

# The phenomenology of spontaneous and hypnotically induced Out-of-Body Experiences: A comparison

Graham Nicholls\*, Luciano Pederzoli<sup>°§</sup> and Patrizio Tressoldi<sup>§</sup>

\*Parapsykologan Instituutti Suomessa, Helsinki, Finland

<sup>°§</sup>EvanLab, Firenze, Italy

<sup>§</sup>Science of Consciousness Research Group - Dipartimento di Psicologia Generale, Università di Padova, Italy

**Abstract** The aim of this paper is to compare the exteroception and general phenomenology of naturally arising, or spontaneous out-of-body experiences (OBEs), sometimes also referred to as extra-corporeal experiences (ECEs) with those that have been induced via the use of hypnotic induction in order to compare their phenomenology. The similarities and differences emerged from this comparison offer a very rich description of what it is experienced in this particular state of consciousness.

**Keywords:** *out of body experience; consciousness; phenomenology; hypnosis.*

## 1. Introduction

Out-of-body experience is a special experience where the experient senses his/her self or center of awareness as if it were located outside of the physical body. The experients' perceptions are consistent with this perspective and include sensations of floating, traveling to distant locations, and observing the physical body from a distance (Cardeña and Alvarado, 2014). This experience is different from the autoscopic and the heautoscopic one, where the center of the subjective awareness is still in the physical body or shifts back and forth from an hallucinatory physical body.

Out-of-Body Experiences (OBEs) have been the focus of specific research in recent years looking primarily at how these experiences might be produced via a pathological or artificial disruption of normal activity within the temporo-parietal junction (TPJ) (Blanke et al, 2009). Some recent theories postulate a double disintegration process in visual, proprioceptive, tactile, and vestibular acuity as the basis of OBEs (Kaliuzhna et al, 2015).

There has also been a range of research looking at the phenomenology of OBEs as reported by the general population (Blackmore, 1984; Alvarado, 1984; Alvarado and Zingrone, 2015).

Spontaneous OBEs are not a rare phenomenon in healthy participants. The different surveys report a percentage from 9 to 20% (Alvarado, 2000; Cardeña and Alvarado, 2014).

However, since they are almost always spontaneous and uncontrollable by the experiencer, the study of their direct phenomenological characteristics is almost impossible and consequently, little comparative research has been undertaken into specific phenomenological factors that make up the OBE in non-pathological subjects under various conditions including hypnosis.

In this paper we will compare descriptions given in OBEs induced under hypnotic suggestion, and those from the reports of spontaneous experiences from the records of the first author [GN]. The questions are aimed at developing an understanding of the exteroceptive and proprioceptive differences and similarities, as well as the characteristics of self awareness, within the OBE. The use of the term spontaneous refers to an experience that takes place with no involvement from the subject experiencing the OBE. We also use the term *naturally arising* to refer to an experience that may begin with no intention on the part of the subject, but might also include attempts by the subject to fully realise, prolong, or otherwise influence the OBE. The possibility to compare the description of repeated spontaneous OBEs by an exceptional participant with those obtained by interviews with a small group induced into the out-of-body state by hypnotic suggestions, allow an almost unique opportunity to explore such a particular state of consciousness.

## Method

### Selection of Participants

#### The Hypnotic OBE (HypnOBE) Group Participants

The ten participants who were induced into an OBE by using hypnotic suggestion were selected based upon a high degree of hypnotisability and a willingness to experience this particular state of consciousness, as well as previous experience with the research team. More details about the procedure for OBE induction are reported in Tressoldi et al., (2015); Tressoldi et al., (2014). A complete description of this procedure is presented by Pederzoli and Tressoldi (2018).

Their relevant personal data and previous hypnosis/OBE experience are shown in Table 1. Their level of OBE knowledge was assessed on a scale of 1 to 5 (1 = nil, 5 = very good) based on previous OBE experience and general knowledge about the subject area as stated by each participant.

None of the participants had medical or psychiatric problems, nor were any taking medications that would affect their state of consciousness ascertained by a semi-structured interview before being included in the studies.

The hypnotist has many years of experience in the techniques of inducing OBE states through hypnotic suggestion.

