Chapter 2
Theoretical Perspectives

2.1 Introduction

The researcher wanted to know about the previous studies which had been carried out and the nature of study related to this problem and subject. For this purpose the researcher tried to indicate the information and review of related literature.

The Review of related literature is an important and scientific step in the process of any research because man stores the new knowledge based on accumulated written information which creates new knowledge.

The literature of any country is like a search light on which all the future programme depend. The relation of related literature is with all types of books, encyclopaedias, pamphlets, published and unpublished research reports and articles related to the problem.

Before preparing research design and its execution, it is an important step for any researcher to study all available literature related to his study deeply. To carry out research in any field, the researcher must be familiar with library and all its tools.

In this present study, the researcher tried to know the effect of Yoga Exercises on Academic Achievement, Short-term Memory and Verbal Reasoning Ability. Therefore, necessary theoretical aspects of the study are provided in details and explained important theoretical concepts.
2.2 Yoga

The Description of ‘Yoga’ is very difficult as its nature is wide. So many delusions are found for term Yoga. Its refutation is unworthy. Yoga is becoming popular as a mean of treatment. To describe it in details is not related with the objective of this study. To answer the solution of question like the relation of Yoga and education is like that, the role of Yoga is to develop students practically. The term ‘Yoga’ can be defined operationally as below.

- Yoga is a logic which links material to minute.
- It is an ancient technique to understand and to know oneself.
- It is a blueprint for making body, mind and soul harmonious.
- It is a manner of living every moment attentively.
- Yoga is not only physical exercise or an Asana but it is a Journey of whole development in physical, mental, moral, religious and spiritual level.


Figure 2.1
Pancha Kosha

![Diagram of Pancha Kosha](image-url)
2.2.1 Definition of Yoga

According to Patanjali (retrieved from http://en.wikipedia.org/wiki/Yoga#Yoga_Sutras_of_Patanjali 14/08/2010) The word Yoga is derived from the root ‘Yuj’. The meaning of ‘Yuj’ is 'to join', 'to unite', or 'to attach'. The linking of the mind to consciousness and joining with soul is called Yoga. According to Saint Patanjali the author of ‘Ashtang Yoga’ in language of Sanskrit Yoga means,

"योगश्चत्वृत्तिनिरोधः"

The inclination of mind produces the different thoughts, passion, greed, anger, fascination etc. within a person. Due to these thoughts, the person feels happiness or sadness. The persons having such true knowledge is disclosed when such inclination of mind becomes stable and clean. Internal strength is also created then. Concentration of mind is essence of education. Mind is the bridge of education. The proper knowledge is comprehended only in light of soul in state of attentive mind, in the Bhagavad Gita. (retrieved from http://en.wikipedia.org/wiki/Karma_yoga 14/08/2010)

"योगः कर्मसु कौशलम्"

2.2.2 Ashtang Yoga


Yoga has eight limbs, Yama, Niyama, Asana, Pranayama, Pratyahara, Dharna, Dhyana and Samadhi.
1. **Yama:**

We live in society. There are other people, animals, birds, trees, rivers, mountains and air around us. We have close relation with whole world. Our life line is survived due to our mutual social activities and dealings.

Ahimsa, Satya, Asteya, Brahmacharya and Aparigraha are five yamas. Ahimsa means never harm to anyone directly or indirectly by mind, deeds and speeches.

**Ahimsa:** Ahimsa, (Swami Sivananda, Bliss Divine) or non-injury, implies non-killing. But non-injury is not only non-killing, it is much more than that. More comprehensively, ahimsa means "entire abstinence from causing any pain or harm whatsoever to any living creature, either by thought, word or deed. Non-violence needs a harmless mind, tongue and hand. Ahimsa is not mere negative non-injuring. It is positive, cosmic love."

**Satya:** Satya is truthfulness. It is more than just telling the truth. One's actions should be in accordance with one's words and thoughts. God and man's true Self are truth, and in order to tune in with that consciousness we need to live truthfully all the times. Furthermore lying creates many thoughts in the mind which go against the raja yoga objective of calming the mind.

