Dream-body transformation in lucid dreaming: Revealing the plasticity potential of the subconscious "self-image"

Elena Drøm, A. Nav Popenko, Michael Raduga, Zh. Zhunusuva, Andrey Shashkov

REMspace, Phase Research Center, Redwood City, CA, USA

Summary. **Objective**: Lucid dreams (LDs) have been gaining popularity throughout the world in recent decades. However, this phenomenon has been known to humanity since the appearance of polyphasic shamanic cultures in which dreams played an important role. An important part of such practices was a dream-body transformation into the animal spirit, which allowed us to obtain a deep connection with nature. In this study, we explored to which extent the practitioners can transform their dream bodies into animals. The other part of the experiment investigated whether people could transform their dream bodies into the opposite sex. The results will contribute to the current understanding of the nature of LDs and the plasticity potential of self-identity in the dreaming subconscious mind. **Method**: We instructed 98 volunteers to transform their dream bodies into the body of a wolf. Upon achieving dream lucidity, the task was to transform into an animal completely (using the body and senses). During the second part of the experiment, participants were asked to transform their dream bodies into the opposite sex and try to feel all the corresponding sexual characteristics. **Results**: During the current experiment, 32 participants were able to succeed in "wolf transformation." In 85% of cases, at least partial success of body transformation was reported. The most interesting outcome was the reported changes in the emotional state, motivation, and behavior. Meanwhile, the gender transformation experiment caused much psychological resistance, presumably due to the influence of social conditioning. However, 79 participants reported success in the experiment, either in terms of physiology or changes in their emotional state (psychology). **Discussion**: The results suggest that LDs have great potential in terms of both therapeutic use (since they help people gain access to the deeper layers of the subconscious mind and transform their "self-image") and as a tool for the theoretical exploration of the nature of consciousness and self-identity.

Keywords: Lucid dreams, phase state, REM sleep, lucid dreaming practice, unconscious mind, shamanism, polyphasic cultures, subconscious self-image

1. Introduction

Lucid dreams (LDs) are dreams in which a person realizes that they are dreaming (LaBerge, 1985). It was scientifically confirmed that LDs primarily occur during the rapid eye movement (REM) sleep phase (Barrett, 1991; Dresler et al., 2012; LaBerge et al., 1988) However, some studies have demonstrated that LDs may occasionally happen during non-REM sleep (Dane & Castle, 1984; Stumbrys & Erlacher, 2012).

LDs, sleep paralysis, and false awakenings (i.e., "awakenings" while dreaming), which include both physiological dreaming during REM sleep and the presence of awareness, are often referred to using the umbrella term "phase state" (Raduga, 2004). Recent research has demonstrated that 88% of people have had at least one LD (Raduga et al., 2020), which indicates that this physiological phenomenon is rather common.

Corresponding address:
Elena Drøm, REMspace Inc, 600 CASTLE HILL RD REDWOOD CITY CA 94061-1102, USA
Email: elenaart05@gmail.com

Submitted for publication: April 2025
Accepted for publication: November 2025
Published online first: January 12, 2026

Though lucid dreaming practice gained popularity among the masses only a few decades ago, it has its roots in ancient cultures and spiritual traditions (e.g., Tibetan dream yoga, Toltec LD shamanic practice of nahualism). Thus, in contrast to the arrogant Westen attitude that dreaming is "unworthy" and "insignificant," the ancient Toltecs believed that our future reality is created in our dreams. That is why they took the messages they received in dreaming seriously and every governor and warrior was expected to be a "master of dreams and prophecies" (Magana, 2014). According to the oral tradition, Mohtecutzoma, the last Aztec *tlatoani* (i.e., spokesman), saw in a lucid dream the future of Mexico, namely the Spanish Conquista and the great migration of nations. He clearly realized that the upcoming global events were far beyond his control, which is why he decided to surrender to the invaders, which saved many of his compatriots' lives. However, this important fact of his biography was not considered by Western anthropologists, which is why his actions were misinterpreted, and he was labeled a traitor to his nation. (Magana, 2020).

The Mesoamerican shamanic lucid dreaming practice was introduced to the mainstream by the books of Carlos Castaneda, an American anthropologist and writer, in the late 20th century. Castaneda wrote a series of books based on his dialogues with Don Juan, the representative of Yaqui Indians and the so-called ''nahual" (sorcerer/shaman). The popularity of Castaneda's books was enormous, and they have been widely cited and translated into many lan-

guages. Don Juan challenged Castaneda's interpretations of Mesoamerican (Toltec) culture, which was based on academic knowledge and introduced him to the concepts kept for centuries in the oral tradition (Costizova, 2019) Though there have been many discussions and speculations on whether Don Juan (or his prototype) really existed, one thing is for certain – Castaneda's books played an important role in the contemporary alternative spirituality and introduced the Western reader into the ancient Mesoamerican (Toltek) lucid dreaming tradition, *nahualism* (Costizova, 2019).

According to the classic anthropological interpretation, ancient Nahuatl-speaking Indians believed that every human being has their own *nahual* (*nahualli* – pl.) animal "double" or "alter ego" (Kaplan, 1956). This animal double determines a person's nature and their spiritual and physical traits. Thus, a person who has the Jaguar as their animal "alter ego" will demonstrate aggression and strength, a person with the Deer as their nahual will be shy, and so on (Signorini & Lupo, 1992). Aztec military clans, so-called jaguar and eagle "knights," are clear examples of nahualism's popularity among locals (Costizova, 2019).