Corresponding author: Graham Nicholls; email: [info@grahamnicholls.ch](mailto:info@grahamnicholls.ch)

Table 1: Participants' personal data and hypnosis/OBE experience

ID	Age	Sex	Previous Hypnosis experience	Previous OBE experience	OBE knowledge
<b>Elen</b>	43	F	Four sessions	Four, induced by hypnosis	Good
<b>Annalie</b>	58	F	Three sessions	None	Fair
<b>Anton</b>	47	F	Three sessions	Three, spontaneous	Good
<b>Fed</b>	24	F	One session	None	Fair
<b>Daniel</b>	64	F	Eight sessions	Four, spontaneous	Very good
<b>Simon</b>	26	M	Ten sessions	None	Fair
<b>Alex</b>	30	M	Nine sessions	None	Fair
<b>Alice</b>	32	F	Eight sessions	None	Fair
<b>Flo</b>	53	F	Fifteen sessions	Two spontaneous	Good
<b>Dian</b>	26	F	Eight sessions	None	Fair

### **The Spontaneous OBE (SOBE) Participant**

The participant with repeated spontaneous OBEs (SOBEs) is a 42 years-old man and was selected due to 30 years experience with SOBEs, as well as intentionally induced OBEs. The SOBEs used for this study were selected from a highly detailed record from within the past 5 years. The spontaneity of the experiences was the defining factor for selection and all spontaneous cases that occurred within the time period were entered into the database in chronological order until an equal number was achieved for comparison with the HypnOBE group. No cases of spontaneous OBE were omitted from the chronological selection. The SOBE participant has never suffered from any psychiatric conditions, nor was he taking any medications that would affect his state of consciousness during the trial period.

### **Choice and wording of the questions**

The choice and the wording of the questions were drawn from the interviews described in Tressoldi et al., (2015) and Tressoldi et al., (2014). Furthermore they were assessed and refined to avoid leading the participants to make statements that might confirm

popular cultural beliefs about OBE phenomenology. For example the original draft questions included reference to a cord connecting to the physical body. This could have led a participant to reference the popular belief in some form of 'silver cord' emanating from the physical body during the perceived extracorporeal state. However, while the view that such a cord is commonly perceived is well established, levels of reference to it have been very low in the most recent studies compared to earlier research (Alvarado, 2012), suggesting a cultural or factor or possible bias in earlier research. This may also be the case with other factors, so great care was taken to avoid overly leading the participants in the descriptions they gave of their OBEs.

In the case of the SOBE subject the questions were cross-referenced with the data found in detailed transcripts of his experiences during the trial period. The questions were not known to him at the time of the SOBEs, so the issue of leading was not a factor in the case of the SOBE subject. However, the SOBE subject did pay extra attention to his written descriptions of the exteroceptive and proprioceptive qualities of his experiences. All transcripts were completed immediately after the SOBE in the case of the SOBE subject, as having a researcher present during an unknown spontaneous experience would not have been possible.

The complete transcripts of the HypnOBEs participants are available in Tressoldi et al. 2014; 2015. The transcripts of the SOBEs' participant are available from the lead researcher upon request.

## **Results**

### **Question 1**

*Are you in direct contact with your Physical Body? Can you perceive any boundaries as if you were in your physical body? ? If yes, describe it.*

### **HypnOBE Group**

The first question in the study focused on an experienced connection to the physical body from the perceived position of the extracorporeal or externalised perspective or sense of self. Of the 10 responses in the HypnOBE group, 4 stated no contact with their physical body during the OBE. Of those remaining the majority experienced a partial awareness of their physical body. Only one stated "I feel my Physical Body"(G), but also stated their body felt "empty", or "like a container".

### **SOBE Subject**

In the SOBE reports no awareness of the physical body was apparent, with the exception of only one experience involving an initial awareness of the physical body during a perceived externalisation lasting for "approximately 2 minutes".

## Comparison

A comparison between the HypnOBE groups and the SOBE subject suggests a greater level of dissociation from the physical body within spontaneous experiences (although a control would be needed for greater confidence in this finding). Overall, the partial separation experience was most common in the HypnOBE group (54%), while a full or total OBE was most common with the SOBE subject (91%).

### Question 2

*Where can you see (perceive) your physical body? [Are you able to see your physical body? What does it look like to you (position, clothes, etc)?]*

### HypnOBE Group

Visual perception of the physical body was apparent in 3 of the HypnOBE responses. Feeling or non-visual sense was apparent in 4 of the responses. No one in the first series stated they could see their physical body. In the second series 3 stated they could see their physical body, but only one gave any details of appearance. This might suggest that the perception was unclear or weak as with the first series. The difference in question form, in the second instance “are you able to see your physical body”, may have resulted in an attempt to see it, rather than a description of the perception at the moment the question was asked, as in the first instance.

