

ABSTRACT

Almost all the ancient texts have talked about perception as a means of knowledge. This study was conducted to know what *Advaita vedānta* tells about perception and how it recognizes perception as the main means of valid knowledge. According to it perception is a valid knowledge. Valid knowledge is that knowledge which apprehends an object that is not already known and which is not contradicted. The object although known previously, yet as conditioned by the second and the subsequent moments, remains 'previously unknown'. *Vedānta* says perceptual knowledge is nothing but pure consciousness. According to *vedānta* if everything is *caitanya* then every object must be having *caitanya*. So in the process of perception, the object which we are going to percept in that object also there is a *caitanya*. When there is a contact between sense organ and object and a contact between mind with the object, there is perception. There is connection between consciousness conditioned by mind and consciousness conditioned by the object. Perception is of two kinds. Subjective perception and objective perception. According to *Vedānta*, the self being absolutely identical with *Brahman*, what limits its knowledge is its ignorance of its real nature. When ignorance is overcome, what remains is the self-shining consciousness, the pure self or *Brahman*. *Vedānta* says that Consciousness is the very essence of perceptual cognition.

PART I

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INTRODUCTION

The *Advaita* school of *Vedānta* admits six distinct means of valid knowledge. They are perception (*pratyakṣa*), inference (*anumāna*), verbal testimony (*śabda*), comparison (*upamāna*), presumption (*arthāpatti*) and negation (*abhāva*). Each is called *pramāṇa*, the instrument (*kāraṇa*) of valid knowledge (*pramā*). *Advaita* places a lot of emphasis on self-knowledge. In other schools there are more means of

knowledge, for example: *purāṇa*, *itihāsa* etc. For *carvākās* only perception is the valid knowledge. For *bodhās* perception and inference are valid knowledge. According to *Sāṅkya* and *yoga* perception, inference and verbal testimony are the means of valid knowledge.

Vedānta Paribhāṣa is the *prakaraṇagrantha* of *Advaita Vedānta*. There are 8 chapters in the book. Its first six chapters are devoted to establishing the means of valid knowledge. Perception among the *pramāṇas*, is regularly identified as providing direct knowledge. In visual knowledge, the organ of vision and the mind both are operative; as such both are its causes; but the organ of vision and its operation constitute the special cause (*kāraṇa*). In perceiving an object by a particular sense-organ, the mind is not the special cause (*kāraṇa*) of the knowledge, because its operation is common to all cases of external perception. Thus *pramāṇa* is the special means by which some kind of right knowledge (*pramā*) is attained.

Perception is twofold: external and internal. Perception by any of the five sensory organs is external. Mental perception (of pain or pleasure, of knowledge or ignorance) is internal. Sense perception is the natural and direct way of knowing external things.

CHAPTER 1: VALID KNOWLEDGE AND ITS MEANS

अबाधितार्थविषयकज्ञानत्वम् ॥

ābādhitārthaviṣayakajñānatvam.

That which never becomes wrong is truth.

तद्वति तत्प्रकारकः अनुभवः यथार्थ अनुभवः ॥

Tadvati tatprakāraḥ anubhavaḥ yathārtha anubhavaḥ.

Knowing a thing as it is, is the correct knowledge.

For example,

रजतत्ववति रजते रजतत्वप्रकारः अनुभवः ॥

rajatatvavati rajate rajatatvaprakāraḥ anubhavaḥ.

Everything has a dharma. The dharma of coir is coirness. When one is able to recognize the coirness of coir then it is valid knowledge. A valid knowledge cannot be contradicted by any other knowledge.

There are two kinds of valid knowledge:

They are *smṛtivyāvṛttam* and *smṛtisādhāraṇa*

smṛtivyāvṛttam has been defined as:

प्रमात्वमनधिगतावाधितार्थविषयकज्ञानत्वम् ॥

Pramātvamanadhigatāvādhitārthaviṣayakajñānatvam.

Means- “Valid knowledge is that knowledge which apprehends an object that is not already known and which is not contradicted.” In this kind of knowledge recollection or *smṛti* is excluded from it.

Smṛtisādhāraṇa has been defined as:

अबाधितार्थविषयकज्ञानत्वम् ॥

Abādhitārthaviṣayakajñānatvam.

Abādhitām means non-contradicted. Means valid knowledge is that knowledge which is not contradicted by any other knowledge.

In this *smṛti* is included. There won't be any alteration from known is *smṛti*.

Anādhigatatva (novelty) is one of the two defining criteria of a *pramā* (knowledge).

किञ्च सिद्धान्ते धारावाहिकबुद्धिस्थले न ज्ञानभेदः किन्तु यावद्घटस्फुरणं तावद्घटाकारान्तः

करणवृत्तिरेकैव न तु नानावृत्तेः स्वविरोधिवृत्त्युत्पत्तिपर्यन्तं स्थायित्वाभ्युपगमात् ॥

kiñca siddhānte dhārāvāhikabuddhisthale na jñānabhedah, kintu

yāvadghaṭasphuraṇam tāvadghaṭākārāntaḥ karaṇavṛttirekaiva na tu nānā

vṛtteḥ svavirodhi vṛtтыutpattiparyantaḥ sthāyitvābhyupagamāt.

A persistent cognition of an object is still a unitary cognition so long as it lasts, because it is characterised by the future of duration. There is no knowledge without time and space. The object although known previously, yet as conditioned by the second and the subsequent moments, remains 'previously unknown'.

To have a knowledge of an object, some preliminary conditions must be fulfilled. One such condition is the un-knowness of the object before the means of knowledge turns its searchlight upon it. In the language of *Vedānta*, it is a form of awareness of the object as qualified by *ajñāna*. In the case of objects, at the moment of the rise of a mental modification (*vṛtti*) through the interaction of the sense organs and the object, there is the removal of *ajñāna*.

Since time has been put within the range of perception, even a persistent cognition, for the second and subsequent moments has for its content what is not the content of earlier cognitions, because the moments that serve as the adjectival feature of the subject are different.