The term *ecahuil* in Nahuatl denotes a spiritual link connecting a person with their *tonal*. According to ancient beliefs, *ecahuil* supplies a person with the living energy that is coming from their *tonal* (which, in many cases, may be considered synonymous with *nahual*). At night, *ecahuil* naturally leaves the sleeping body, demonstrating the dreamer's wanderings of their animal double (i.e., *tonal*; Signorini & Lupo, 1992).

The term *nahual* in the anthropological literature also applies to a "ritual specialist" or "shaman," who could get the benefits from the animal world, heal or harm people, prognosticate, and even "shapeshift" from human to an animal and elemental forces such as wind, lighting, thunder, etc. (Hagler, 2021). When we talk about animalistic "shapeshifting," such "lycanthropic" perturbations were believed to be possible for shamans who possessed the knowledge of how to transform their *ecahuils* into their animal spirits (tonals) and use them for their purposes (Signorini & Lupo, 1992).

Sierra Otomi shamans believe that a person may have more than one tonal, which might periodically show up in their life in the form of usual animals but with "superhuman" powers. If such a tonal is killed or injured, the person weakens; if all tonals die, the person dies as well. Furthermore, shamans have a special bond with their tonals that are believed to be much more powerful than those of common people. According to ancient beliefs, no one can survive without their tonal since it protects them from attacks in "superhuman" realms (in Christianity, the tonal counterpart is represented by so-called "guiding angels"). This is because the native Americans considered all human illnesses and psychic malfunctions to be a result of "attacks" from the "outside forces" (Dow, 1986).

During the Conquista period, the local shamans who used non-orthodox rituals performed on mountains, in rivers, and in caves were condemned as "evil." The Catholic colonizers considered such "ritualists" as the worshipers of the infernal, who had made "the pact with the Devil," either explicitly or implicitly. Thus, everything associated with the local shamanic practice was either banned or punished, forcing nahualism practitioners to go underground for many centuries. (Hagler, 2021). According to the definition of anthropologist Charles Laughlin (2013), the Mesoamerican culture can be referred to as *polyphasic*, in contrast to *monophasic* contemporary cultures in which dreaming and alternative states of consciousness (ASC) were believed to be as legitimate and "real" as the "reality" of the waken state (Stumbrys, 2018).

In the first part of this study, we explored whether LD practitioners can transform into an animal while dreaming and the extent to which this transformation is possible (considering both the dream-body form and sensations). The second part of the experiment involved transforming the dream body into the body of the opposite sex. This was done to shed some light on the gender-related identity and the extent to which the corresponding innate contrasexual aspect is present in the subconscious mind (using the terminology of the Jungian analysis – *anima* for male participants and *animus* for females). The experiment aimed to observe not only the "physiological" transformation but also the "psychological" shift (i.e., emotional state). The results of the current study will contribute to the current understanding of the nature of LDs and the potential of the subconscious mind in terms of the plasticity of one's self-identity.

2. Methods

2.1. Resources and participants

A total of 98 volunteers (48 males and 50 females) completed the experimental "wolf transformation" task and provided reports (one report per person was considered). Meanwhile, 99 volunteers (47 males and 52 females) took part in the gender shift experiment. The experimental group included both novices and experienced volunteers. Based on the number of LDs experienced prior to the experiment, volunteers were divided into the following groups: <4, 4–10, 11–30, 31–100, 101–500, >500 (see Tables 1 and 2 in the appendix).

2.2. Experimental task

In line with ethical and legal regulations, participants gave informed consent before taking part in the experiment and confirmed the absence of any psychological or physiological ailments. Volunteers under the age of 18 were not included in the experiment. Since this experiment was conducted by an independent research company with no institutional review board, it did not receive any ethical compliance.

2.3. Materials

The volunteers acquired their assignments on a research website for Project Elijah, where they could sign up and get detailed instructions about the experimental task via email.

2.4. Procedure

Participants received the following assignment instructions on the "wolf transformation" task:

> "You need to enter the LD using any method as described elsewhere (Raduga, 2014). Upon achieving lucidity, you must start running on all fours, trying to turn into a wolf. To do this, you need to imagine how your body is being covered with fur, and the movement of all four limbs becomes more convenient and wolf-like. You should also remember your body, paws, head, ears, mouth, tongue, sense of smell, and sight. The task is to try to transform into the animal completely. If you succeed in the wolf

transformation, stay in this state as long as possible and memorize all the details. If not, spend the entire LD trying to turn into a wolf. There is no need to repeat the experiment until achieving the maximum result! You must try it at least once and see what happens."

For the second part of the experiment, the following instructions were given:

"You need to enter the phase using any method as mentioned above. Upon achieving lucidity, you should try to feel yourself in the body of the opposite sex. To do this, you should try to feel male body characteristics while walking or running if you are a woman, and vice versa. You should try to completely transform into the opposite sex, acquiring the appropriate sexual characteristics (physiological and psychological). If the transformation succeeds, you need to stay in it for as long as possible, paying attention to internal sensations, thoughts, and desires. If the transformation does not work out easily, you need to spend the entire phase trying to achieve it at least partially.

There is no need to repeat the experiment until you achieve the maximum result! You need to try it at least once and let us know what happens."

Definition of Failure Conditions (Retrospective Baseline)

Although explicit success criteria were not formulated prior to conducting the experiments, it is methodologically important to retrospectively define the conditions under which each of them would have been considered unsuccessful. Without these clarifications, even a single subjective report of transformation could be misinterpreted as a definitive success.