**Asteya:** Asteya is non-stealing. This one is pretty self-explanatory. However, it is good to bear in mind that there are many subtle ways to appropriate what does not belong to us. As for the other yamas, much self-analysis will be necessary to catch the subtle lower tendencies of our mind.
**Brahmacharya:** Brahmacharya has two main meanings. In the broad sense it means control of the senses or indriyas. More specifically it refers to celibacy or chastity. Like all traditional spiritual traditions, yoga advocates restraining from indulging in sensual gratification. One of the many reasons is that practicing the higher limbs of ashtanga yoga - dharana, dhyana, and samadhi - requires a tremendous amount of energy or prana. This energy is built up through the practices of yoga such as asanas, pranayama and japa but is dissipated during sensual enjoyment. Of all the sensual activities, sex is the one that will be the most depleting to the psychic and nervous system. Most people don't like to hear this but, like the other yamas; everyone should practice brahmacharya to the best of their ability. It is a fact that the more people gratify their senses, the less energy they have and the less ability they have to meditate on the absolute.

**Aparigraha:** Aparigraha is non-covetousness. This involves being happy and contented with what we need and not always coveting unnecessary and luxury items. To possess more than we need is a violation of this precept. Note that aparigraha includes the notion of not accepting gifts that would bind us to the giver.

2. **Niyama:**

   Yama is morality of social relation. Niyama is a religion of personal happiness. For that purpose, the five rules of Niyama are as follows.

   Saucha, Santosha, Tapa, Swadhyaya and Ishwarapranidhana.

**Saucha:** Saucha is purity. The deepest and most subtle aspect of Saucha is purity of thoughts and feelings. But it also means
cleanliness of the body, which for hatha yogis includes the internal cleansing practices known as kriyas. A yogi must also keep his surroundings (home, car, workplace, etc.) very tidy and clean. Purity is the essence of the sattvo guna, of paramount importance to meditate successfully.

**Santosha:** Santosha is contentment. This is the ability to recognize that although it is important to try to better our environment and life situation through proper effort, the world around us is never going to be perfect and absolutely to our liking. Therefore the raja yogi should be happy with what he has and endeavor to do the best he can with what he has got.

**Tapas:** Tapas is austerity. The luxury and comfort of our modern society, with all its advantages, makes our mind soft and weak. To strengthen ourselves physically and mentally we must practice austerities. The highest tapa is meditation of God or the Divine Self. Daily practices as a tapa of yogic disciplines are considered tapa. A very good practice is fasting.

**Swadhyaya:** Swadhyaya literally means study of the Self. The main practice is the study of the yogic scriptures but it also includes japa (mantra repetition). Not any yoga or spiritual book qualifies as proper material for swadhyaya. For a vedantin the best scriptures are the Upanishads, the Bhagavad Gita and the Brahma Sutras. There are also many other scriptures such as the Puranas, the Ramayana, the Mahabharata, etc. Next comes the books written by great mystics or masters such as Swami Sivananda, Swami Vishnu-devananda, or other saints from all traditions. Also suitable are the books written about these masters - biographies.
Ishwarapranidhana: Ishwarapranidhana is surrender to God's will and devotion. All ethical and moral precepts of yoga culminate here.

3. **Asana**

   Keeping in mind that the objective of raja yoga is to calm the mind down, this is only possible if one has control of the physical body. Body and mind are intimately connected and if the body is agitated, the mind will be agitated as a result. In order to meditate successfully one must develop a very steady posture. Furthermore the posture must be kept still for a long time and therefore it needs to be extremely comfortable. When the meditator is not able to control his mind, he is advised to practice the asanas of hatha yoga in order to gain the needed mastery.

4. **Pranayama**

   The raja yoga theory tells us that prana is animating the mind. Very much like the wind creates the motion of the leaves; prana creates the motion of the mind which gives rise to the vrittis. Air is the primary physical medium of prana and breathing is our best method to gain control over the prana. To meditate, the practitioner should calm his breath down until it is very shallow and even. If this is not possible he should practice the different pranayamas of hatha yoga. To keep control on the respiratory system is called Pranayama.

5. **Pratyahara**

   Pratyahara is the withdrawal of the senses from their objects. The natural tendency of the senses is to go out towards the objects of the world. In doing so they pull the mind out and away from the inner Self and create powerful waves on the lake-mind. Therefore,
the yogi must be able to withdraw the senses within if he has to keep a balance and peaceful mind.

The analogy given to us is that of the tortoise which, under perceived danger, pulls in all its limbs and head.

