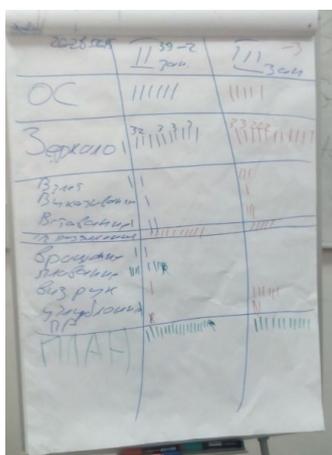
seminar #3
(Moscow, started on September 12, 2014)



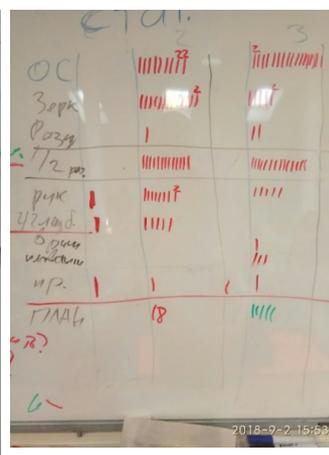
seminar #4
(Moscow, started on October 24, 2014)



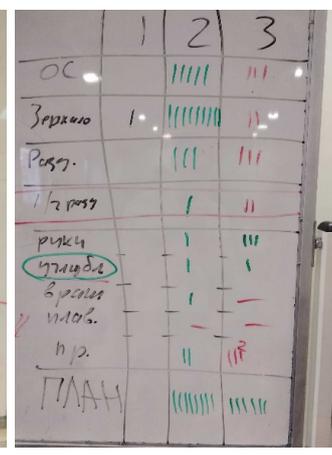
seminar #5
(Moscow, started on March 20, 2015)



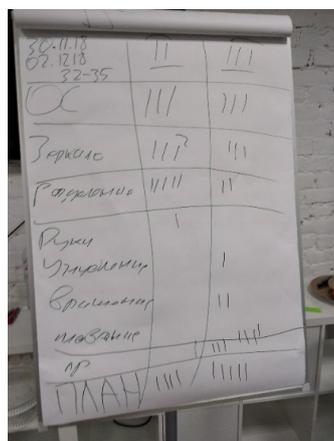
seminar #6
(Moscow, started on June 26, 2015)



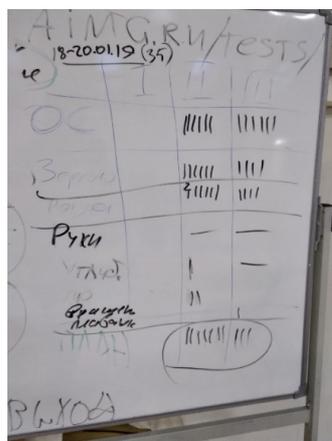
seminar #7
(Moscow, started on August 31, 2018).



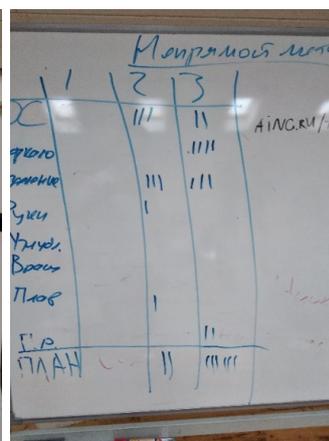
seminar #8
(Moscow, started on November 9, 2018).



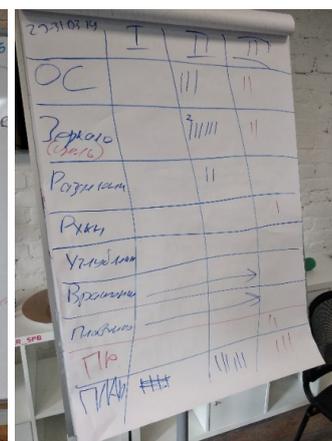
seminar #9
(St. Petersburg, started on November 30, 2018)



seminar #10
(Moscow, started on January 19, 2019)



seminar #11
(Moscow, started on March 15, 2019)



seminar #12
(St. Petersburg, started on March 28, 2019)