General Considerations

In both experiments—the animal transformation (wolf) and the gender transformation (opposite-sex embodiment)—the main operational definition of success implied a complete experiential and sensory identification with the new body form. Accordingly, any condition where this was not achieved should be interpreted as experimental failure or, at best, a partial result. The following general criteria apply to both tasks:

1. Absence of perceptual or bodily transformation:

No meaningful alteration in bodily perception, movement pattern, or sensory modality occurred, despite deliberate effort to induce transformation. Purely visual imagination or conceptual identification, without kinesthetic or proprioceptive involvement, would not qualify as success.

2. Loss of lucidity prior to transformation:

The lucid state or phase experience collapsed before a stable transformation could occur.

3. Insufficient recall:

The participant could not later provide a coherent description of the experience, particularly regarding bodily sensations, motor patterns, or subjective self-identification.

4. Irrelevant or non-specific transformations:

Transformation into a form other than the target (e.g., an unspecified animal, abstract entity, or other non-human/non-gendered figure) would not be considered a valid outcome.

3. Results

3.1. Wolf-transformation experiment

Many of the experiment participants (43/98) used an LD method to achieve a lucid dream. The direct method was applied by 23 of the volunteers, and the indirect method was used by 31 participants. Regarding the task itself ("wolf-transformation" of the dream "body"), 32/98 volunteers reported success.

3.1.1 Anatomy transformation

In most cases (85%) at least partial success in anatomy transformation was achieved. One person reported full transformation regarding all the tested features – anatomy, fur, tail, and behavior. Of note, this was the first time these volunteers had tried this type of transformation task. Most likely, with practice, more participants would have been successful in the task.

Some participants described their wolf transformation in detail, like in the case below:

"Having achieved the phase, I decided to start the task immediately. I formulated my intention of 'turning into a wolf' and tried to recall a wolf image. The transformation started immediately – my spine bent slightly in an arc. The muscles felt very mobile, as if capable of unusually fast reactive movements. The cranial part of the body, together with the front legs, felt unusually strong. I started running quickly straight ahead. I felt the forward unidirectional movement from my spine to the head. The head was positioned ahead of the movement, but not like that of a human standing on all fours. It felt like an animal's natural way of positioning its body in motion."

Increased physical strength and mobility upon transformed body anatomy were reported in several cases:

#1: "I recall how I felt huge, massive muscles that allowed me to push powerfully off the ground. I remember that the muscles felt so strong that running 40–60 km/h was not a problem at all. Furthermore, I felt that the resources of the muscles would be enough for another couple hundred meters. I remember that I did not experience any breath shortness when I was running, I felt that I had enough oxygen for breathing, though it was being quickly consumed."

#2: "I felt physical power (or some other type of power) in my body. I was much stronger and more agile than I used to be."

#3: "I managed to turn into a wolf, and the sensations were quite vivid. I ran on all fours, instilling the idea that I was not a man but a wolf.… I felt unreal power and aggression in my body. While I was running and growling at the other characters, I simultaneously noted the presence of a tail, ears on top of my head, and sharp fangs… I don't know how wolves feel in real life, but according to my feelings, it's power and aggression and a complete absence of fear."

3.1.2 Transformation of sensual perception

Several participants not only transformed their anatomy but also achieved "wolf perception." That is, they considerably sharpened their dream sensations to the level of those of an animal:

#1: "I managed to sharpen my hearing strongly. Walking through the forest, I heard the whole range of sounds, including all the tiny movements of insects (which are usually inaudible to the human ear). I scattered leaves with my nose and tried to sniff roots but was not able to turn on my sense of smell. The third time I tried the wolf transformation after a flight. I sank into the forest ground and began to transform into a wolf. I also tried to turn on my sense of smell but didn't succeed."

This volunteer was not able to "turn on" the olfactory sensation while dreaming. However, in some other cases, volunteers reported that this sensory modality became unusually intense upon the transformation:

#2: "When she [a dream character – auth. remark] bent over, for greater persuasiveness, I began to lick her face and even saw my tongue flashing. The taste was sharp and rich. All of a sudden, I sensed her smell. I was stunned by the fact that I picked up the smell because I had never even paid attention to the presence of [smells] in dreams before. But now it was hitting my nose, leaving interesting sensations in my body, as if some information was loaded in it."

#3: "In general, information was perceived mainly through the nose. Even to untangle the trap, it was necessary to sniff it. "

#4: "There was an elongated gray spot in front of my eyes that resembled a dog's nose. I felt my tongue hanging lower than that of a human, and for the first time, my sense of smell emerged in a dream."

Some participants reported changes in their visual perception upon transformation, as described in the following cases:

#5: "I felt my running, heard my heavy breathing, and the amount of saliva in my mouth seemed to increase. My vision was not bad but tunnel-like (i.e., I saw only the things in front of me)."

#6: "There are a lot of smells and rustles around me. I hear my fast breathing, and I walk sniffing around.... My vision is tunnel vision and somewhat unusual."

#7: "Something interesting was happening with my feelings. I felt strange strength in myself and a kind of wildness (if I can put it so). I wanted to run, and a short loss of consciousness occurred. Then I saw dry bushes in front of me. My vision was at the ground level [and] very strange, as if narrowed. Everything around was a yellow color, so I understood that it was night. I was running, feeling an unusual muscular frame, and I also remember the smell, that is the smell of the ground and the dampness."

3.1.3 Behavioral and emotional transformation

The most interesting outcome of the experiment is that participants reported changes in their emotional status, motivation, and behavioral patterns, like in the following cases:

#1: "I ran on all fours and felt the mood – wild, animalistic, aggressive."

#2: "I felt aggression. I felt an 'animal' mood for a while; that was something wild and unpleasant. My mouth and nose began to stretch into a tube and became numb in the mouth area."

