



## **EFFECT OF PYROBRAIN CONCENTRATION METHOD ON ACADEMIC ACHIEVEMENT OF SECONDARY SCHOOL STUDENTS**

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### **Abstract**

*Concentration serves as one such method for stimulating new synaptic connections in the brain. By practicing concentration, one can improve the strength and functioning of their brain while also changing its functionality. The main aim of the experimental research was to ascertain the effect of Pyrobrain Concentration Method on Academic Achievement of Secondary School Students. The data was collected from 820 students of Mumbai and Sangli District. The researchers used the Quasi-Experimental Pretest- posttest Non-equivalent group design. The sampling purposive sampling technique has been used for this study. These findings indicate that the gain scores of experimental and control groups differ significantly. It can thus be inferred that pyrobrain concentration method has helped to develop academic achievement in the students of standard X of the experimental group. The  $\omega^2$  estimate on variable academic achievement is 58.60%. The contribution of pyrobrain concentration method in the development of academic achievement was found to be 58.60%. Thus it can be concluded that the pyrobrain concentration method has helped to enhance academic achievement among X standard students of experimental group.*



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Secondary Education is a important stage in student life as it prepares the students for higher education and also for the world of work. Classes IX and X constitute the secondary stage, whereas classes XI and XII are designated as the higher secondary stage. The normal age group of the students in secondary classes is 14-16 whereas it is 16-18 for higher secondary classes. The students in secondary education are in adolescent age-group, which is the most crucial period they need to concentrate on their studies. It has been said that if they are helped to concentrate on their studies, the anxiety and academic stress can be reduced, which may ultimately result in enhancing the academic achievement among students.

(Vijnananand, Tension- Free Success, december- 2002) Intellectual fatigue may be defined as a subjective state in which one feels tired or exhausted, and in which the capacity for normal work or activity is reduced. During such a phase, the students avoid studies, have tensions of attending the classes, examinations and tests, have fear about failure in examination, and have fear about low score and low IQ feeling. They Worry about exams for weeks beforehand and

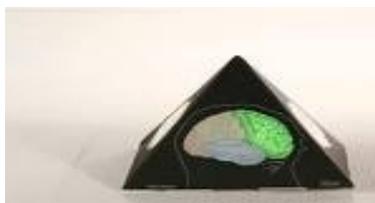
become so anxious that they can't study at all. They may sit for hours in front of a book not taking anything in and then panic that they know nothing. Other common complaints are of sudden loss of memory at examination, and Worry about they will blank out, forget everything. Many students experience physical symptoms such as insomnia, headaches, diarrhoea, nausea, sweating, and problems with sleep.

### **Pyrobrain Concentration Program:**

This method will be useful to make difficult subject easy within 90 days, provided the following simple instructions are strictly observed. :-

- 1) In the pyrobrain concentration, the concentration is done on the pyrobrain, as recommended by Swami Vijnananand, the founder of Manashakti Research Centre.
- 2) The pyrobrain is in the shape of pyramid with four triangular sides, equal in size, resting on a square base, with the triangular sides joined to form an apex at the top. There are four symbols of the brain lobes on its four sides, viz, frontal lobe, parietal lobe, occipital lobe and temporal lobe. On each side the symbolic figure of one lobe has been boldly displayed.

**Figure No. 1.1- Pyrobrain**



- 3) At a pre-determined time, concentration has to be done for two minutes on the bold symbol on the four sides, successively. While doing this concentration, one must think of his goal (the target set by the students in terms of the percentage one wants to achieve) and the plan of action.
- 4) Thereafter, concentration should be done on the apex of the pyramid. During this concentration, naturally, entire pyramid will appear before the eyes. (Here one must think of his/her strength (positive qualities) and weaknesses.)
- 5) The time and place of this concentration for ten minutes should be fixed. After concentration, the student should place the pyramid at the place of the study, whereby the pyramid will appear frequently during the period of study and that will create an impact on the subconscious mind.