6. **Dharana**

Concentration. One-pointedness. The meditator is fully focused on the object of concentration, his mind as still as the flame of a lamp in a windless room. When this state is maintained long enough, it will lead to dhyana.

Dharana (retrieved from http://en.wikipedia.org/wiki/Dharana 21/08/2010) is translated as collection or concentration of the mind (joined with the retention of breath), or "the act of holding, bearing, wearing, supporting, maintaining, retaining, keeping back (in remembrance), a good Memory", or "firmness, steadfastness, certainty". This term is related to the verbal root ‘dhri’ to hold, carry, maintain, resolve.

Dharana is the sixth stage, step or limb of eight elucidated by Patanjali's Ashtanga Yoga or Raja Yoga.

7. **Dhyana**

Dhyana is translated as meditation. It is a natural flow of thought or consciousness between the meditator and the object of meditation. It is a very joyous state and which is compared with the flow of oil from one vessel to the next. Very natural and effortless.

In dhyana there is still duality of consciousness which is the feeling of separation between the meditator and the object of
meditation. When maintained long enough this state will lead to the highest rung of the ladder of ashtanga yoga which is samadhi.

Dhyana (retrieved from http://www.shivarudrabalayogi.org/questions-a-answers/29-meditation-method/246-the-meaning-of-dhyana 21/08/2010) means 'your attention to'. Now, your mind's attention is directed too much towards the world, and this leads to fear and cravings. Cravings are the cause of all unhappiness for humanity. If this attention can get concentrated, then the mind goes inwards and touches the Self. This leads to a happier life. Getting control of the mind is like controlling a car. If you can control the car, you can drive it if you wish, and when you don't want to drive, you don't drive. In the same way, if the mind is controlled, when you want to use it, you can use it; when you don't want to use it, you can keep it quiet.

8. Samadhi

In Hinduism, Buddhism, Jainism, Sikhism and yogic schools (retrieved from http://translation.babylon.com/english/Samadhi/21/08/2010) is a higher level of concentrated meditation, or Dhyana. In the yoga tradition, it is the eighth and final limb identified in the Yoga Sutras of Patanjali. It has been described as a non-dualistic state of consciousness in which the consciousness of the experiencing subject becomes one with the experienced object, and in which the mind becomes still, one-pointed or concentrated while the person remains conscious. In Buddhism, it can also refer to an abiding in which mind becomes very still but does not merge with
the object of attention, and is thus able to observe and gain insight into the changing flow of experience.

As described by Swami Sivananda this is "The state of consciousness where Absoluteness is experienced attended with all-knowledge and joy; Oneness; here the mind becomes identified with the object of meditation; the meditator and the meditated, thinker and thought become one in perfect absorption of the mind."

Much practice is necessary to attain this stage. Regular (daily practice) of all these eight limbs is absolutely necessary.

2.2.3 Yoga and Exercise

The difference between Yoga and Physical exercises is mentioned following table 2.1.

<table>
<thead>
<tr>
<th>Physical exercise</th>
<th>Yoga</th>
</tr>
</thead>
<tbody>
<tr>
<td>Importance to velocity is given in Physical Exercise.</td>
<td>Importance to stability is given in Yoga.</td>
</tr>
<tr>
<td>Importance to physical strength is given in Physical Exercise. The person becomes extrovert by doing Physical Exercise.</td>
<td>Importance to mental strength is given in Yoga. The person becomes introvert by doing Yoga.</td>
</tr>
<tr>
<td>Immediate results are found by Physical exercise.</td>
<td>Much time is needed for getting result by Yoga.</td>
</tr>
<tr>
<td>One sided developments possible through Physical Exercise.</td>
<td>Universal development is done through Yoga.</td>
</tr>
<tr>
<td>Physical exercises start with warming actions.</td>
<td>Yoga exercises start with uttering an omkar and prayer.</td>
</tr>
<tr>
<td>A physical exercise is for building of one’s body.</td>
<td>Yoga is for moulding of one’s mind.</td>
</tr>
<tr>
<td>Energy is wasted in Physical exercises.</td>
<td>Energy is stored in Yoga exercises.</td>
</tr>
<tr>
<td>Tiredness is felt after practicing of Physical exercises.</td>
<td>Freshness and health is felt after practicing Yoga exercises.</td>
</tr>
</tbody>
</table>
2.2.4  Relationship between Yoga and Education

Teaching learning process is done in the classrooms. Mutual interaction of information and feelings are done between students and teacher. Some obstacles come during this process for example, students cannot memorize, do not understand, forget the memorized content, feel stress and mentally depressed. We can find the solution of these problems in Yoga. By practising Yoga, the students can keep their minds in deep peace. Thus, their intelligence can be sharper and in a particular way the students can increase their Memory.