#3: "Having turned around the corner, I felt some kind of obsession and madness. There was an internal uncontrollable desire to rush at someone and tear him to pieces."

#4: "I wanted to bite something. I decided to start a small fight [with a dog – auth. remark] and here the sensations were as realistic as possible: the growl, the feeling of the jaws, teeth, paws. The dog actively snapped back, and there was a feeling of adrenaline, excitement."

#5: "Then I suddenly wanted to go back to the table and... eat something. A strange, animalistic desire arose."

As can be seen from the examples, the participants were able to "adopt" (a term used by Sergio Magana) the animal "consciousness" to different extents, and different sensational modalities were activated in the dream. Furthermore, some modalities (e.g., olfactory sensation) emerged for the first time in dreaming at such an intensity. It remains unclear what factors play the largest roles in the activation of one type of dream sensation or another. Some participants were not only able to activate the changes in their sensual perception but also experienced emotional and behavioral changes (i.e., the "animalistic" mood), an increase in aggressiveness, wildness, and animal instinct. In general, the participants reported the "unusualness" and "realism" of the experienced sensations.

3.2. Gender shift experiment

The majority of the participants (52/99) used the method of becoming conscious inside a dream to enter a LD. A total of 99 reports were included in the analysis, 79 participants (35 males and 44 females) reported successful task fulfillment, though to a different extent. Two participants (females) reported that they were able to reproduce the emotional state of the opposite sex without changing their anatomy. Males and females changed their genitals to those of the opposite sex with approximately equal success. In total, this change was attained in 37 cases.

Despite the high success rate of task fulfillment, the "sex shift" experiment has generated much more psychological resistance than the "wolf" experiment, presumably due to enhanced social "conditioning" and transgender prejudice, which are still present in modern society. Some participants reported that they had to "convince" themselves to do the task, and some evaluated it as "boring" or "foolish" (subconscious resistance). Furthermore, it was much more difficult to analyze the reports since the participants quite often used allegoric language and omitted detailed descriptions of their experiences in body transformation, examining their genitals or consequent sexual "affairs" due to the "delicacy" of the topic. On the other hand, some participants found the transformational experience "funny" or "bizarre" and

were removed from the LD quite soon due to strong emotional excitement upon the transformation.

The abovementioned psychological "resistance" might have influenced the outcome of the experiment. Thus, many male participants were able to transform the upper part of the body easily while reporting difficulty in the genital transformation, and female participants who tried to "grow" male genitals had the same issue. If the task was accomplished, the resulting "organs" were quite often rather "buttafour" and not "full-fledged." The majority of the "transformants" were "stuck" on the partial or "hermaphrodite" stage when they experienced gender characteristics of both sexes.

Nevertheless, there were reports of fully successful physiological or emotional (psychological) transformations:

#1 male: "I found myself near the mirror and twirled around. The transformation didn't work the first time, but on the second try, I saw in the mirror a very beautiful woman, somewhat like me, with long hair and a beautiful body. I touched my breasts (they were large) and felt a pleasant sensation, then I decided to touch my vagina, but I didn't experience any pleasant sensations. I just felt it."

#2 female: "I imagined big hands, muscles growing, and hairiness increasing.... I saw that my hands had become really masculine and very hairy (I went too far). The muscles were huge, and my legs were big. I wanted to become taller, but for some reason, it didn't work out. I touched my "manhood" .... Everything was great there as well!"

#3 female: "I walked down the street imagining myself being a male. At first, my gait had changed to that of a man. Then I put my hand on the groin area and imagined masculine characteristics which worked."

#4 female: "While walking around the apartment, I began to imagine myself as a man. Almost immediately, my back became wider, my gait became masculine, and I felt more confident inside, as if I was no longer afraid of anything."

#5 male: "I was trying to feel myself in a woman's body. Firstly, I felt a change in my gait (hips swaying), and I felt heels (however, I walked confidently). I felt the elasticity of my hips in a tight dress. But this was not enough. I focused on my chest and felt how the decollete area rested against the dress, and my hair lay on my shoulders."

3.3. Exploratory analysis

Since the results of the Shapiro-Wilk test demonstrated a nonnormal distribution of data, the nonparametric tests were applied for further analysis. Pearson's Chi-squared test was used to test the effect of gender, experience level and method of entering LD between successfull and unsuccsessfull test -groups (see Table 3 in Appendix).

4. Discussion

Earlier research on dream sensations has demonstrated the essential role of sensations for lucid dream duration and dream maintenance ability (E. Drøm et al., 2023). Furthermore, the frequency of a sensation experienced in an LD depends on its modality. Thus, visual and audial sensations are generally much more frequent than olfactory and gustatory sensations (Zadra & Phil 1997), though considerable individual differences should be taken into account (Okada et al. 2005). Studies on the dreams of blind people have demonstrated a close connection between perceived reality and dream perceptions, with visual sensations being significantly impaired, especially if sightlessness occurred at an early age (Craig, 1999; Kerr, 1993). Moreover, people with amputated limbs can still have "phantom limb" sensations while dreaming (which can be experienced both optically and kinesthetically). These unusual sensations are parts of the so-called "body schema" (i.e., unconscious imagery representation of the body; Frank & Lorenzoni, 1989).

The most interesting outcome of the present experiment is not solely the phantom sensation of the animal limbs and other body parts but also the reported alteration of the experienced dream sense modalities and the ability to experience dream sensations at an increased "animalistic" intensity. For some participants, this experiment represented the first time such sensations had been experienced in a dream.