- 6) The student has to select any one subject which is considered as the 'most difficult' subject. Spare one hour fixed study time for the subject every day, after doing concentration.
- 7) Sit facing a given direction while you set for study. For this purpose, observe in which part of the brain (right or left), the difficult subject is located. If it falls in the left brain, (for the subjects like Algebra, history, Science, and Language) the student has to sit facing east, so that the left brain subject will be to the North (i.e. magnetic North). On the contrary, if the difficult subject is located in Right brain (for the subjects like geometry, geography) the student has to sit facing west. (Please refer to the Brain Diagram on back of the cover of this book, which gives locations of various subjects in the Brain.)
- 8) Do not change the subject, the place, the direction for the selected subject and the study time for 90 days. The students have to follow this pyrobrain concentration program for 90 days.

#### **PRINCIPLE BEHIND THE PYROBRAIN CONCENTRATION**

The pyrobrain concentration method is based on the following different sciences- Neurology, Physiology, Psychology, Electronics, Pyramid Science, Auto Suggestion, Conditioned Reflex and Suggestology.

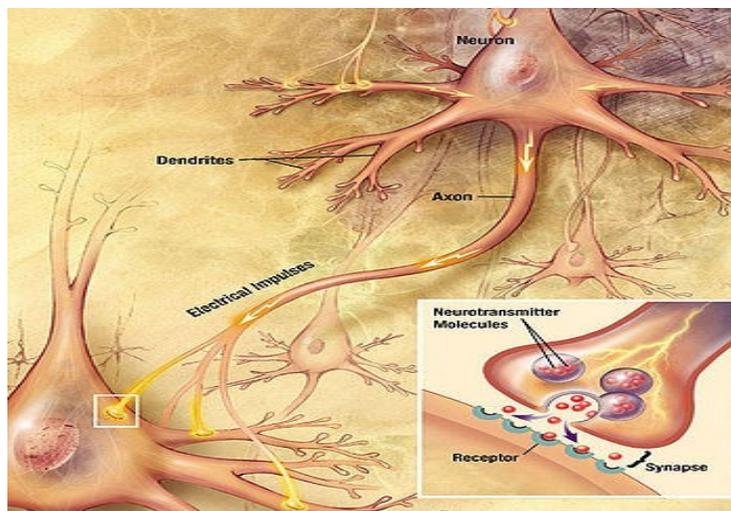
The word "**Pyramid**" has been derived from the latin words '**Pyro**' and '**Amid**'. Pyro means energy, or power and Amid means middle. In the shape of the pyramid, there is tremendous power. The importance of pyramid has been unique since ancient Egypt up to the modern scientific age. Even Einsten admitted the power of the shape of the pyramid. Energy is generated in the pyramid merely by its shape. In 'Yajna' (a holy sacrificial fire) which denotes the Indian culture, the shape of the vessel (or pit) that is used there in resembles the shape of the pyramid.

Three types of energies are attracted in the pyramid. (1) Cosmic Energy (2) Biological Energy and (3) Electromagnetic Energy. In the opinion of some Scientists, the secret of the energies being produced in the Pyramid lies in the three elements, viz. gravitation, Magnetic power and resonance.

The shape of the Pyramid is connected with five elements. The human body as well as the universe is composed of the five elements EARTH, WATER, FIRE, AIR & ETHER. The

four sides of the Pyramids & the Apex (top) resemble these five elements. Thus this shape of PYRAMID if proper brings equilibrium and balance.

**Figure No. 1.2. : Structure of neuron**



Source of the picture: <http://en.wikipedia.org/wiki/file>

Wide range of research in neuroscience and concentration has proved that concentration/meditation/mindfulness activities are causing changes in the brain, including new brain cells, axons, dendrites and synapses. Concentration serves as one such method for stimulating new synaptic connections in the brain. By practicing concentration, one can improve the strength and functioning of their brain while also changing its functionality.