2.2.4.1 Intelligence Development by Yoga

Nerve system feels sensation and controls the actions of the body. Thus, the nerve system is an important medium for attaining knowledge.

Having knowledge means having experience. It is believed that the feeling of the thing weather it is hot or cold is knowledge. Eyes, ears, nose, tongue and skin are five senses. We can get knowledge by using them but in fact knowledge is acquired by the contact of them with any part of mind. We come across many things on the road but we don’t have knowledge of all of them. Sometimes nose cannot feel unpleasant or good smell. In the case of paralysis, skin cannot feel sensation. In this way when the sensation enters into senses and reaches the centre of senses in the mind, we can feel and get knowledge.

Yoga exercises make the nerves and senses pure and able. In the language of Yoga, the nerve is called ‘artery’. There are 72
thousand ‘artery’ in our body. Yoga exercise purifies the ‘artery’ and enables them for acquisition of knowledge.

2.2.5 Necessary Instructions for Yoga Practices

Yoga is not a subject in which practice of listening, reading and writing is necessary. Yoga is a subject of practising. Yoga can be understood by experiences. Yoga should be practised under guidance of any experienced person.

Some necessary instructions for Yoga practises are as follows.

1. Yoga should be practiced with deep faith and pleasure.
2. Yoga practices should be followed regularly and continuously.
3. Yoga is related with life style, so daily life, life style, food, dresses, speech etc should be thought in context of Yoga.
4. Yoga should start after discharge of excreta.
5. Yoga should be practised after half an hour after any drink like tea, meal, milk etc and four hours after meal.
6. Nothing should be drunk or eaten for half an hour after Yoga practices.
7. Yoga should be practised normally in the morning or evening which is more beneficial.
8. The place for Yoga should be clean, airy and peaceful.
9. A woolen carpet or white cotton cloth should be spread on floor for Yoga practices.
10. Loose cotton dress should be worn while practicing Yoga.
11. Yoga should not be practised during illness, tiredness or with confused mind.
12. In the beginning, easy Asanas should be practised. Shavasan can be done. If tiredness is felt, Asanas should be stopped.
13. The practising order of Asanas and Pranayama should remain consistent.

2.3 Memory

Psychologists say that ‘Memory is a birth heritage power’, which is acquired by animals from generation. By the way all animals have Memory power but we find more Memory power in human beings. So, man is considered as the best of all animals. Human mind has strength to store experiences. All experiences cannot be stored in its actual form. The experience which is stored in unconscious mind and has impact on human being is called storage. But the experience which comes and goes at the level of consciousness is called Memory.

Modern psychologists take Memory as information revising system. Memory is in the center of enlightening interpretation of learning and thinking process.

Modern Memory is one of the infinite and inclination powers of mind. Its development is possible.

Memory is an important essence of learning. It is a valuable blessing given to human being. It is soul of learning. Any learning without having Memory is impossible and vague. Memory is not an easy process but it is a complex process.

2.3.1 Definitions of Memory

In psychology, Memory (retrieved from http://en.wikipedia.org/wiki/Memory 21/08/2010) is the process by which information is encoded, stored, and retrieved. Encoding allows information that is from the outside world to reach our senses in the forms of chemical and physical stimuli. In this first stage we must
change the information so that we may put the Memory into the encoding process. Storage is the second Memory stage or process. This entails that we maintain information over periods of time. Finally the third process is retrieval. This is the retrieval of information that we have stored. We must locate it and return it to our consciousness. Some retrieval attempts may be effortless due to the type of information.

The three main stages in the formation and retrieval of Memory are as follows.

- **Encoding or registration** (receiving, processing and combining of received information)
- **Storage** (creation of a permanent record of the encoded information)
- **Retrieval, recall or recollection** (calling back the stored information in response to some cue for use in a process or activity)

### 2.3.2 Components of Memory

According to different Psychologists Memory has four main components mentioned in following figure 2.2.