उच्यते । ब्रह्मसाक्षात्कारानन्तरं हि घटादीनां बाधः, “यत्र त्वस्य सर्वमात्मैवाभूत् तत् केन कं

पश्येत्” इति श्रुतेः । न तु संसारदशायां बाधः, “यत्र हि द्वैतमिव भवति तदितर इतरं पश्यति”

इति श्रुतेः । तथाच अवाधित-पदेन संसारदशायामवाधित्वं विवक्षितम्, इति न

घटादिप्रमायमव्याप्तिः । तदुक्तम् - देहात्मप्रत्ययो यद्वत् प्रमाणत्वेन कल्पितः । लौकीकं तद्वदेवेदं

प्रमाणान्त्वाऽऽत्मनिश्चयात् ॥ इति । ‘आ आत्मनिश्चयात् - ब्रह्मसाक्षात्कारपर्यन्तमित्यर्थः ।

‘लौकिकम्’ इति घटादिज्ञानमित्यर्थः ।

ucyate | brahmasākṣātkārānantaram hi ghaṭādīnām bādhaḥ, “yatra tvasya

sarvamatmaivābhūt tat kena kaṁ paśyet” iti śruteḥ | na tu saṁsāradaśāyām bādhaḥ

“yatra hi dvaitamiva bhavati taditara itaram paśyati” iti śruteḥ | tathāca avādhita-

padena saṁsāradaśāyāmapādhitvaṁ vivakṣitam iti na ghaṭādīpramāyamavyāptiḥ |

taduktam – “dehātmapratyayo yadvat pramāṇatnena kalpitaḥ | laukīkaṁ tadvadevedaṁ

pramāṇāntvā ‘tmaniścayāt | | ‘iti’ | ā ātmaniścayāt -

brahmasākṣātkāraparyantamityarthaḥ | ‘laukīkam’ iti ghaṭādījñānamityarthaḥ |

According to *Advaita Vedānta*, worldly objects are illusory. And everything is *Brahman*. This happens only then when one has the enlightenment, until that one sees things as different objects. So this is also is a valid knowledge. Here perceptuality is associated with time.

In the persistent cognition, by the first mental mode, the modal ignorance concealing the object in the first moment is removed, and that object, in turn, becomes the content of the second modal ignorance.

CHAPTER 2: PERCEPTION AS A MEANS OF KNOWLEDGE

According to *Vedānta* the instruments of knowledge are six. Of these, the means known as perception refers to the instrument of valid perceptual knowledge.

तत्र प्रत्यक्षप्रमायाः करणं प्रत्यक्षप्रमाणम् ।

प्रत्यक्षप्रमा चात्र चैतन्यमेव ।

tatra pratyakṣapramāyāḥ karaṇaṁ pratyakṣapramāṇam |

pratyakṣapramā cātra caitanyameva |

Perceptual knowledge is nothing but pure consciousness.

According to *Vedānta* the valid perceptual knowledge is pure consciousness.

Consciousness is always perceptual. The knowledge what we get from scriptures is the ultimate. But to know the knowledge we should use our reasoning capacity.

Then we should experience it. To evaluate a thing we have '*śruti*' (scriptures) *yukti* (reason) *anubhava* (experience).

According to *Vedānta* the ultimate thing is '*śruti*' (scriptures). And the scripture says:

यत् साक्षादपरोक्षाद् ब्रह्म ॥

yat sākṣādaparokṣād brahma.

vṛtti the modification of mind happens through sense contact. Everything is *caitanya* But in perception the *caitanya* is known but where there is sense contact the *caitanya* is qualified and even though it is *caitanya* but with a beginning.

The Consciousness aspect is eternal, whereas, the *vṛtti*.-aspect is occasional. Because of the interaction between the sense organ and a particular object, the mind functions through the senses. The *vṛtti* originates because of the functioning of the sense organs. Sense organs themselves are not instruments, but they are instrumental in the initiation of the *vṛtti*- element. Consciousness associated with

vṛtti is originated, and the sense of sight which gives rise to such a *vṛtti* in this case is a *pramāṇa*.

Perception has two parts subjective and objective. ज्ञानप्रत्यक्ष विषयप्रत्यक्षम्
(*jñānapratyakṣaṁ viṣayapratyakṣam*) ॥ The perception of knowledge and perception of object.

A material object of knowledge is called *viṣaya caitanya*, that is, consciousness falsely conditioned by the superimposed objects.

There are three kinds of *Caitanyas*: *Viṣaya Caitanya*, *pramāṇa Caitanya* and *pramāṭṛ Caitanya*. *Pramāṭṛ Caitanya* is the knower, *pramāṇa Caitanya* is the *Caitanya* which dwells in the modification of mind. The *Caitanya* which dwells in the object is *viṣaya caitanya*. Pure perception is *brahmajñānam*. There are three *jñānams* .*prātibhaṣikajñānam*, *vyavahārikajñānam* and *pāramārthikajñānam*. Perceiving rope as snake is *prātibhaṣikajñānam*. But when we come to know that it is not snake but a rope is *vyavahārikajñānam*. Pure perception is *pāramārthikajñānam*.

In the *vedāntic* view mind cannot contact physical objects but through the sense organs. Consciousness is without a beginning, but that mental state which reveals it arises through the contact of the organs. So consciousness qualified by the mental state is spoken of as having a beginning.

When the mind (*antaḥkaraṇa*) through sense organs (*indriyāṇi*) goes to a particular object, whole mind becomes of that object and mind gets the shape of that object this is perception.

For example, water from a pond goes through a canal to the field and gets the shape of that field, in the same way, the mind goes to that object and takes the shape of that object.

Mind has parts and it has a beginning. *śruti* texts say that तन्मनोऽसृजतः (*tanmano'srjataḥ*) It projected the mind. Mind can be connected with more than one organ at a time, therefore, a person is able to perceive different objects simultaneously.

CHAPTER 3: COGNITION; ROLE OF CONSCIOUSNESS

Consciousness is threefold: the consciousness conditioned by content, the consciousness conditioned by the means of knowledge, and the consciousness conditioned by the cognizer.

तत्र घटाद्यवच्छिन्नं चैतन्यं विषयचैतन्यम्, अन्तःकर्णवृत्त्यवच्छिन्नं चैतन्यं प्रमाणचैतन्यम्,

अन्तःकरणावच्छिन्नं चैतन्यं प्रमातृचैतन्यम् ॥

*Tatra ghaṭādyavacchinnaṁ caitanyaṁ viṣayacaitanyam,
antaḥkarnaṁvṛtavyavacchinnaṁ caitanyaṁ pramāṇacaitanyam,
antaḥkaraṇāvavacchinnaṁ caitanyaṁ pramāṭṛcaitanyam।*

In the perception of the jar, the jar is called the *viṣaya caitanya*, the *caitanya* which dwells in the jar is *viṣaya caitanya*, The process of seeing is called the *antaḥkaraṇa vṛtavyaviccanna caitanya*, which goes through the eyes is *pramāṇa caitanya*. The person who is looking at the jar is *pramāṭṛ caitanya*. The whole mechanism with example is mentioned in *vedānta paribhāṣa*. Consciousness conditioned by the jar is the consciousness conditioned by the content, the consciousness conditioned by a mode of the internal organ is the consciousness conditioned by the means of knowledge, and that conditioned by the internal organ is the consciousness conditioned by the cognizer.