### SOBE Subject

The SOBE subject reported very few instances of seeing his physical body, he explained “Seeing a body has diminished over time, both an externalised body, and my physical body. The last time I remember seeing my physical body in any detail was 2012.”

## Comparison

A comparison between the HypnOBE group and the SOBE subject suggests a low level of visual perception of the physical body overall (27%). This seems consistent with the SOBE participant who reported a decline effect over time in instances of seeing a physical body during an SOBE in his lifetime. Within the study he reported no instances of seeing his physical body, but like the HypnOBE group did report a “feeling” of the location of the physical body in several experiences (HypnOBE 45%, SOBE 45%).

### Question 3

*How would you describe this state of consciousness? Is there something that distinguishes this state of consciousness from a dream or a mental image? If so, try to describe it.*

## **HypnOBE Group**

Only one reply from the HypnOBE group reported feeling in the “very similar” (Fed) state of consciousness. All other reports were suggestive of an expanded, or greater degree of lucidity.

## **SOBE Subject**

The SOBE subject generally confirmed the descriptions given by the HypnOBE group. He stated, “I would agree with the general focus on clarity, expanded awareness, and beauty.”.

## **Comparison**

Several of the responses were highlighted by positive emotions (45%), as well as expansive feelings of greater lucidity and awareness (63%). The SOBE subject also described expansive feelings, and a “crystalline clarity” that characterised the most vivid experiences. The expansive quality was present in 80% experiencers in the HypnOBE group and the SOBE participant described an expansive quality 72% of the time.

### **Question 4**

*Did you experience motion towards the places suggested or did you find yourself there instantaneously?*

## **HypnOBE Group**

Somewhat surprisingly, all ten responses (G was not included) from the HypnOBE group either directly stated an instantaneous arrival at an alternate location, or a description highly suggestive of instantaneous movement. For example, “I need not move; first a panoramic view, followed by an examination of each thing at a time.”(Al). A “zooming” sensation was also mentioned in two of the HypnOBE group responses.

## **SOBE Subject**

The SOBE subject described instantaneous movement in the majority of cases (72%). He described one experience as follows, “Once the flowing sensations running through my body subsided, I simply found myself at a very tall building, which appeared to be in London.”. The SOBE subject also described a zooming of his visual field (54%) resulting in unusually close up and detailed perception.

## **Comparison**

As mentioned, 100% of the HypnOBE group described instantaneous travel to a remote location, or something closely resembling it, compared to 72% in the case of the SOBE

subject. The SOBE subject also described a zooming sensation of his visual perception in 54% of his extracorporeal experiences, compared to 40% in the HypnOBE group. These findings suggest a highly unusual form of movement within the OBE apparent in all participants, clearly not simply a replication of physical motor skills and functioning.

### **Question 5**

*Did you feel anything while you were moving through physical barriers?*

#### **HypnOBE Group**

No sensation was experienced in the majority of the participants (70%). Two of those who did experience a sensation referred to it as “coolness” or “coldness” and one as “warmth”, suggesting temperature perception changes in a smaller number of the group (30%). They also used words and phrases like “faint”, “barely perceptible”, or “insubstantial”.

#### **SOBE Subject**

The SOBE subject only experienced the direct passing through of a physical barrier in one instance. He expressed, “...my experience is either no sensations at all, or something akin to putting two sets together so they repel each other.”

### **Question 5 - Comparison**

The HypnOBE group and the SOBE subject both described little or only vague sensations related to passing through physical barriers during an OBE. The SOBE subject did not report any temperature changes, as was reported in some of the HypnOBE group, but did agree with the 70% of the HypnOBE group who generally did not experience any sensations.

### **Question 6**

*Could you perceive everything simultaneously?*

#### **HypnOBE Group**

Nine out of ten of the respondents (90%) described perceiving everything simultaneously, at least part of the time during their OBEs. This would suggest simultaneous perception is one of the most common features within the HypnOBE group.

#### **SOBE Subject**

The SOBE subject also experienced simultaneous perception of the external environment in a high percentage (72%) of the eleven OBEs included in this study. He

also described what he referred to as “360 degree” vision in 45% of the experiences. Although, he noted this is not usually so common in his general experience.