Here, the ontogenesis of consciousness should be put into perspective. As known in biological science, the fetuses of living organisms reproduce phylogenetic stages during ontogenesis. However, whether similar processes apply to consciousness development remains unclear since its prenatal developmental stages are very poorly studied. The theory of consciousness ontogenesis in modern science is usually associated with Piaget's theory of the psychological "schemes," which are constructed and modified throughout the early developmental stages of a child (Piaget, 1952). However, the processes following the prenatal evolution of consciousness remain very poorly understood. It could be that the evolutionary qualia that we experience are somehow preserved by our subconsciousness and remain accessible during altered states of consciousness, such as the state experienced during an LD. This question needs extensive longitudinal research, but modern psychological science is reluctant to study consciousness ontogenesis due to the "subjectivity" of the consciousness phenomenon and the lack of the toolkit for such studies (Cle´Ment & Malerstein, 2003).

Though Piaget stated that an infant psyche is a *tabula rasa*, other scientists have demonstrated that infants have "innate knowledge" of how the objects of the physical world behave (Spelke, 1994) and are capable of early organized perceptions across modalities (Meltzoff and Borton 1979). Furthermore, some scientists suggest that the human mind is constructed of functional "modules" that are defined by their ability to solve problems connected to the evolutionary past of the species and that it would be evolutionary "unreasonable" to use the same timing for developing these capacities (Barkow et al. 1992).

According to Carl Jung's theory of collective unconsciousness, human unconsciousness consists of not only a personal part but also an impersonal or collective part, represented by inherited patterns or archetypes. Jung, in line with Freud, was a pioneer in exploring human unconsciousness, and his genius surpassed the scientific knowledge of his time. Modern psychological knowledge is still catching up with many of his intuitively developed concepts (Stein, 1998). Regarding the exploration of the conscious and unconscious mind, the scientific approach unavoidably hits the "metaphysical wall," thus crossing the borders of the research field of philosophy (Cle´Ment & Malerstein, 2003).

The way out of such an ontological "crisis" of Western civilization might be the Jungian *phenomenological* ap-

proach. Jung stepped aside from the notion of the "objective" psyche and "scientific" psychology and presented his object-relation concept. Thus, instead of using the "objective" frame of reference in psychological science, he suggested using the phenomenological one (i.e., that which lies outside the individual "ego-consciousness") and its assessments. This shift in the scientific paradigm may be considered significant, as described by Kuhn (1970). Thus, instead of the former practice of assessing others' experiences or behaviors "objectively," the focus shifted to the point of reference inside the person who is experiencing or behaving. Thus, the description of the psychological events coming from "inside" becomes preferent and more valuable than the description of events that occur "outside," from the observers' perspective. This was a new approach to psychological thinking that helped to overcome the rigid scientific barriers inherited from the physical sciences and the notorious "ontological split" between the *phenomenon* and the *observer* (Brookes, 1991).

One of the most known mystics and philosophers of the 20th century, Osho, wrote the following in considering the nature of unconsciousness:

> *"The unconscious mind is nine times bigger than the conscious; it has tremendous treasures, all the memories of your past. And below the unconscious, there is the collective unconscious. One can descend into the collective unconscious also – at first with somebody's help. That used to be the work of a mystery school: that the master would take you slowly towards the unconscious and the collective unconscious. In your collective unconscious, you have memories of your past lives as animals, as birds. Below the collective unconscious is the cosmic unconscious."*

These statements align with the ancient beliefs presented in the Mesoamerican shamanic tradition that use lucid dreaming as the gateway to unconsciousness and its "hidden treasures." Thus, by "adopting" the animal nahual consciousness, dreamers can also gain access to its qualia (i.e., experienced sense modalities). According to tradition, nahual gives a person its "archetypical" qualities as discussed above. In the present study, the participants reported an unusual "strength, aggression, wildness" (i.e., the qualities that are typical for the totem animal Wolf). However, the reason for this phenomenon urgently needs further investigation.

Lucid dreams were widely used as a gateway to spiritual and mystical experiences. Indigenous Peoples of Canada (Anishinabe), for instance, actively sought such experiences in their "vision questing" (Tedlock, 2004). Moreover, it was a part of their adolescence initiation, when boys and girls fasted and prayed to meet their ancestral spirits and animals in their dreams, which were believed to bring them many gifts such as a long life, knowledge of herbal medicine, and clairvoyance. Such dreams were also an important part of shamanic initiations, during which a shaman received his knowledge and extrasensory abilities by meeting ancestral and animal spirits, or manitos (Tedlock, 2004), which are analogous to nahuals in Mesoamerican culture.

An example of such initiation shamanic dreams was described by Tela Star Hawk Lake (cited in Tedlock, 2004), an Indigenous curandero (healer):

> *One night a strange thing occurred. I was singing and praying with my eyes closed and I heard the scream of my Hawk. Then I heard a ringing noise in my ears. As I looked up into* the sky searching for the Hawk, I found it and suddenly saw my favorite Star. I cried from the power and humility. The Hawk flew higher and higher out of sight, straight toward the Star as darkness began to take over the day. It was evening and I felt the Hawk was carrying my prayers with it, but a strange feeling came over me. I could feel it pulling my soul out of my body and my whole body began to tremble violently. My soul was now in the Hawk. It was merged with the spirit and power of Hawk. I was now a Hawk. It flew directly into the night sky, out of sight, as the stars became brighter. Then suddenly, as the ringing noise got louder in my ears, and my body continued to tremble with power surging through it, I could see the Star shoot straight out of the sky, directly into me, and a large flash of light surrounded my entire body. I was knocked unconscious by the experience and was in a coma for several days.