### **Relationship of Pyrobrain Concentration with Goal-Setting and Motivation:**

Everyday pyrobrain concentration and thinking of goal (taking feedback of the plan of action to achieve the goal) can stimulate dopamine production and maintain the amount of dopamine in the brain.

### **Function of Dopamine:**

- 1) Levels of dopamine in the brain help in improved working memory.
- 2) Dopamine helps in focus and attention. Vision helps a dopamine response in the brain and this in turn helps one to focus and direct their attention.
- 3) Dopamine may be responsible for determining what stays in the short term memory based on an imagined response to certain information.
- 4) Dopamine in the frontal lobes of the brain controls the flow of information from other areas of the brain.
- 5) Dopamine is the fuel that keeps people motivated to persevere and achieve a goal.

6) Scientists have identified higher levels of dopamine -- also known as the "reward molecule" -- as being linked to forming lifelong habits, such as perseverance.

Everyday pyrobrain concentration also increases the production of serotonin within our brains. Serotonin is a main neurotransmitter and has profound influences over your mood and behavior and in treating anxiety.

(Vijnananand, Crest of success, May 2003) Manashakti research centre has recommended to follow this study method for 90 days. Because a period of 90 days means a period of complete change of one blood cycle. This is described in the book ('physics and chemistry of life'). 3 million RBCs die and are newly born per second. Along with the tremendous turnover of biological chemicals, destruction, formation and attaining a balance of all these actions, new life blossoms in the blood cells within a few months. This great magic of performing these changes, occurring in 90 days, provides strength to student's varied efforts. Even though the final impressions of the studies get impressed in the student's brain, whatever happens in all activities such as writing with hands, reading with eyes, reciting with mouth- all this- happens because of the cooperation of the whole body. This cycle of 90 days of pyrobrain concentration can also be utilized for better coordination in organizing and enhancing the student's studies and memory. In short, a link of coordination between this technique study and a difficult subject, which has completed a cycle of 90 days, has been established.

#### **Principle Behind the Locations Of The Subjects In The Brain:**

1. Principle behind particular Direction
2. Principle behind fixed place
3. Principle behind fixed study time

The exam related stress and fear definitely affects students' academic performance in their examination. One of the researchers being in education field deals with the students. Researcher had conducted many life skills programmes to guide students on exam preparation, stress management, how to deal with exam anxiety etc...and were able to get the considerably success in lowering the exam related stress among students. Moreover, in 2009 researcher had come across various study methods developed by Manashkti institute and attended the workshops. After getting trained, he conducted a research study on them in detail and done pilot experimental study on 50 students of BMC School at Andheri (West), found to the treatment effective. These successful observations inspired the researcher to conduct the

experimental study to study the effect of pyrobrain concentration method to enhance the academic achievement among secondary school students studying in tenth standard.

**Title of the study:** Effect of Pyrobrain Concentration Method on Academic Achievement of Secondary School Students.

**Operational Definitions of the Terms:**

**Study:** The devotion of time and attention to gaining knowledge of an academic subject, especially by means of books. Study is the application of the mind to the acquisition of knowledge, as by reading, investigation, or reflection. Here study means research or a detailed investigation and analysis of a subject or situation.

**Effect:** A Change that is a result of an action or other cause. The extent to which something succeeds or is operative. Here effect means the influence or impact of use of pyrobrain concentration method by studying the difference in the scores (post-pre tests) for academic achievement.

**Pyrobrain concentration:** Concentration is the ability to give your attention or thought to a single object or activity. It is the act of giving your attention to a single object or activity. Pyrobrain concentration is the effective concentration for the brain development; useful for students and elders, Swami Vijnananand (the Founder of Manashakti Research Centre) has suggested Concentration on Pyramid and Concentration on Brain Lobes, after studying various branches of science.

**Academic achievement:** It refers to the level of schooling the student has successfully completed and the ability to attain success in his/her studies. This will be measured in terms of the scores obtained by the student in the school achievement test.

**Student:** in this study it refers to a student of high school studying in a secondary school affiliated to the Maharashtra State Board of secondary and Higher Secondary Education, Pune.