### **Comparison**

The prevalence of perceiving all sensory information simultaneously at least part of the time during an OBE throughout the subjects, in both the HypnOBE group and the SOBE subject, suggests this is a key aspect of extracorporeal experience. These descriptions may also suggest some of form of exteroceptional disintegration as suggested by earlier research [Kaliuzhna et al, 2015].

### **Question 7**

*Could you perceive all aspects of an object simultaneously (view from above, below, etc.) or only one at a time?*

### **HypnOBE Group**

Six out of the ten subjects described being able to perceive all aspects of an object simultaneously at least part of the time. Although, usually with a focus into details happening when “attention” was placed on the object concerned. Three of the group also described seeing the “inside” or perceiving as if from the inside of the object.

### **SOBE Subject**

The SOBE subject suggested that his perception would move from a wider simultaneous view of everything to a closed in view of specific details. He stated, “Usually if I focus on something my perception will zoom in close and I will see only some details.” . The SOBE subject also described internal perception of an object in 27% of his documented extracorporeal experiences.

### **Comparison**

Wider simultaneous visual perception as described in Question 6 being focused or “zooming into details” or even into the inside of an object was consistent between the HypnOBE group and SOBE subject. This was reported approximately 27% of the time in the case of both the HypnOBE group and the SOBE subject.

### **Question 8**

*Could you see anything hidden behind another object or could you see through it?*

## **HypnOBE Group**

Nine out of the ten participants (90%) described some form of ability to see through objects. Although, the language used was somewhat vague and made little mention of a secondary object. The focus seemed to be on the transparency of the initial object, rather than details of a secondary object.

## **SOBE Subject**

The SOBE subject did not experience transparency, or seeing through an object, as an aspect of the eleven SOBEs included in this study.

## **Comparison**

This question was the clearest difference between the HypnOBE group and the SOBE subject. The SOBE subject stated he did not “experience things being transparent”, whereas the HypnOBE group clearly expressed this ability (90%). This may have been due to the fact he was not prompted during his SOBEs whether or not he could, in fact, perceive through an object. This suggests that the contrast might either be a distinction between forms of OBE or that transparency or “seeing through” an object is not a spontaneously occurring aspect of the extracorporeal experience.

## **Question 9**

*Could you experience the sense of time? [Can you describe a difference in how you sense time compared to being in your physical body? Are you able to freely go into the past and future?]*

## **HypnOBE Group**

The most consistent report was no sense of time within the HypnOBE group (54%) and several of the group (45%) also mentioning being able to “freely move back and forth in time”. Two members of the group described seeing time from above, linking it to spatial awareness.

## **SOBE Subject**

In 90% of the SOBE subjects extracorporeal experiences he described very little perception of time. In the remaining 10% he described a movement forwards or backwards within “some form of time”. The SOBE subject also highlighted duochromatic changes in his visual field during the SOBE that seemed to him to be related to alteration in time perception.

## **Comparison**

Both the HypnOBE group and SOBE subject reported a clear sense of timelessness or other distortion in their time perception. None of those included in this study reported time consistent with normal or day to day perception of time during their OBEs. Such distortions or alterations could be a fruitful area for future research as some studies (Eagleman, 2005; Tse, 2004) into time perception suggest attentional shifts, rapid eye movements, or stimuli that could be consistent with hypnotically induced OBEs and OBEs in general.

### **Question 10**

*Other than seeing, can you also hear, detect odours, perceive physical sensations - for example temperature, touch, taste?*

#### **HypnOBE Group**

Only six members of the HypnOBE group were asked this question as part of the later study. All those included in the study reported high levels of exteroception in some areas and not others, with tactile and auditory sensations being most commonly reported. Taste was the least reported, although this may have been due to lack of opportunity to test it. Smell was reported by two out of the six subjects (33%).

#### **SOBE Subject**

The SOBE subject reported no instances of smell or taste within the selected cases for this study. The most common form of exteroception he reported was temperature, touch and “texture” perception. Auditory sensations were apparent in 72% of his extracorporeal experiences within this study.

## **Comparison**

Taste was the least reported sense across all subjects within this study. The SOBE subject reported a higher level of auditory acuity than the HypnOBE group, who reported some difficulty in sound perception or did not mention auditory perception in their replies.