**Figure 2.2**

**Components of Memory**

Learning

↓

Recognition → Memory ← Retention

Remember
1. Learning

When we want to remember any incident or fact, we want to learn. “To remember any fact successfully, it should be learnt perfectly. It is equal to more than half victory in battle field.

2. Retention

The power of mind by which any fact is imprinted in mind is called retention. It is the born gift. The retention power develops with the development of the child.

The thing which remains after learning is retention. More or less, retention links every learning. Retention is responsible thing for preservation of learning.

3. Recall

The process of being aware of the experiences acquired by learning by a learner is called recalling. Establishment can be done by reproduction of material of learning and retention, incidents and activities.

There are two types of recalling.
(1) Effortless Recalling
(2) Recalling by Efforts

4. Recognition

First disclosing of learner’s retention ability is recognition. Awareness towards situations of past experiences is called recognition. With the help of recognition, the learner can be able to recognize different materials or incidents and it is called education or attaining knowledge.
2.3.3 Types of Human Memory

The types of Memory (retrieved from http://www.human-Memory.net 22/08/2010) are indicated in figure 2.3.

Figure 2.3

Types of human Memory

(1) Sensory Memory

Sensory Memory is the shortest-term element of Memory. It is the ability to retain impressions of sensory information after the original stimuli have ended. It acts as a kind of buffer for stimuli received through the five senses of sight, hearing, smell, taste and touch, which are retained accurately, but very briefly. For example, the ability to look at something and remember what it looked like with just a second of observation is an example of sensory Memory.

The stimuli detected by our senses can be either deliberately ignored, in which case they disappear almost
instantaneously, or perceived, in which case they enter our sensory Memory. This does not require any conscious attention and, indeed, is usually considered to be totally outside of conscious control. The brain is designed to only process information that will be useful at a later date, and to allow the rest to pass by unnoticed. As information is perceived, it is therefore stored in sensory Memory automatically and unbidden. Unlike other types of Memory, the sensory Memory cannot be prolonged via rehearsal.

Sensory Memory is an ultra-short-term Memory and decays or degrades very quickly, typically in the region of 200 - 500 milliseconds (1/5 - 1/2 second) after the perception of an item, and certainly less than a second (although echoic Memory is now thought to last a little longer, up to perhaps three or four seconds). Indeed, it lasts for such a short time that it is often considered part of the process of perception, but it nevertheless represents an essential step for storing information in Short-term Memory.

The sensory Memory for visual stimuli is sometimes known as the iconic Memory, the Memory for aural stimuli is known as the echoic Memory and that for touch as the haptic Memory. Smell may actually be even more closely linked to Memory than the other senses, possibly because the olfactory bulb and olfactory cortex (where smell sensations are processed) are physically very close - separated by just 2 or 3 synapses - to the hippocampus and amygdala (which are involved in Memory processes). Thus, smells may be more quickly and more strongly associated with memories and their associated emotions than the
other senses, and memories of a smell may persist for longer, even without constant re-consolidation.

Experiments by George Sperling in the early 1960 involving the flashing of a grid of letters for a very short period of time (50 milliseconds) suggest that the upper limit of sensory Memory (as distinct from Short-term Memory) is approximately 12 items, although participants often reported that they seemed to "see" more than they could actually report.

Information is passed from the sensory Memory into Short-term Memory via the process of attention (the cognitive process of selectively concentrating on one aspect of the environment while ignoring other things), which effectively filters the stimuli to only those which are of interest at any given time.

(2) Short-term Memory (STM)

Short-term Memory (retrieved from http://www.emeritus.com/elder-care-resources/elder-care-guides/Memory-loss/definition 23/08/2010) allows you to recall information for several seconds up to a minute. It is possible to store about seven items at a time in Short-term Memory. Long-term Memory allows you to store information for longer periods but not indefinitely.

“STM is a bio-electronic process, which exists for maximum 30 seconds.”

“S.T.M. is interpreted as a bioelectric process in the form of a close neural circuit and is strongly susceptible to forgetting (filter effect) and interfering influences.”
Short-term Memory (retrieved from http://www.human-Memory.net 23/08/2012) acts as a kind of “scratch-pad” for temporary recall of the information which is being processed at any point in time, and has been referred to as "the brain's Post-it note". It can be thought of as the ability to remember and process information at the same time. It holds a small amount of information (typically around 7 to 20 items or even less) in mind in an active, readily-available state for a short period of time (typically from 10 to 15 seconds, or sometimes up to a minute).