तत्र यथा तडागोदकं छिद्रान्निर्गत्य कुल्यात्मना केदारान् प्रविश्य तद्वदेव चतुष्कोणाद्याकारं
भवति, तथा तैजसमन्तःकरणमपि चक्षुरादिद्वारा निर्गत्य घटादिविषयदेशं गत्वा
घटादिविषयाकारेण परिणमते ।

Tatra yathā tadāgodakam chidrānnirgatya kulyātmanā kedārān praviśya tadvadeva catuṣkoṇādyākāraṁ bhavati, tathā taijasamantaḥkaraṇamapi cakṣurādidvārā nirgatya ghaṭādiviṣayadeśaṁ gatvā ghaṭādiviṣayākāreṇa pariṇamate|

Just as the water of a tank, issuing through a hole and enters a field through channels and takes the shape of the field, in the same way the internal organ, which is characterized by light, goes out (of the body) through the door (sense) of sight, and after reaching the location of the object, it is modified in the form of the objects. Consciousness, although one, becomes many because of different limiting conditions. Consciousness conditioned by the means of knowledge is the cognitive-consciousness (*pramāṇa caitanya*), consciousness conditioned by the object is *viśaya caitanya* and the consciousness conditioned by the internal organ is the *pramāṭṛ caitanya*. According to *vedānta* if everything is *caitanya* then every object must be having *caitanya*. So in the process of perception the object which we are going to percept in that object also there is a *caitanya*. We cannot question in which point the *caitanya* is. It resides everywhere. This is *viśaya caitanya*.

The *caitanya* in us goes through a mediator to perceive an object or another *caitanya*. The mediator is the *pramāṇa*. And the *caitanya* which resides in the *pramāṇa* is the *pramāṇa caitanya*.

pramāṭṛ caitanya is the *caitanya* when we use the *antaḥkaraṇa*, the *caitanya* which resides in the *antaḥkaraṇa* goes out to perceive things. The preceptor is called *pramāṭṛ caitanya*.

According to *vedānta paribhāṣā* the three consciousnesses are located in one and at the same place. Just as the space conditioned by a particular hall and the space conditioned by the pitcher located inside the hall can be referred to as conditioned by mind (*vṛtti*) and the consciousness conditioned by a part of the mind can be said as identical.

Transformation or modification of the mind, simply means that there is contact of the mind with the object. Like the contact between lime (*cūnnam*) and the pitcher, mind pervades the entire object, it comes in contact of all the parts of the object. Here, there is an identity between the consciousness conditioned by the mental mode in the form of the pitcher.

The term “knowledge” in this context stands for the consciousness conditioned by the *vṛtti*. Because pure consciousness alone is perceptual in the true sense of the term, the criterion for the perceptuality of knowledge is the absence of any essential difference between the consciousness conditioned by the mental mode and the consciousness conditioned by the object.

Consciousness is the very essence of a perceptual cognition. When there is a contact between sense organ and object and a contact between mind with the object, there is perception. There is connection between consciousness conditioned by mind and consciousness conditioned by the object. When *Vedānta* says that modification of

the mind, it means that there is contact of the mind with the object. The contact is similar to that between the pitcher and the lime (*cūnnam*) that is used in coloring the pitcher.

There is an identity between the consciousness conditioned by the pitcher and the consciousness conditioned by the mental mode in the form of the pitcher. In the cognition of the pitcher, it is pure consciousness that serves as the substratum which becomes perceptual when it is conditioned by the pitcher. By its very nature, pure consciousness is non-mediate and consequently does not require the instrument of mind to become immediate.

When a pitcher is viewed as perceptual in nature, what becomes perceptual is only the consciousness conditioned by the super-imposed entity; namely, the pitcher and consciousness conditioned by that aspect or the mode of the mind that assumes the form of the pitcher.

***Vṛtti* means modification either of the internal organ or of ignorance. In the *Upaniṣadic* texts dealing with '*kāmaḥ saṅkalpaḥ*' *vṛtti* is understood in the sense of the transformation of the mind, and not in the sense of the transformation of *avidyā*. This description of consciousness in terms of the modification of the internal organ or ignorance, it may be noted, is common both to erroneous and valid cognitions. The actual objects are the contents of the ignorance, which account for the usage that the objects do not exist, because they are not manifested at that time. When manifested, they are not the content of ignorance.**

CHAPTER 4: SUBJECTIVE PERCEPTION AND OBJECTIVE PERCEPTION

Perception is of two kinds. Subjective perception and objective perception. When one says “the hill has fire” here *jñānam* or subject is perceptual but object is not perceptual. Perceptuality with regard to cognition, it is consciousness. Consciousness is self-revealing. In the above example there is perceptuality, because the consciousness qualified by the mental mode in the form of fire, is directly perceived, for consciousness is self-revealing.

Objective perception happens when there is perception of objects. Subjective perception is perception of knowledge.

प्रमाणचैतन्यस्य विषयावच्छिन्नचैतन्याभेदः ।

pramāṇacaitanyasya viṣayāvacchinnacaitanyābhedah ।

For the perceptuality of subject *pramāṇacaitanya* and *viṣayacaitanya* has to be together.

तथाहि त्रिविधं चैतन्यम् -विषयचैतन्यं प्रमाणचैतन्यं प्रमातृचैतन्यञ्चोति ।

*tathāhi trividham caitanyam -viṣayacaitanyam pramāṇacaitanyam
pramātr̥caitanyañcoti*

There are three kinds of *caitanyas*

1. *Viṣaya caitanya*
2. *Pramāṇa caitanya*
3. *Pramātr̥ caitanya*

Pramātr̥ caitanya is the knower. It is also called अन्तःकरण- अवच्छिन्नचैतन्य

(*antaḥkaraṇa- avacchinnacaitanya*) ॥

Pramāṇa caitanya is the mind or the *antaḥkaraṇa*.

अन्तःकरणवृत्त्यवच्छिन्नं चैतन्यं (*antaḥkaraṇavṛtyavachinnam caitanyam*)। *Viṣaya*

caitanya that which is in the object.