### **Question 11**

*How does the psychic body ( $\Psi b$ ) see colours? How do you see colors with the subtle body ( $Sb$ )? If so, are any colours dominant?*

#### **HypnOBE Group**

As pointed out in the paper for the previous study (Tressoldi, 2015), during the participants’ training, the hypnotist noticed that some of them perceived a type of

secondary body, an intermediate between the physical body (Pb) and a form of disembodied personal selfhood (DPS). The participants described this body, which was simply named “subtle body” (Sb) to differ it from the Pb and from the center of consciousness or first-person perspective we named “psychic body” ( $\Psi$ b) plus the interaction among them.

On the first half, the question addresses the difference between psychic body ( $\Psi$ b) and subtle body (Sb) colour perception, most (83%) of those who responded perceived more clearly with the  $\Psi$ b than with the Sb. To the second half of the question all responded that they could see colours, with two of the six participants who answered this question reporting dominant colours (red; yellow and blue). Two also mentioned the colours being blurred, while others reported “normal”, “real” or “vivid” colour perception.

### **SOBE Subject**

The SOBE subject did not report a “subtle body” (Sb) in the experiences selected for this study. He did point out that “I have experienced a Sb in the past, but it has diminished over time”. However, he did report various forms of visual perception including monochromatic, dichromatic, as well as an extremely vivid form of visual perception.

### **Comparison**

Several of the HypnOBE group reported a vivid or more intense colour experience during their  $\Psi$ b experience than with their Sb experience. This intense visual perception was consistent with 37% of the SOBE subject’s reports, although he also reported a 26% occurrence of dichromatic perception. These findings suggest a wide range of visual acuity within the OBE, as well as distinct differences in how the DPS is experienced. This would suggest that the widely held assumption that OBE exteroception is similar or the same as the physical body experience is unsupported by the findings of this comparative study.

### **Question 12**

*While in this state can you perceive other realities? Other entities like yourself?*

### **HypnOBE Group**

The six members of the HypnOBE group in the later study were asked this question. One was unable to sense anything. The others described a sense of multiple presences, most commonly with a “fusing” between them and the presences.

### **SOBE Subject**

The SOBE subject was aware of people at some of the locations he perceived (36%). However, generally reported that a sense of any form of presence was not common. The experiences included in this paper did not include descriptions of ‘other realities’.

Although, the SOBE subject did report that this kind of experience is somewhat common in his experiences as a whole.

## **Comparison**

A presence within both forms of OBE does seem fairly common, although interaction was not described in tangible terms by any of the subjects. This would suggest that it is more of a sense of presence, rather than a clear perception of an entity.

## **Discussion**

The main aim of this study was a comparison between the phenomenology of OBEs induced by hypnotic suggestions and the repeated spontaneous OBEs of a gifted participant..

Given the difficulties in testing spontaneous OBEs given their unpredictability, the possibility to induce this particular state of consciousness by hypnotic suggestions, offer a great opportunity to investigate their phenomenological and physiological correlates by interviewing the participants during their OBE.

However, before stating the HypnOBEs are similar to SOBEs, we need a comparison between their phenomenology. Thanks to the not very common condition of having repeated SOBEs of the first author, this study represents a first contribution towards this comparison.

From the comparison of the responses to the twelve questions listed in the results section, We found the same percentage of feeling of the location of the physical body (question 2), a consistent description of positive emotions and greater lucidity and awareness (question 3), instantaneous motion and zoom-like visual perception (question 4), no sensorial feeling while moving through physical barriers (question 5), “360 degrees vision (questions 6 and 7), living in a timeless dimension (question 9)

Points of difference included the level of dissociation from the physical body (questions 1 and 2) being greater in the case of the SOBE subject who experienced a decline over time of this contact .

Another distinction in the case of the SOBE subject was the low occurrence of physical objects appearing transparent within his extracorporeal experiences (question 8) and of perceptual experiences other than visual ones, e.g. auditory, olfactory, etc. (question 10) However, these differences could have been due to prompting within the HypnOBE group.

A comparison with the OBEs features presented by Alvarado and Zingrone (2015) obtained through a questionnaire compiled by 88 respondents who self-declared to have had at least one OBE, reveals some very important differences. Whereas the more frequent features described by Alvarado and Zingrone’s sample refers to the first phases

of the OBE, e.g. seeing the physical body, sensation of rising leaving the physical body, seeing surroundings from above; sensations of floating, most of the features described by the HypnOBE group and the SOBE, seems related to what can be experienced after, e.g. seeing in 360 degrees, passing through physical barriers, moving to a desired place instantly, moving in a timeless dimension, etc.