**Aims of the study:**

1. To study the effect of the pyrobrain concentration in terms of the Academic performance of secondary students
2. To compare the gain scores of pre-test and post-test of experimental and control groups of the secondary school students' academic achievement.
3. To determine the variance in the gain scores of the effect of Pyrobrain Concentration Method on the Academic achievement of secondary students.

4. To suggest the strategies to enhance the academic achievement of the secondary school students.

#### **Objectives of the Study:**

1. To study the effect of Pyrobrain Concentration Method on the Academic achievement of the secondary school students.
2. To compare the gain scores of pre-test and post-test of experimental and control groups of the secondary school students' academic achievement.
3. To determine the variance in the gain scores of the effect of Pyrobrain Concentration Method on the Academic achievement.
4. To suggest the strategies to enhance the academic achievement of the secondary school students.

#### **Hypothesis of the study:**

1. There is no significant difference in pre and post test scores of academic achievement for experimental and control groups.
2. There is no significant difference in the gain scores of academic achievement test for experimental and control groups.

#### **Variables of the Study**

##### **Independent Variables:**

- (a) Pyrobrain concentration program (originally developed by Manashakti Research Centre, Lonavla by Swami Vijnananand, the founder of Manashakti Research Centre.)
- (b) Traditional method of study.

##### **Dependant variables:**

- (a) Scores of the school Achievement tests.
- (b) Academic performance of the students.

##### **Confounding Variable:**

Confounding Variables are those factors of the study that might influence the dependent variable and whose effects might be confused with the effects of the independent variable. Confounding variables are of two types; Intervening and extraneous variables.

**Intervening variables** are those variables that cannot be control or measured but may have an important effect upon the result of the study. These variables intervene between the cause and the effect and create confusion. These factors could be factors like anxiety, fatigue, motivation and interest.

In the present study the researcher is trying to Control intervening variables using appropriate method.

- (1) **Anxiety:** The researcher had tried his level best to reduce anxiety by keeping himself out of school activities like during teaching-learning process. The researcher himself had not taken both the tests, but these were normal school scheduled exams. [First term & Second term exams]. Also, the researcher had made sure that there are no unit tests in between two term exams, to reduce exam anxiety.
- (2) **Motivation and fatigue:** The researcher had conducted orientation program and regular meeting (minimum four meetings) with the parents and teachers, who were in contact with students on day to day basis to motivate them. Also the researcher was interacting with the students on regular basis to check their fatigue levels and to guide them to follow the program meticulously.
- (3) **Effect of pedagogy:** The researcher had selected standard X standard students for his study. He had selected such schools, where the entire teaching learning process is completed up to the month of October and students write two preliminary exams, one in the month of November and second in the month of February, before appearing for the final state board exam. So when students had selected the difficult subject for three months as per the research design, there is no influence of pedagogy.

**Extraneous variables** are those that cannot be controlled by the researcher and may have a significant influence upon the results of the study. It is impossible to eliminate all the extraneous variables but sound experimental design enables the researcher to more or less neutralize their influence.

**Extraneous variables** like individual differences, intelligence quotient are neutralized by selecting truly heterogeneous sample, representing all types of students like below average, average, mediocre, intelligent and highly intellectual gifted students. (It is the representative of the population with standard deviation curve.)

### **Scope and Limitation of the Study**

Limitations are the conditions beyond the control of the researcher that may place restrictions on the conclusions of the study and their application to other situations. The limitation in this study could be the paper pencil test since such tests do not take into account factors like fatigue and mood of the students.

The present study considers the students of Standard X of Maharashtra state board for the scope of integrating study habits. The findings of the study can be useful to adopt for students of all standards (STD V-STD XII) of secondary schools in general and also of any board. It is also useful for the degree level students, by modifying the nature of some of the tasks.