Objective perception happens when the *Pramāṇa caitanya* and *Viṣaya caitanya* are together. Like the water of a tank, issuing through a hole, enters in the form of a channel a number of fields, and just like them assumes a rectangular or any other shape, so also the mind, issuing through the eye etc., goes to the space occupied by objects such as a jar, and is modified in to the form of a jar or any other object. This is called objective perception.

When the *Pramāṭṛ caitanya* and *Viṣaya caitanya* become one then this is called subjective perception. Qualities of *jñāna pratyakṣam* is अभेदः (*abhedah*). For example a jar in the room. Here the ether in the jar and the ether in the room are not different.

घटादेर्विषयस्य प्रत्यक्षत्वं तु प्रमात्रभिन्नत्वम् ॥

ghaṭāderviṣayasya pratyakṣatvam tu pramāṭṛbhinnatvam.

CHAPTER 5: PERCEPTUALITY OF OBJECTS

Perceptuality of the object perceived is in terms with the identity with the perceiver. Pure consciousness is perceptual in its essential nature. Its perceptuality does not require the aid of any instruments. In relation to content, say a pitcher, however,

consciousness is perceptual by being conditioned by the mental mode and also by the internal organ or the mind.

What accounts for the verbal usage that an object is perceptible is not its being the content of perceptual knowledge but identity of the object with the witness-consciousness.

According to *Vedānta*, the self being absolutely identical with *Brahman*, what limits its knowledge is its ignorance of its real nature. When ignorance is overcome, what remains is the self-shining consciousness, the pure self or *Brahman*. Immediacy is primarily the nature of this basic consciousness; only secondarily it belongs to a sense perception. Every such perception takes place by a sort of removal of the ignorance that divides the knower from the known. Perception is the flashing forth of the basic consciousness which underlines all the knower, the known and the entire mechanism of knowledge.

When the *antaḥkaraṇa* (mind) comes in contact with the external objects through the senses and becomes transformed as it were in to their forms, it is that the *antaḥkaraṇa* has been transformed in to a state (*vṛtti*). As soon as the *antaḥkaraṇa* has assumed the shape or form of the object of its knowledge, the ignorance (*ajñāna*) with reference to that object is removed, and thereupon the steady light of the pure consciousness (*cit*) shows the object which was so long hidden by ignorance. The appearance or the perception of an object is thus, the self-shining of the *cit* through a *vṛtti* of a form resembling an object of knowledge. This

therefore, pre-supposes that by the action of *ajñāna*, pure consciousness or being in a state of diverse kinds of modifications. In spite of the *cit* underlying all this diversified objective world which is but the transformation of ignorance (*ajñāna*), the former cannot manifest itself by itself, for the creations being of ignorance they are but sustained by modifications of ignorance. The diversified objects of the world are but transformations of the principle of *ajñāna* which neither real nor unreal. It is the nature of the *ajñāna* that it veils its own creations. Thus, on each of the objects created by the *ajñāna* by its creating (*vikṣepa*) capacity there is a veil by its veiling (*āvaraṇa*) capacity. But when any object comes in direct touch with *antaḥkaraṇa* through the senses the *antaḥkaraṇa* becomes transformed into the form of the object, and this leads to the removal of the veil on that particular *ajñāna* form – the object, and as the self shining *cit* is shining through the particular *ajñāna* state, we have perception of the thing. Though in reality no such distinction as the inner and the outer yet the *ajñāna* has created such illusory distinctions as individual souls and the external world of objects the distinctions of time, space etc... and veiled these forms. Perception leads to the temporary and the partial breaking of the veil over specific *ajñāna* forms so that there is a temporary union of the *cit* as underlying the subject and the object through the broken veil.

विषयचैतन्यस्य प्रमाणचैतन्याभेदः ।

viṣayacaitanyasya pramāṇacaitanyābedah

But ignorance makes people to think things are as different.

CHAPTER 6: DETERMINATE AND INDETERMINATE PERCEPTION

The determination of the perceptual character to the extent that it relates to the object is twofold: determinate and indeterminate (*Savikalpaka* and *Nirvikalpaka*).

तच्च प्रत्यक्षं द्विविधम् । सविकल्पकनिर्विकल्पकभेदात् ।

Tacca praty kṣam dvoividham, savikalpakanirvikalpapakabhedāt.

In this determinate is that knowledge which apprehends relatedness of the substantive and the qualifying attribute.

तत्र सविकल्पक वैशिष्ट्यावगाहि ज्ञानम् ।

Tatra savikalpaka vaiśiṣṭyāvagāhi jñānam ।

For example 'I know the jar'. Here jar is the qualifying attribute. My knowledge is being qualified by the jar. Here the object of the knowledge is the jar as related to the subject 'I'. Hence it is determinate knowledge. Knowledge has objective and subjective qualities. In the sentence 'I know the jar', here jar is the objective quality and 'I' ness is the subjective quality. Indeterminate perception is that knowledge which does not apprehend these kind of relatedness.

निर्विकल्पकन्तु संसर्गावगाहि ज्ञानम् ।

Nirvikalpakantu saṁsargāvagāhi jñānam.

samsargāvagāhi means the relatedness is not considered. For example, knowledge arising from sentences like, “This is that *Devadatta*”, or “Thou art that.” In these cases the knowledge arises by ignoring the particular features. For example, ‘this’ refers to the present and ‘that’ to the past, and these two being contradictory elements, these are ignored, without relatedness only the object is recognized. Similarly, in the other example *śvetaketu*’s attributions are left out and also *Brahman*’s attributions are left out, then only *śvetaketu* and *Brahman* are there. Hence in such cases the knowledge is indeterminate.

CHAPTER 7: POSSIBILITIES OF ERROR IN PERCEPTION

There are two kinds of *sākṣi caitanyas*, so two kinds of perceptions are there. The two kinds of *sākṣi caitanyas* are *īśvara sākṣi* and *jīva sākṣi*.

तच्च प्रत्यक्षं पुनर्द्विधम् - जीवसाक्षि ईश्वरसाक्षि चेति ।

Tacca pratyakṣam punardvidham jīvasākṣi īśvarasākṣi ceti.

īśvara sākṣi is beginningless. Because its limiting adjunct cosmic illusion (*māyā*) too is beginningless. It is God. When cosmic illusion (*māyā*) is a qualifying attribute, this consciousness is called God or *īśvara*. When this cosmic illusion is a limiting adjunct then it is called the witness or *īśvarasākṣi*. Since there is twofoldness of witness, perception too is twofold.