## Limitations

Among the limitations of this study there is the low number of HypnOBE and SOBE participants that constrained the generalisability of the observed findings. However, we consider this study a first step toward the possibility to investigate the phenomenology of OBEs in a more controlled way.

## Acknowledgements

The first author would like to thank Dr Callum E. Cooper and Prof. Chris A. Roe at The University of Northampton. We would also like to thank Dr Carlos Alvarado for his extensive suggestions and support of this research.

## References

- Alvarado, C.S. (1984). Phenomenological aspects of out-of-body experiences: A report of three studies. *Journal of the American Society for Psychical Research*, 78, 219–240.
- Alvarado, C. S. (2000). Out-of-body experiences. In S. (Ed) Cardeña, Etzel (Ed); Lynn, Steven Jay (Ed); Krippner (Ed.), *Varieties of anomalous experience: Examining the scientific evidence*. (pp. 183–218). Washington: American Psychological Association. <http://doi.org/10.1037/10371-006>.
- Alvarado, C.S., & Zingrone, N.L. (2015). Features of out-of-body experiences: Relationships to frequency, willfulness and previous knowledge about the experience. *Journal of the Society for Psychical Research*, 79, 98-111.
- Alvarado, C.S. (2012). Explorations of the features of out-of-body experiences: An overview and critique of the work of Robert Crookall. *Journal of the Society of Psychical Research*, 76(2), 65-82.
- Aspell, J., & Blanke, O. (2009). Understanding the out-of-body experience from a neuroscientific perspective. In C. D. Murray (Author), *Psychological scientific perspectives on out-of-body and near-death experiences* (pp. 73-88). New York: Nova Science.
- Blackmore, S.J. (1984a) A postal survey of OBEs and other experiences *Journal of the Society for Psychical Research*, 52 225-244

Cardeña, E., & Alvarado, C. S. (2014). Anomalous self and identity experiences. In Etzel Cardeña, Steven Jay Lynn, and Stanley Krippner (Eds). *Varieties of Anomalous Experience: Examining the Scientific Evidence*, Second Edition. APA, Washington, DC, US.

Eagleman DM (2005a) Distortions of time during rapid eye movements. *Nat Neurosci* 8: 850-851.

Easton, S., Blanke, O. and Mohr, C. (2009). A putative implication for fronto-parietal connectivity in out-of-body experiences. *Cortex*, 45(2), pp.216-227.

Kaliuzhna, M., Vibert, D., Grivaz, P., & Blanke, O. (2015). Out-of-Body Experiences and Other Complex Dissociation Experiences in a Patient with Unilateral Peripheral Vestibular Damage and Deficient Multisensory Integration. *Multisensory Research*, 28(5-6), 613-635. doi:10.1163/22134808-00002506

Pederzoli, L. & Tressoldi, P. E. (2018) A Guide for OBE Induction. Available at <http://dx.doi.org/10.2139/ssrn.3148432>

Smith, A. M., & Messier, C. (2014). Voluntary Out-of-Body Experience: An fMRI Study. *Frontiers in Human Neuroscience*, 8. doi:10.3389/fnhum.2014.00070

Tressoldi, P. E., Pederzoli, L., Caini, P., Ferrini, A., Melloni, S., Richeldi, D., . . . Trabucco, A. (2014, May 31). Out of Body Experience Induced by Hypnotic Suggestion. Part 1: Phenomenology and Perceptual Characteristics. *SSRN Electronic Journal SSRN Journal*. doi:10.2139/ssrn.2443719

Tressoldi, P., Pederzoli, L., Caini, P., Ferrini, A., Melloni, S., Prati, E., Richiardi, D., Richeldi, F. & Trabucco, A. (2015). Hypnotically Induced Out-of-Body Experience: How Many Bodies Are There? Unexpected Discoveries About the Subtle Body and Psychic Body. *SAGE Open*: 1–12, DOI:10.1177/2158244015615919

Tse, P.U., Rivest, J., Intriligator, J. & Cavanagh, P. (2004) Attention and the subjective expansion of time. *Perception and Psychophysics*, 66: 1171-1189.