The important role of the animal archetypes in lucid dreams should be put into perspective here. According to Magana – perhaps the most popular follower of the ancient oral tradition of nahualism today ("the modern Castaneda") – each nahual or animal archetype can be used to achieve specific goals in the real "waking" life. Thus, according to tradition (Magana, 2014), Nahual Cipactli (the Crocodile) is believed to bring abundance since it is the representation of the spirit of Mother Earth in the "dream world." The Nahual Coatl (the Snake) can be used for physical healing. This archetype is also widely known and used in Western cultures (e.g., a symbol of medicine). The Nahual Cuauhtli (the Eagle) is the nahual for spiritual enlightenment and increasing self-confidence. This nahual is believed to be connected to the Sun and, thus, to light and an "eagle's vision." Nahual Tocatl (the Spider) is believed to make the "web of collective dreams" and receive whatever is wished in a person's life. Nahual Tzinacantli (the Bat) is used to find solutions to different challenges due to its ability to look at things differently (i.e., upside down).

The belief of the superhuman powers encompassed in animal nahuals (archetypes) is so deeply rooted in the collective subconsciousness that it has been reflected in popular culture – everyone knows Marvel's Spiderman or DC's Batman and Catwoman. Jung's work brilliantly conceptualizes the archetypes that include the feminine-masculine aspects of the collective subconsciousness. According to Jung, anima and animus (i.e., the feminine and masculine aspects of the human psyche, respectively) constitute polar opposites that complement and compensate for one another (Colegrave, 1979). Thus, men's anima (the feminine aspect) is inferior and suppressed, and vice versa (Jung, 1990). When two heterosexual people fall in love, the suppressed contrasexual aspect of the subconscious becomes dominant, and the person is obsessed with it. The manifested anima or animus has an enormous transformational effect on the ego, which dramatically misses its control.

The animus image is formed based on the woman's experience of her father and other men in her social circle. If her experience was positive and beneficial, she will project this favorable animus image onto the man she will fall in love with. The same rule applies to the anima projections of men (von Franz, 1999). Furthermore, both personal and collective unconscious play an important part in the formation of the animus and anima archetypes (von Franz, 1999). When this type of projection occurs, in a sense, it reflects being in love with the part of oneself and not the real person who

becomes the carrier of this projection (Sanford, 1980).

According to Jungian theory, the main purpose of every human is to become aware of these projections, take them back, and integrate them, which is also a prerequisite for personal development, and lucid dreaming might be beneficial in these terms. Thus, the difficulties experienced by the participants in the gender transformation task may be related to the subconscious image of the opposite sex (i.e., anima and animus) and its subconscious characteristics. Presumably, those who had a positive image of anima or animus had less difficulty in gender-related identity "transitions," but this speculation needs further research.

According to Magana, dream interpretation is purposeless since it only shows the unconscious programs from the "Underworlds" or "Caves" (i.e., a person's subconscious mind), and the task of the *mexihca* (the "Warrior of Dreams") actively transforms them while changing the unconscious dream *temictli* into lucid or "blossom" dream *temixoch*. According to oral tradition, by "adopting" the consciousness of the chosen animal nahual in a lucid dream, a person is believed to be able to solve the problems created by the patterns of the old ''human" consciousness. At more advanced levels, a practitioner of nahualism should be able to tap into the "consciousness" of the elements like water, fire, and air.

Magana (2014) describes the ultimate goal of the *mexihca* as follows:

> *"Long after we… become our own master, the master of our dreams, we will be able to take the next step: entering the collective dream and the dreams of others and influencing what we call reality. At this stage, we'll also be developing other skills: prophetic dreaming, repeating the same dream at will, sowing dreams that create our waking state, restoring the sleeping body, and achieving the greatest paradoxical accomplishment of the dreamer: sleeping without dreaming and so becoming a master of almost total power."*

The last accomplishment (sleeping without dreaming) is very similar to what is believed to be the superior merit in the Buddhist dream yoga tradition. Tibetan teacher Tendzin Wangyal wrote the following concerning the role of dreaming in Tibetian dream yoga (cited in Rosch, 2014):

> *"Dream practice is not just for personal growth or to generate interesting experiences. It is part of the spiritual path, and its results should affect all aspects of life by changing the practitioner's identity, and the relationship between the practitioner and the world."*

Recent research on the practical application of lucid dreaming has shown LDs' high efficacy in self-healing and psychological growth. Thus, LDs might be used as a tool for coping with phobias and fears (Zhunusova et al. 2022), nightmares (Zadra & Pihl, 1997), and, most surprisingly, for physical healing (Zappaterra et al. 2014), especially in the psychosomatic context (considering mind-body parallelism in dreaming). Furthermore, communication with a dream character (the so-called "transpersonal Self") is widely used in therapeutic terms by transpersonal psychologists (Rowan, 2009). This is reminiscent of shamanic initiations using the totem animal, as mentioned above in the case of Tela Star Hawk Lake. The totem animal in this case is presumably a version of the "transpersonal Self," which may have originated from the *cosmic levels of consciousness* as described by Alexander (1987). This facilitates important psychological and, possibly, energetic transformations of the initiate.

Shamans play important roles in polyphasic cultures as healers, visionaries, and spiritual guides. This is due to their ability to use different types of ASC for communication, shamanic traveling, healing, and obtaining useful information for the benefit of their fellow group members (Laughlin and Rock, 2014). The term shaman presumably has its etymology in the Tungusic languages of Siberia or the more ancient Paleosibirian language of the Chukchi people (Peters, 1989). The cosmology of the Chukchi is based on the experiences and the guidance obtained by their shamans in dreams and trance states (Rock & Krippner, 2011).