### **Delimitations of the Study**

Delimitations are restriction/bounds that researchers impose prior to the inception of the study to narrow the scope of a study. Delimitation is used to make study better and more feasible and not just for the interest of the researcher. It also identifies the constraints or the weaknesses of your study which are not within the control of the researcher.

### **The following are the delimitations of the study:**

1. The study includes students of the four schools within the limits of central Mumbai and Atpadi village of Sangali district of Maharashtra. These schools have Marathi (Regional language) and English as their medium of instruction.
2. It is a quasi-experimental design and available sample will be used. The external validity of the experiment is maintained such that the findings can be generalized to non-experimental situations, care will be taken while assigning groups as the experimental and control group.
3. The other delimitation focuses on the timeframe of the study. This study is not longitudinal, but rather looks at specific point in time. Implementation of the memory enhancement program was done for three months between the two term exams (with a gap of minimum three months between two exams.)
4. A part of the study is limited to the subjective responses on a normal school scheduled exams which are analyzed qualitatively and quantitatively.

### **Significance of the Study:**

The present study will be useful in enhancing the concentration of students towards their studies and for developing study habits among them. It will help the students to get stress free success. It will encourage students to increase their concentration towards studies, so that they can finish his/her task smoothly, easily and with confidence. The study program will give them the joy of study habits and will help them in improving their academic scores. It will help the parents to understand their role in their children study and how to help their children to develop study habits. This research will even stimulate the abilities of the parents to become ready to co-operate the students. This study will empower the teachers to handle

the students problems related to the study and memory, more skillfully. The teachers will able to identify the students who are weak in their academic performance and help them to improve their academic performance by adopting study habits.

**Research Design:** The present study is an Experimental research, the researchers used the Quasi-Experimental Pretest- posttest Non-equivalent group design. The sampling purposive sampling technique has been used for this study. The sample selected for the purpose of the study consists of students studying in the class X of Mumbai District and Sangali district schools following the Maharashtra state Board syllabus. Nature and composition of sample is described as under:

**Table 1 Nature and Size of the Sample**

Sr.No.	Name of the school	No. of students (820)	of Expt. group (430)	Control group (390)
1	Sane Guruji Vidyalaya, dadar, Mumbai	148	78	70
2	Our Lady high school, Andheri-east, Mumbai.	125	65	60
3	G.M.E.School, Vile Parle-East, Mumbai.	145	78	67
4	Deshmukhwadi high school, Deshmukhwadi, Atpadi, Sangali.	126	65	61
5	Shrimati Vatsaladevi High school Deshmukhwadi, Atpadi, Sangali.	155	80	75
6	Mahatma Gandhi Vidyalaya, kautuli, Atpadi, Sangali	121	64	57
	Total	820	430	390

**Tools used:** The following tools were employed by the researcher in the process in the process of data collection:

1. Academic achievement reports for two term exam.
2. Student's cumulative record cards for the school achievement scores.
3. Pyrobra in Concentration program forms duly filled by the students and signed by their parents.
4. Success-Effort Chart duly filled by the students.

**Data collection and analysis:** The data was collected from six schools. The data collected was scored and subjected to appropriate statistical tests to test the hypotheses formulated. The data was analyzed using descriptive and inferential statistics.

### Testing Of Hypothesis 1

**There is no significant difference in pre and post test scores of academic achievement for experimental and control groups.**

- a. There is no significant difference in pre and post test scores of academic achievement (For **All the students**) for experimental group.

**Variables:** Pre and post test scores of academic achievement

**Groups:** Experimental Group

- b. There is no significant difference in pre and post test scores of academic achievement (For **All the students**) for control group.