For example, in order to understand this sentence, the beginning of the sentence needs to be held in mind while the rest is read, a task which is carried out by the Short-term Memory. Other common examples of Short-term Memory in action are the holding on to a piece of information temporarily in order to complete a task (e.g. “carrying over” a number in a subtraction sum, or remembering a persuasive argument until another person finishes talking), and simultaneous translation (where the interpreter must store information in one language while orally translating it into another).

However, this information will quickly disappear forever unless we make a conscious effort to retain it, and Short-term Memory is a necessary step toward the next stage of retention, long-term Memory. The transfer of information to Long-term Memory for more permanent storage can be facilitated or improved by mental repetition of the information or, even more effectively, by giving it a meaning and associating it with other previously acquired knowledge. Motivation is also a consideration, in that information
relating to a subject of strong interest to a person. It is more likely to be retained in Long-term Memory.

The term Working Memory is often used interchangeably with Short-term Memory, although technically Working Memory refers more to the whole theoretical framework of structures and processes used for the temporary storage and manipulation of information, of which Short-term Memory is just one component.

➢ Characteristics of Short-term Memory

- The matter can be stored in short term Memory for very little time.
- Repetition is necessary to confirm such matters.
- The material can be stored till it is used.
- The capability of storing material is little.
- Short-term Memory is very high at small age.

(3) Long-term Memory (LTM)

Forgetting is very little in Long-term Memory. The acquired subject matter is based on stored bio-chemical models in the mind. It is cleared by Nuro-Physiological that Long-term Memory is related to blue Gong ionic cells of several cortices. It has also relation with some white cells of serikram. It has been found in the study related to many marlicular, biologic and bio-chemical that the change in Protein, Peptides, Lipids and RNA play an important role in storage of Long-term Memory.

Long-term Memory is, obviously enough, intended for storage of information over a long period of time. Despite our everyday impressions of forgetting, it seems that Long-term Memory actually decays very little over time, and can store a
seemingly unlimited amount of information almost indefinitely. Indeed, there is some debate as to whether we actually ever “forget” anything at all, or whether it just becomes increasingly difficult to access or retrieve certain items from Memory.

**Characteristics of Long-term Memory**

- The Memory is stored for long time in Long-term Memory.
- The relation of Long-term Memory is with the experience world.
- These experiences are joined to area, time and age.
- Long-term Memory increases with age.
- The material storage ability is unlimited in Long-term Memory.

(4) **Declarative (Explicit) & Procedural (Implicit) Memory**

Long-term Memory is often divided into two further main types: explicit (declarative) Memory and implicit (or procedural) Memory.

Declarative Memory (knowing what) is Memory of facts and events, and refers to those memories that can be consciously recalled. It is sometimes called explicit Memory, since it consists of information that is explicitly stored and retrieved, although it is more properly a subset of explicit Memory. Declarative Memory can be further sub-divided into episodic Memory and semantic Memory.

Procedural Memory (knowing how) is the unconscious Memory of skills and how to do things, particularly the use of objects or movements of the body, such as playing a guitar or riding a bike. It is composed of automatic sensorimotor behaviours that are so deeply embedded that we are no longer aware
of them, and, once learned, these ‘body memories’ allow us to carry out ordinary motor actions automatically. Procedural Memory is sometimes referred to as implicit Memory, because previous experiences aid in the performance of a task without explicit and conscious awareness of these previous experiences, although it is more properly a subset of implicit Memory.

(5) **Episodic & Semantic Memory**

Declarative Memory can be further sub-divided into episodic Memory and semantic Memory.

Episodic Memory represents our Memory of experiences and specific events in time in a serial form, from which we can reconstruct the actual events that took place at any given point in our life. It is the Memory of autobiographical events (times, places, associated emotions and other contextual knowledge) that can be explicitly stated. Individuals tend to see themselves as actors in these events, and the emotional charge and the entire context surrounding an event is usually part of the Memory, not just the bare facts of the event itself.