As noted earlier, people in polyphasic cultures do not distinguish "reality" experiences from "dream" experiences (or experiences associated with other types of ASC), considering the latter the same "real" and legitim. Furthermore, in some languages of this type of culture, the word "dream" in a general sense does not even exist, since a "dream" in such cultures is just another "domain of reality" (Merrill, 1992). Due to such essential principal differences between these societies and our ethnocentric, technocratic culture (which does not pay dreams much attention), Western anthropologists often omit important information obtained in dreams by locals in an attempt to "demythologize" it (as it was the case with Aztec spokesman Mohtecutzoma). This often leads to misunderstandings and misinterpretations of the information obtained in anthropological research.

The shamanic initiations received in the "dreams of power" through encounters with totem animals or/and ancestor spirits are rather common in polyphasic cultures throughout the world (e.g., the Tungus, the Chuckchi, the Paviotso, the Bororo, and the Sambia). Thus, such numinous encounters with dream characters that have an important influential power on the initiate's life were practiced for many centuries before they became the part of therapeutic toolkit in transpersonal psychology. Nevertheless, the physiological bases and ontology of this phenomenon are scarcely studied.

Magana mentioned in his book "2012–2021: The Dawn of the Sixth Sun" that the ancient Toltec prophecies state that with the coming of the Sixth Sun (i.e., the epoch that lasts for 6625 years according to the Mayan calendar), the knowledge of the ancient lucid dreaming tradition *nahualism* will again be topical for humanity. The transition period from the Fifth Sun to the Sixth Sun started in 2012 and ended in 2021, so the era of the Sixth Sun has already begun. Based on the beliefs of the ancient Toltecs, with the coming of the Sixth Sun, *mexihcas* (i.e., ''the people who are awakening to the power of dreams" and who are "disciplined in controlling them") will appear in every corner of the world (Magana, 2020). Considering the increased popularity of lucid dreaming, these prophecies may become the reality of modern life.

References

Alexander, C.N. (1987). Dream Lucidity and Dream Witnessing: A Developmental Model Based on the Practice of Transcendental Meditation. Lucidity Letter, 6.

Barkow, J. H. Cosmides ,L. & Tooby J.(1992). The adapted mind: evolutionary psychology and the generation of culture. Oxford: Oxford University Press.

Barrett, D. (1991). Flying dreams and lucidity: An empirical study of their relationship. Dreaming, 1(2), 129–134.

Brookes C. E. (1991) Jung's Concept of Individuation. Journal of the American Academy of Psychoanalysis, 92, 307-315.

Cle´Ment, F. & Malerstein, A. J. (2003). What is it like to be conscious? The ontogenesis of consciousness. Philosophical Psychology 16 (1):67 – 85.

Colegrave, S. (1979). Uniting heaven and earth: A Jungian and Taoist exploration of the masculine and feminine in human consciousness. Los Angeles: Jeremy P. Tarcher.

Craig, R. T. (1999). Communication Theory as a Field. Communication Theory, 9(2), 119–161.

Dane, J. H., & Castle, R. L. Van De. (1984). A Comparison of Waking Instruction and Posthypnotic Suggestion for Lucid Dream Induction. Lucidity Letter, 3(4), 1–7.

Dow, J. W. (1986) Tonal and Nagual in Otomí Thought: Totemic Symbols of Caring. Central Issues in Anthropology 6(2): 25–30.

Dresler, M., Wehrle, R., Spoormaker, V. I., Koch, S. P., Holsboer, F., Steiger, A., Obrig, H., Sämann, P. G., & Czisch, M. (2012). Neural correlates of dream lucidity obtained from contrasting lucid versus non-lucid REM sleep: A combined EEG/fMRI case study.

Drøm, E. & Raduga, M. & Popenko, A. & Shashkov, A. & Zhunusova, Zh. (2023). The Role of Dream Sensations in Lucid Dreams. Dreaming. 33.

Frank, B., & Lorenzoni, E. (1989). Experiences of phantom limb sensations in dreams. Psychopathology, 22(4), 182–187.

Hagler, A. Exhuming the Nahualli: Shapeshifting, Idolatry, and Orthodoxy in Colonial Mexico. The Americas. 2021;78(2):197-228

Hillman, D.J. & Giesler, P. (1986) Anthropological Perspectives on Lucid Dreaming. Lucidity Letter, 6

Jung, C.G. (1990). Archetypes of the collective unconscious. In R.F.C. Hull (Trans.), The collected works of C.G. Jung (Vol. 9, Part I, pp. 3-41). Princeton, NJ; Princeton University Press.

Kaplan, L. N. (1956). Tonal and Nagual in Coastal Oaxaca, Mexico. The Journal of American Folklore, 69(274), 363–368.

Kerr, N. H. (1993). Mental imagery, dreams, and perception. In C. Cavallero & D. Foulkes (Eds.). Dreaming as Cognition, 18–37.

Kuhn, T. (1970). The Structure of Scientific Revolutions. Chicago, IL: University of Chicago Press.

Kosticova, Z.M. (2019) Castaneda's Mesoamerican Inspiration: The Tonal/Nagual, the Cardinal Points and the Birth of Contemporary Toltec Spirituality. Religio. 2019, vol. 27, iss. 2, pp. [247]-268

LaBerge, S. (1985). Lucid dreaming: The power of being awake and aware in your dreams. In Los Angeles: Jeremy P. Tarcher. Tarcher.

LaBerge, S., Levitan, L., Brylowski A., & Dement W. (1988). "Out-of-body" experiences occurring during REM sleep. Sleep Research, 17, 115.