Subjective perception has two parts: *pramā* and *brama jñānam*. *Pramā jñānam* has the quality of अबाधितत्वम् (*abādhitatvam*) or non-contradicted. But *brama jñānam* is not so. It is contradictory. It doesn't have the quality of अबाधितत्वम् (*abādhitatvam*).

For example 'silver in a nacre'. When one sees silver in a nacre he tries to take it. Even though it is an unsuccessful effort since one tried to pick it up, we can say there was a *brama jñānam* state. And this विषम्वदि-प्रवृत्ति (*viṣamvādi-pravṛtti*) proves that there is such a thing as false knowledge.

According to *vedānta* that which is not here doesn't have perceptuality. There are two kinds of change, *pariṇāma* and *vivarta*. *Pariṇāma* means the production of an effect that has the same kind of existence as that of its material cause. For example milk becomes curd. But *vedānta* follows the *vivarta* kind. Everything is unreal transformation. Like rope becomes snakes. For a moment we feel rope as snake. World is *Brahman's* false appearance. The *Pariṇāma kāraṇa* of the universe is *māyā* that is *prakṛti*. The *vivarta kāraṇa* of this universe is *Brahman*. So he doesn't change but *prakṛti* changes. So *prakṛti* is called *pariṇāmatrika*.

CHAPTER 8: DREAM PERCEPTION

Dream objects are the transfigurations of the consciousness conditioned by the mind and not the transfigurations of pure consciousness. In the snake-rope illusion, the

erroneous cognition vanishes when one realizes that it is a rope and not a snake. The dream objects also seem to exist because of the immediately succeeding state, the waking state. Accordingly, the possibility of admitting the presence of dream objects in the waking state does not even arise.

Dream experience is not a species of recollection. Objects that are illusory have existence only at the time of erroneous perception. Recollection, however, does not possess this feature. It could exist even after the erroneous perception has ceased to exist. In the case of dream objects, the sense of sight does not function, and consequently mind cannot undergo modification, and there can be no perceptual experience of the dream objects. Dream perceptions are still a part of the dream experience and should not be assimilated into the category of the erroneous perceptions that form a part of waking life.

रथादेः स्मृतिमात्राभ्युपगमे 'रथं पश्यामि, 'स्वप्ने रथमद्राक्षम्' इत्याद्यनुभवविरोधापत्तेः । 'अथ

रथान् रथयोगान् पथः सृजते' इति रथादिसृष्टिप्रतिपादकश्रुतिविरोधापत्तेश्च । तस्मात्

शुक्तिरूप्यवत् स्वप्नोपलब्धरथादयोऽपि प्रातिभासिका यावत्प्रतिभासमवतिष्ठन्ते ।

rathādeḥ smṛtimātrābhyupagame 'ratham paśyāmi,' 'svapne rathamadrākṣam,

ityādyanubhavavirodhāpatteḥ | 'atha rathān rathayogān pathaḥ sṛjate' iti

rathādisṛṣṭipratipādakaśrutivirodhāpatteśca | tasmātsuktirūpyavat

svapnopalabdharathādayo'pi prātibhāsikā yāvatpratibhāsamavatiṣṭantel

The perceptual experience of an elephant arises from sense-contact with an empirically cognized elephant and not from the contact with the elephant, which was perceived in one's dream. It makes no sense to say that the elephant that exists elsewhere, say in a zoo, alone is manifested in a dream.

In a dream there is no 'going out' of the body; consequently the functioning of the senses is not required. During dream all organs are at rest. So like chariot etc... being cognized by the organ is also illusory. Dream objects, though quite real to the dreamer, are contradicted by the facts of his waking state. Dream-imagery is always involuntary, being associated with sleep. Dream is wholly subjective. According to *śaṅkara* "in the waking state consciousness is associated with many means (such as the sense organs) and is manifest assuredly in relation to external objects, and being but the operations of the mind, leave on it corresponding impressions. Ingrained with these impressions like painted canvas, the mind, by being impelled by *avidyā*, desire, and past *karmas*, appears (in the dream state) as though it is in the waking state, independently of the external means."

CONCLUSION

A right method of knowledge is required to sense the world in the right way. There are six distinct methods of knowledge, perception being one of them, considered as immediate cognition. Knowledge is pure consciousness beyond the relativity of the knower and the known. It is prior to every form of existence. Perception plays a

major role as it is the knowledge obtained which is immediate, unlike the other knowledge that results from inference etc... which is mediate. Through the interaction of the sense organ and the object there is the removal of *ajñāna*.

According to *advaita vedānta*, worldly objects are illusory and everything is *Brahman*. Consciousness is the very essence of perceptual cognition. With regard to the conception of knowledge, according to Vedānta it is eternal Pure Consciousness; only it is manifested through mental states. Vedānta holds that Pure Consciousness has three forms – as associated with the subject or knower or Consciousness limited by the mind as associated with the object, and as associated with the mental state, and perception of any external object takes place when these three occupy the same space.

In this study only one out of six valid knowledge is discussed. The other five too needs to be studied.

PART II
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ABSTRACT

The study was conducted to assess the immediate effect of *trātaka* on adults and children. There were two groups of subjects for the present self as control study. One group comprising of children who were attending a ten days personality development camp and another group was of adults who were attending a one month residential yoga instructors course. The immediate effect of *trātaka* on the degree optical illusion was measured by using Muller-Lyer lines. The data was taken before and immediately after *trātaka*. Pre values were compared with post values by using a Wilcoxon signed rank test. There was a significant improvement in ‘out’ trials (ICR-Increment) ($p < 0.001$) and ‘in’ trials (DCR-Decrement) ($p < 0.001$, Wilcoxon signed ranks test) of both yoga and control group of children. There was no significance difference in the adults.

Key words: Trataka optical illusion Muller-Lyer.

CHAPTER 1: INTRODUCTION

Background

Perception is the process of interpretation, organization, and elaborating the raw materials of sensation (Sekular & Blake, 1994). Perception is also a constructive process by which we go beyond the stimuli that are presented to us and attempt to construct a meaningful situation (Haber, 1983). When an observer views certain patterns and is asked to describe them, the subjective assessment of the size, shape or direction of pattern components often differs from what might be expected based on direct physical measurements of the

stimulus. These patterns are called visual geometric illusions (Zanforlin, 1967). Visual illusion is a physical stimulus that consistently produces errors in perception. Perception of a geometric illusion is influenced by retinal, cortical cognitive judgemental factors (Coren, 1978).