Semantic Memory, on the other hand, is a more structured record of facts, meanings, concepts and knowledge about the external world that we have acquired. It refers to general factual knowledge, shared with others and independent of personal experience and of the spatial/temporal context in which it was acquired. Semantic memories may once have had a personal context, but now stand alone as simple knowledge. It therefore includes such things as types of food, capital cities, social customs, functions of objects, vocabulary, understanding of mathematics, etc. Much of
semantic Memory is abstract and relational and is associated with the meaning of verbal symbols.

The semantic Memory is generally derived from the episodic Memory, in that we learn new facts or concepts from our experiences, and the episodic Memory is considered to support and underpin semantic Memory. A gradual transition from episodic to semantic Memory can take place, in which episodic Memory reduces its sensitivity and association to particular events, so that the information can be generalized as semantic Memory.

Both episodic Memory and semantic Memory require a similar encoding process. However, semantic Memory mainly activates the frontal and temporal cortexes, whereas episodic Memory activity is concentrated in the hippocampus, at least initially. Once processed in the hippocampus, episodic memories are then consolidated and stored in the neocortex. The memories of the different elements of a particular event are distributed in the various visual, olfactory and auditory areas of the brain, but they are all connected together by the hippocampus to form an episode, rather than remaining a collection of separate memories.

(6) Retrospective & Prospective Memory

An important alternative classification of Long-term Memory used by some researchers is based on the temporal direction of the memories.

Retrospective Memory is there where the content to be remembered (people, words, events, etc.) is in the past, i.e. the recollection of past episodes. It includes semantic, episodic and
autobiographical Memory, and declarative Memory in general, although it can be either explicit or implicit.

Prospective Memory is there where the content is to be remembered in the future, and may be defined as “remembering to remember” or remembering to perform an intended action. It may be either event-based or time-based, often triggered by a cue, such as going to the doctor (action) at 4pm (cue), or remembering to post a letter (action) after seeing a mailbox (cue).

Clearly, though, retrospective and prospective memories are not entirely independent entities, and certain aspects of retrospective Memory are usually required for prospective Memory. Thus, there have been case studies where an impaired retrospective Memory has caused a definite impact on prospective Memory. However, there have also been studies where patients with an impaired prospective Memory had an intact retrospective Memory, suggesting that to some extent the two types of Memory involve separate processes.

2.3.4 Yoga and Memory

Yoga and Memory (retrieved from http://www.yogawiz.com/yoga-therapy/yoga-and-Memory-facets-of-the-mind.html 02/09/2010) are closely interconnected. In fact there are a number of facets of the mind that modern science has not been able to explore, let alone fully understand. According to Yoga the human mind consists of 4 facets. They are called Manas, Buddhi, Chitta and Ahankara. Mana is often referred to as the mind. This is the grossest state of mind when randomness gets channelized; human energies begin to be useful.
Buddhi or intellect is responsible for sorting out data by way of thoughts, analyzing them and putting them into different folders. Just like a postman sorts out letters and puts them in their destination cells, our intellect is supposed to sort out thoughts, and connect all those that are related to a particular subject. All thoughts unconnected are got rid of. Only thoughts connected to a subject are retained and kept to explain a subject. This is often referred to as concentration. Everybody knows the importance and use of concentration to succeed in all any endeavor.

The third facet of the mind is Memory. In Sanskrit it is called Smriti. After information has been sorted out but by the Buddhi, whatever has to be stored is transmitted to the Memory bank. Not all information has to be or can be stored. Just those important memories that the intellect chooses will find entry into the Memory bank. Here they will be kept ready to be unearthed anytime you require.

Finally, at the background of all the states lies the sense of "I." It is often called the Ego. Whatever man does, there is always an "I thought" - meaning to say, etc. This happens to be the subtlest aspect of the human mind. All put together these 4 facets of the human mind fall under a broad heading called the Antahkarana.

Hindu Philosophy has great faith in principle of rebirth. God Shri Krishna had said that.

**Bhagavad Gita Chapter-4, Verse-5**
Means, many births of mine and also of yours have passed O Arjuna; I am knowledgeable of all of them; but you do not know.

Human being has material as well as subtle body. The subtle body is made of mixing micro components of intelligence soul, five animate power and senses. At the moment of death, the material body is destroyed and subtle body receives new form of body.

 Means, just as a man giving up old worn out garments accepts other new apparel, in the same way the embodied soul giving up old and worn out bodies verily accepts new bodies.