Laughlin, C. & Rock, A. (2014). What Can We Learn From Shamans' Dreaming? A Cross-Cultural Exploration. Dreaming. 24. 233-252.

Magana, S. (2012) 2012-2021 The Dawn of the Sixth Sun: The Path of Quetzalcoatl. BlossomingBooks

Magana, S. (2014) The Toltec Secret: Dreaming Practices of the Ancient Mexicans. GARDNERS VI BOOKS AMS006

Magaña, S. (2020) The Real Toltec Prophecies: How the Aztec Calendar Predicted Modern-Day Events and Reveals a Pathway to a New Era of Humankind. Hay House UK Ltd

Meltzoff, A.N. & Borton, R.W. (1979). Intermodal matching by human neonates. Nature, 282, 403–404.

Merrill, W. (1992). The Ramámuri stereotype of dreams. In B. Tedlock (Ed.), Dreaming: Anthropological and psychological interpretations (pp. 194–219). New York, NY: Cambridge University Press

Okada, H., Matsuoka, K., & Hatakeyama, T. (2005). Individual Differences in the Range of Sensory Modalities Experienced in Dreams. Dreaming, 15(2), 106–115.

Osho. Series of talks. Beyond psychology. OSHO Media International.

Peters, L. G. (1989). Shamanism: Phenomenology of a spiritual discipline. Journal of Transpersonal Psychology, 21(2), 115–137.

Piaget, J. (1952). The origins of intelligence in children. New York: International University Press

Raduga, M. (2004). Вне тела [Out-of-Body]. Sputnik+.

Raduga, M. (2014). The Phase: Shattering the Illusion of Reality (Translation). CreateSpace Independent Publishing Platform.

Raduga, M., Kuyava, O., & Sevcenko, 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.

Rock, A. J., & Krippner, S. (2011). Demystifying shamans and their world: A multi-disciplinary study. Exeter, UK: Imprint Academic.

Rosch, E. (2014). In R. Hurd & K. Bulkeley (Eds.) Tibetan Buddhist dream yoga and the limits of Western Psychology. In Lucid dreaming: New perspectives on consciousness in sleep. Volume 2: Religion, creativity, and culture.

Rowan, J. (2009). Personification: Using the dialogical self in psychotherapy and counselling. London, England: Routledge.

Sanford, J.A. (1980). The invisible partners: How the male and female in each of us affects our relationships. New York: Paulist Press.

Signorini, I., & Lupo, A. (1992). The Ambiguity of Evil Among the Nahua of the Sierra (Mexico). Etnofoor, 5(1/2), 81–94.

Spelke, E.S. (1994). Initial knowledge: six suggestions. Cognition, 50, 431–455.

Stein, M. (1998). Jung's map of the soul. Chicago: Open Court.

Stumbrys, T. (2018). Bridging lucid dream research and transpersonal psychology: Toward transpersonal studies of lucid dreams. 50. 176-193.

Stumbrys, T., & Erlacher, D. (2012). Lucid dreaming during NREM sleep: Two case reports. International Journal of Dream Research, 5(2), 151–155.

Tedlock, B. (2004) The poetics and spirituality of dreaming: A Native American enactive theory. Dreaming, Vol 14(2-3): 183-189

von Franz, M.L. (1999). Archetypal dimensions of the psyche. Boston: Shambhala.

Voss, U., Holzmann, R., Tuin, I., & Hobson, J. A. (2009). Lucid Dreaming: a State of Consciousness with Features of Both Waking and Non-Lucid Dreaming. Sleep, 32(9), 1191–1200

Walsh, R. (1989). The shamanic journey - Experiences, origins, and analogues. ReVision, 12, 25-32.

Zadra, A. L., & Pihl, R. O. (1997). Lucid dreaming as a treatment for recurrent nightmares. Psychotherapy and Psychosomatics, 66(1), 50–55.

Zappaterra, M., Jim, L., & Pangarkar, S. (2014). Chronic pain resolution after a lucid dream: A case for neural plasticity? Medical Hypotheses, 82(3), 286–290.

Zhunusova, Z., Raduga, M., & Shashkov, A. (2022). Overcoming phobias by lucid dreaming. Psychology of Consciousness: Theory, Research, and Practice.

Appendix

Table 1. Summary of LD communication outcomes over two experimental nights.

	Gender		Experience (number of LDs)					
	m	w	<4 LDs	4–10 LDs	11–30 LDs	31–100 LDs	101–500 LDs	>500 LDs
Experim.	49%	51%	0%	3%	15%	30%	37%	14%
NA – 1%								

Table 2. Gender and experience level distribution (number of LDs) in "sex shift" experimental group.

	Gender		Experience (number of LDs)					
	m	w	<4 LDs	4–10 LDs	11–30 LDs	31–100 LDs	101–500 LDs	>500 LDs
Experim.	47%	53%	0%	4%	11%	28%	39%	16%

Exploratory analysis

For the statistical analysis, R version 3.5.1 was applied. The normality of data was tested using the Shapiro-Wilk test. The chi-square test was used to explore both the gender distribution, experience level of practitioners and method of entering LDs between sucessfull and unsucessfull groups (Table 3). The working directory is available at https://github.com/chesherine/wolf (GitHub).

Table 3. Pearson's Chi-squared test results for gender, experience level and method of entering LD.

	Gender	Experience level	Method of entering LD
Wolf experiment	X-squared = 3.2 p-value = 0.2	GLM p-value = 0.8	X-squared = 3 p-value = 0.2
Gender shift -experiment	X-squared = 0.8 p-value= 0.37	X-squared = 8.5 p-value = 0.08	X-squared = 4.1 p-value = 0.1