In a study on critical flicker fusion frequency and optical illusion on children who practiced yoga for a shorter duration of 10 days had a significant improvement following the practice of yoga (Manjunath & Telles, 1999). Meditation has been shown to bring about significant changes in perception, attention and cognition (Brown, 1977). Significant changes were reported in the visual perception of advanced meditators, who were able to distinguish subtle differences in color and shade, and were on the whole more perceptually sensitive (Brown & Engler, 1980).

Another study conducted in 1984 by Brown, Forte & Dysart observed an increase in visual sensitivity following the practice of the mindfulness Buddhist meditation. It has been shown that training in focusing the gaze on the stimulus reduces the optical illusion by 79 percent (Hochberg, 1984). Yoga practices viz. *trātaka* has been shown to reduce the degree of illusion in adult subjects. To see its' effect intervention of yoga was given for a month and it was reported that focusing and defocusing through yoga for a month influenced the cognitive-judgmental factors of the subjects, to significantly reduce the degree of illusion perceived (Telles, 1997). Since the yoga practices help in improving different aspects of perception, and reduce the degree of illusion, the present study was conducted to evaluate the degree of illusion in adults and children.

CHAPTER 2 : AIMS AND OBJECTIVES

To study the immediate effect of *trātaka* practice (which involved both focusing and defocusing of the gaze and the attention)

- (i) The degree of optical illusion perceived in children.
- (ii) The degree of optical illusion perceived in young adults.

CHAPTER 3: LITERATURE REVIEW

The cognitive judgemental factors involve the way in which the subject interprets incoming visual information based on experience, hypothesis and strategies of judgement. Perception is a process by which the stimulus is interpreted, analyzed, and integrated with other sensory information. To perceive an optical illusion with minimal error and for accurate depth perception the spatial component of visual perception is necessary (Kandel, 1997). Visual illusion or optical illusion is a physical stimulus that consistently produces errors in perception. Yoga practices improve visual perceptual sensitivity, has been experimentally proved, using different methods of assessment. Many meditation studies have shown significant changes in perception, attention and cognition (Brown, 1977)

3.1 Studies on yoga and cognition

Cognition is a higher mental process by which we understand the, process information, make judgements and decisions and communicate knowledge to others (Feldman, 1997). In a study conducted to compare the effectiveness of two different relaxation procedures. The results provided tentative evidence that the two relaxation procedures produced differential effects according to whether subjects expressed anxiety somatically or cognitively. The subjects were categorized as either 'somatically-anxious' or cognitively-anxious' on the basis of a questionnaire. Half of the subjects in each group were given modified relaxation training, and the other group got training in agni-yoga. A study conducted by Jella (1993) on the effects of unilateral forced nostril breathing on cognitive performance the spatial task performance was significantly enhanced during left nostril breathing in both males and females, $p = .028$. Verbal task performance was greater

during right nostril breathing, but not significantly $p = .14$. This study describes the effects of 30 minutes of unilateral forced nostril breathing on cognitive performance in 51 right-handed undergraduate psychology students (25 males and 26 females). A verbal analogies task modeled after the Miller Analogies and SAT Tests was used as a test of left-hemispheric performance and mental rotation tasks based on the Vandenburg and Kuse adaptation of Shepard and Metzler's tests were used as spatial tasks for testing right-hemispheric performance.

3.2. Studies on yoga and perception

Perception is defined as sorting out, interpretation, analysis, and integration of stimuli involving our sense organs and brain (Feldman, 1997). In earlier studies on Meditation and other yoga practice, it has been shown that there is an improvement in visual perception. Yoga training has been shown to improve perceptual sensitivity (Manjunath, & Telles, 1999). It has been shown that both spatial and temporal components of visual perception are modified following yoga practices and improves diverse aspects of auditory and visual stimuli in normal volunteers. A study conducted by Campbell (1985), it was found that subjects enrolled in yoga and meditation courses remained relatively stable in their perceptual tendencies. There are studies using Critical Flicker Fusion Frequency have shown that perceptual sensitivity is not restricted to subtle aspects of the stimulus alone, as detection of a high frequency flickering stimulus was found to improve following yoga training (Ramanavani, et al., 1997 and Telles et al., 1995). The improvement in visual perception is related to enhanced neural processing at thalamic level (Telles, et. al 1992, Telles, et.al. 1994).

3.3. Studies on yoga and degree of illusion

Study on perception of visual illusion is found to improve in novice meditators, long-term Zen meditators and a control group, using Poggendorff and Muller-Lyer illusions (Tloczynski, et al., 2000). Previous studies on meditation have shown significant changes in perception, attention and cognition (Telles et al., 1977). A study reported that meditators were found to be more sensitive to subtle aspects of colour and shading of the Rorschach test inkblots, than they had been before meditation (Brown, & Engler, 1980). A study conducted on the degree of a visual geometric illusion, based on Muller-Lyer lines showed that a combination of focusing and defocusing yoga visual exercises

reduces optical illusion more than focusing alone (Telles, et al., 1995). Tloczynski (2000) reported that Long-term meditators had less initial illusion and less dramatic decrement when compared to the control group. It was also reported that Long-term meditators had exhibited less of anxiety and depression than the other two groups.

3.4. Studies on yoga and meditation in attention

Meditation is an art of being serene and alert in the present moment, instead of constantly struggling to change or to become. (Deshmukh, 2006). Earlier studies of Transcendental Meditation (TM) have reported its usefulness in improving cognitive performance and perceptual and motor skills. In 1973, a study conducted by Banquet observed that meditators had shown faster reaction time while measured of hypo-metabolic state reaction time during series of visual stimuli with less mistakes in comparison with matched controlled. Another recent study had reported that systematic meditation training could improve attention. The experimental group of 40 undergraduates Chinese students, who had undergone 5 days of meditation practice with integrative body-mind training and control group was given relaxation technique. It showed greater improvement in conflict scores on attention network test, lower anxiety, depression, anger, and fatigue, and higher vigor on the profile of mood states scale, significant decrease in stress-related cortisol, and an increase in immunoreactivity. (Tang, et al., 2007).

Cancellation task which requires selective attention, concentration, visual scanning abilities, and a repetitive motor response has found to be improving after two yoga-based relaxation techniques (Sarang, & Telles, 2007). Similarly another study in the year 2007 by Telles, et. al., had shown improvement in this task, after 30 minutes practices of yoga voluntarily regulated breathing. Though the test used in both the studies were different but were measuring the same components of mental ability.