Many experiences stored in the form of Memory in subtle body are called ‘Sanskar’, which become the base of behavior of new body. So the Memory is remained stored not for only one life time but for all the future births.

Yoga and Memory are closely interlinked and development at the mental level through Yoga therapy is growing day by day. The mind being a collection of thoughts, unrelated thoughts and ideas plus a disorganized mind-set is the starting point of descent. The first rung in attaining mastery over one’s mind is to steadily, methodically and thoroughly train it. This is done with a view to cultivate the power of concentration on a given subject.

All man's thoughts are channelized through the process of concentration. This is the job of the intellect. The next thing to do is focus one's mind on a single thought. This, in Yoga therapy is called
Dharana and effortless Dharana becomes meditation, Dhyana. All the 3 stages, Dharana, Dhyana and together with the next step Samadhi help cultivate better Memory. According to Yoga, there is an essential difference between Memory development methods in the intellectual and mental levels. At the intellectual level, understanding becomes the key to Memory. At the mental level, memorization happens by remaining with a single thought through repetition of the same thought over and over again. This is done through the relaxed, effortless process of dhyana.

A person can enter into Samadhi of one's own accord, or develop a photographic Memory as the end result. In Super consciousness comes the process of what is called Sanyama by which one is able to unravel that knowledge which is hidden deep within the subtler layers of one's Memory. Yoga therapy techniques include various ways of meditating. Some of these are Transcendental meditation, Om Meditation, Yoga Nidra and Trataka. All these help in Dharana and Dhyana that lead up to Samadhi. Yoga therapy has also come up with a set of games and songs that help enhance the Memory at these levels. Breathing exercises (pranayama) are also widely used to cultivate a better Memory. Some of them include, Kapalabhati, sectional breathing and other sorts of breathing exercises that help improve Memory.

- **Memory according to Yoga**
  - Long-term Memory remains for all the future birth.
  - This Memory is stored in the form of happiness or sadness because of experiences in contact of material world by senses.
  - Memory is stored in form of ‘Sanskar’ in mind.
• The experienced subjects which never vanish from mind are called Memory.
• The power of mind is spread due to this thing. Sensation of senses is increased by studying concentration of senses which resulted in mental peace.
• Memory is one of many powers of mind.
• Memory is hereditary. Growth can be done by practice.

The Memory sensation changes by means of mind are indicated in figure 2.4.

**Figure 2.4**

**Memory Sensation Changes by Means of Mind**

2.4 Academic Achievement

Academic achievement (retrieved from http://en.wikipedia.org/wiki/Academic_achievement 02/09/2010) performance is the outcome of education - the extent to which a student, teacher or institution has achieved their educational goals.
Academic Achievement should be what you want for yourself, instead of what others want for you. Your goals can be anything you want, such as passing a class that is challenging for you. Another good goal is to push you to make it onto the honor roll.

Academic achievement is commonly measured by examinations or continuous assessment but there is no general agreement on how it is best tested or which aspects are most important - procedural knowledge such as skills or declarative knowledge such as facts.

In California, the achievement of schools is measured by the Academic Performance Index. (API).

2.4.1 Definition of Academic Achievement

Academic achievement (retrieved from http://www.ask.com/questions-about/Meaning-of-Academic-Achievement 02/09/2010) is a term used in school when a student does well in academics. They achieve or do well in an area of school and do well in their studies.

2.4.2 Needs of Educational Achievement

Educational Achievement is needed to measure the knowledge and merit obtained in different school subjects by students.

The measurement of qualification to send the students in the next standard or to enter another school is possible only by academic achievement.

2.4.3 Uses of Academic Achievement

- To give admission to students in schools
- To classify the students, curriculum and choice of vocation
• To decide the standard of students.
• To know the interest of students, to select the subjects and choice of students for proper professional designation.

2.4.4 Yoga and Academic Achievement

The process of the growth of academic achievement through Yoga is indicated in figure 2.5.

For higher academic achievement, four things like healthiness of senses, devoted mind, concentration and endurance. These four things are made favorable with the help of regular Yoga Exercises. Naturally the level of academic achievement is increased.

2.5 Conclusion

The researcher has made detailed review of related literature to his research subject in this chapter. He included the review based on Yoga in this chapter.