It has been proven that mindfulness training improves attention-related behavioral responses by enhancing functioning of specific subcomponents of attention (Jha, 2007). The tests were conducted on three types of groups of individuals (i) naive to mindfulness training techniques who participated in an 8-week mindfulness – based stress reduction course, (ii) other group consisted of individuals who were participating in 1 month intensive mindfulness retreat compared, and (iii) control group. Earlier it has been observed that mindfulness training improves cognitive functions and mood. It has been shown meditation helped to improve the self-reported ADHD symptoms in adults and adolescents in test performance tasks measuring attention and cognitive inhibition (Zylowska, 2007) and may improve behavioral and neurocognitive impairments.

CHAPTER 4 : METHODS

4.1 Subjects

The subjects comprised of 60 adults and 90 children. The adult group with average age of 28.52 ± 9.27 SD, and the children with an average age of 13.72 ± 0.91 SD. The subjects involved members from both the sexes.

4.2 Source of subjects

The children group was from Swami Vivekananda Yoga University, who had come to attend a ten days Personality Development Camp. The adult group was from the same University who had come to attend a one-month Yoga Instructors Course.

4.3 Inclusion criteria

Normal vision without correction.

4.4 Exclusion criteria

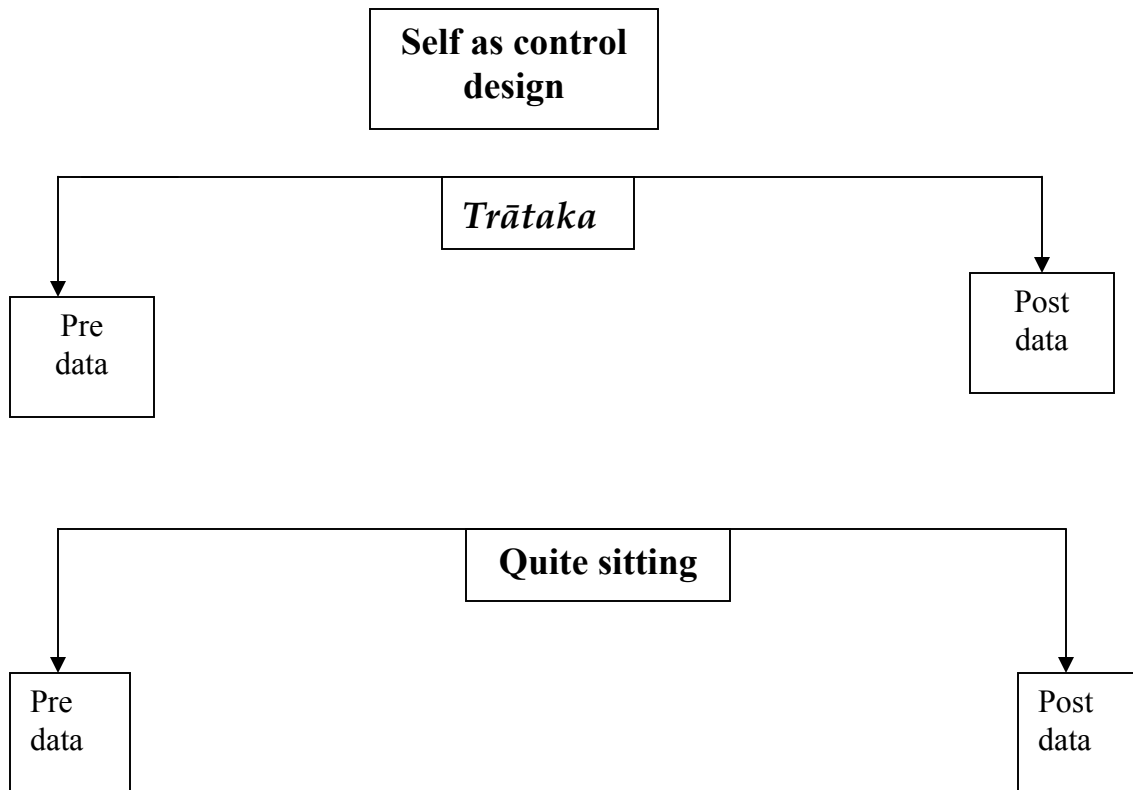
People having any kind of eye disease, head ache.

4.5 Ethical considerations

The subjects were told about the aims and methods of the study and the informed consent was signed by all subjects. An approval was obtained from the Institutional Ethical Committee.

4.6 Design

The data was taken before *trātaka* (the eye exercises) and immediately after *trātaka*. The subjects were given an introduction and practice of *trātaka* so that they are aware of the practice.



4.7 Apparatus

The degree of optical illusion was assessed by using Muller Lyer lines. The Muller-Lyer lines though of equal length appear unequal due to the two different types of arrows drawn at both ends of the line; close ended arrows making an acute angle or open ended arrows making an obtuse angle with the shaft. In the apparatus used for the present study the lines on the left was of fixed length and had close ended arrows at either end giving it an illusory shorter appearance. In contrast the length of the line on the right could be varied. This line has open-ended arrows at either end, which makes it appear longer. The subjects were divided in to two groups of adults and two groups of children. For both adults and children one group was given 25 minutes of *trātaka* for a day and the other two groups were simply sitting for 25 minutes. The next day it was vice-versa. The subjects were shown 5 Muller-Lyer lines on the screen each as trial1 and trial2 before the *trātaka* or 25 minutes of simply sitting and immediately after it

Trial1 was having 4 lines of 4mm each increment with reference to the correct length in the left side and one line with having both sides of correct length. And trial2 were having 4 lines of 4mm each decrement with reference to the correct length in the left-side and one line with having both sides of equal length. Each lines were given a letter a,b,c,d and e.

4.8 Intervention

The subjects were given 25 minutes of *trātaka* (eye exercises) as intervention. *Trātaka* has many steps to be followed first is the preparatory eye exercises. First step is the up and down or vertical movement of the eyes. In all the practices one has to open the eyes and move the eyeballs gently. It has to be smooth and continuous without any jerky movement. This has to be repeated for ten rounds. After the practice to relax the eyes simple palming is given, that is, rub the palms and then make a cup of it and cover the eyeballs. The second step is right and left or horizontal movements of eyeballs. Here, after opening the eyes one has to move the eyeballs to left and right. Again this also has to be repeated ten rounds. Here also simple palming has to be given. The next step is diagonal movement of eyeballs. Here the eye balls has to be moved extreme right up and extreme left down for ten rounds. After that press and release palming has to be given. That is as one inhale press the palms around the eyes and as one exhale release the pressure. It has to be continued for 10 rounds. Fourth practice is diagonal movement in the opposite direction. The relaxation is by same press and release palming. Next step is rotational movement of the eye balls that is clockwise and anticlockwise. Here after the practice for relaxation the constant pressure palming has to be done. That is press constantly around the eyeballs with the palms with inhalation and release with exhalation.

After the preparatory exercises next is *jyoti trātaka*, and it has three steps. In that first is focusing, that is effortless gazing or focusing at a flame. One has to look at it for 30 seconds. After the practice for relaxing press and release palming has to be given.

Next step is intensive focusing at the tip of the wick of the flame. Here constant pressure palming has to be given after the practice. Then the next step is de-focusing. That is first look at the flame then slowly widen the vision and have a defocused gaze on the flame with expansive awareness and collect the details of the flame. After one minute again focus on the flame then slowly close the eyes and try to visualize the flame between the eyebrows and collect all the details with eyes closed. When the image disappears go for palming with chanting of *Brahmari*. Then come to the last step that is silence.

4.9 Data extraction

The data was taken before and after the intervention. The subjects were provided an answer sheet. The lines which the subjects perceived the two lines to be of equal length was noted, ie. Subjective reading (“sr”). The difference between the “sr” and the reading at which the lines were actually of equal length, gave the degree of illusion (“di”). Each subject was assessed in two types of trials (“in” and “out”) five each. For “in” trials the length of the lines was increased up to 17.6cm from the actual length of the fixed line 16cm. For ‘out’ trials the procedure was reverse. The length of the adjusted line was decreased up to 14.4cm from the actual length of the fixed line 16cm. Each line had .4mm difference from the fixed line. In both cases the difference (in mm) between actual length of the line and the perceived length was noted as the degree of illusion (“di”).

4.10 Analysis

The data was analyzed using statistical package SPSS (version 10.0). The data was not normally distributed so, Wilcoxon Signed Rank Test was carried out. Within subjects effects was analyzed using paired t-test.

CHAPTER 6 : RESULTS

The data was analyzed by using SPSS version 10.0. The subjects comprised of 60 adults and 90 children. The adult group with average age of 28.52 ± 9.27 SD, and the children with an average age of 13.72 ± 0.91 SD.

Since the data was not normal, the means of the groups were compared using the Mann-Whitney test. Within-groups results were compared using the Wilcoxon test.

There was a significant improvement in ‘out’ trials (ICR-Increment) ($p < 0.001$ Wilcoxon Signed Ranks Test) for the yoga group; and ‘In’ trials (DCR-Decrement) ($p < 0.001$, Wilcoxon Signed Ranks Test) for the control group, when the result of post was compared to pre of both yoga and control group of children. There was no significant difference in the adults.

Table No.1 Group average value \pm SD of children group.

Children						
	Yoga			Control		
	Pre	Post	Percentage change	Pre	Post	Percentage change

Icr	1.204+0.551	0.373+0.580	-69.17	0.515+0.407	0.737+0.338	43.11
Dcr	0.502+0.336	0.671+0.628	34	1.306+0.418	0.528+0.490	-59.57

Table No.2 Group average value \pm SD of adults group.

Adults						
	Yoga			Control		
	Pre	Post	Percentage change	Pre	Post	Percentage change
Icr	0.700+0.618	0.833+0.571	19	0.740+0.574	0.766+0.542	3.51
Dcr	0.720+0.555	0.763+0.598	5.97	0.813+0.593	0.746+0.474	-8.24

CHAPTER 7: DISCUSSION

The present study has shown a significant improvement in ‘out’ trials (ICR-Increment) ($p < 0.001$ Wilcoxon Signed Ranks Test) and ‘in’ trials (DCR- Decrement) ($p < 0.001$, Wilcoxon Signed Rank Test) in children group. It has been observed that training in focusing the gaze on the stimulus reduces the optical illusion by 79% (Hochberg, 1984). A previous report on optical illusion suggests that one month of yoga brings about an 86.2 % decrease in the degree of illusion perceived (Telles, et al., 1997).

A study conducted by Manjunath (1999) showed a similar result, but was of lesser magnitude (27.97%). Retinal, cortical and cognitive-judgemental factors influence the perception of a geometric illusion (Coren, et al., 1978). At the retinal level mutual inhibition of spatially adjacent neural units account for the perception of an illusion

involving interesting lines (Bekesy, 1967). A cortical “satiating” model has been proposed to explain the role of cortical factors in perceiving an illusion (Colhoart, 1971). It states that if a specific cortical locus is continuously stimulated the neural substrate becomes refractory and hence difficult to activate. This refractoriness spreads spatially to include nearby neural units. If a test line is presented so that the activation caused by it overlaps the refractory region, the response will be inaccurate and may result in an illusory perception. The decrease in the degree of illusion perceived over a short period would be mainly due to cognitive judgemental factors, but not retinal or cortical factors (Coren, & Girgus, 1973).

Hence the training through yoga to focus and defocus might have influenced the cognitive judgemental factors of the subjects, to reduce the degree of illusion perceived. The present study suggests that younger subjects can show better improvement in performance following yoga training of a relatively short duration than adults.

CHAPTER 7: CONCLUSION AND SUMMARY

Since the yoga practices helps in improving different aspects of perception, and reduce the degree of illusion. The present study was conducted to compare the immediate effect of *trātaka* on children and adults. In this study the subjects were studied using ‘self as control’ design in 2 different sessions i.e. *trātaka* (eye excersises) and sitting quietly. The impact of this self as control study showed that there was a significant deffrence in the degree of illusion perceived by children after the practice of *trātaka*. But their was no difference in the adults.

CHAPTER 8 : LIMITATIONS AND SUGGESTIONS FOR FUTURE

8.1 Limitations

This was a study on the immediate effect of *trātaka* on visual perception in novice. The subjects were given an introduction and practice of *trātaka* so that they are aware of the practice. Even though the total practice of *trātaka* is for 25 minutes the practice of focusing and defocusing is only for 5 minutes rest all are preparatory eye exercises for the practice. And the degree of illusion had an already limited range.

8.3 Suggestions for the future

It would be interesting to assess the immediate effect of *trātaka* by using Muller-Lyer instrument.

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