**Variables:** Pre and post test scores of academic achievement

**Groups:** Control Group

**Table 2: Difference in Pre and Post Test Scores of Academic Achievement for Experimental and Control Groups**

Group	Variable	Test	N	df	Mean	SD	t-ratio	Level of significance
Academic Achievement	Experimental	Pre-test	430	429	62.36	21.91	9.99	Significant at 0.01 Level
		Post-test			77.90	23.68		
	Control	Pre-test	390	389	65.96	21.41	2.28	Significant at 0.01 Level
		Post-test			69.43	21.89		

**Table 3 With the given Mean, S.D. and r values, calculate the t-ratio and determine the significance difference between the tests:**

Group	Tests	N	Mean	S.D	t-ratios	p values	Level of significance
Experimental	Pretest	430	62.36	21.91	9.99	<0.0001	Significant at 0.01 Level
	Posttest		77.90	23.68			
Control	Pretest	390	65.96	21.41	2.28	0.02	Not Significant at 0.05 Level
	Posttest		69.43	21.89			

EG: N=430, df (N-1) =429, tabulated' values at 0.05 = 1.99 and 0.01 = 2.64

CG: N= 390, df (N-1) =389, tabulated' values at 0.05 = 2.01 and 0.01 = 2.68.

### **Findings:**

**Experimental group:** t-ratios are significant (t = 9.99) and p < 0.05, therefore the null hypothesis is rejected.

**Control group:** - t-ratios are significant ( $t = 2.28$ ) and  $p > 0.05$ , therefore the null hypothesis is accepted.

### Testing Of Hypothesis 2

**There is no significant difference in the gain scores of academic achievement test for experimental and control groups.**

**Variables:** Gain scores of academic achievement

**Groups:** Experimental and Control Groups

**Table 4 Gain score= post test scores -pre test scores**

#### Differences in Gain scores of Academic Achievement Test for Experimental and

#### Control Groups

Variable	Groups	N	Pre Test Scores	Post Test Scores	Gain scores	Gain score SD	t- ratio	Level of significance
Academic Achievement	Experimental	430	62.36	77.9	15.54	6.8	34.08	0.01
	Control	390	65.96	69.43	3.53	2.53		

### Findings and Conclusions:

- From the table, it is seen that for gain scores of academic **achievement** of experimental and control groups the obtained t- ratio is significant at 0.01 level.
- The mean of gain scores of academic achievement of experimental group are found to be higher than that of control group.
- Hence it can be inferred that there is a significant difference in the gain scores of academic achievement of experimental and control groups.

### Interpretation

These findings indicate that the gain scores of experimental and control groups differ significantly. It can thus be inferred that pyrobrain concentration method has helped to develop academic achievement in the students of standard X of the experimental group.

### $\omega^2$ – estimate

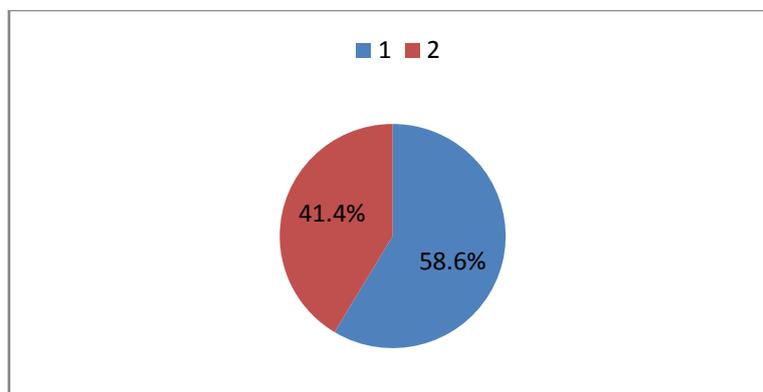
- Since t -ratios of gain scores for academic achievement are found to be significant hence  $\omega^2$  estimate values are computed using the formula.

**Table 5  $\omega^2$  - estimate for Academic Achievement of X standard students**

Variable	t-ratio of Gain scores	$\omega^2$ est	100 $\omega^2$
Academic Achievement	34.08	0.5860	58.60%

From the table it can be said that the  $\omega^2$  estimate on variable academic achievement is 58.60%.

**Figure 1 Pie Chart of Proportion of Variance in Gain Scores of Academic Achievement Due to Pyrobrain Concentration Method**



- It can be inferred that the contribution of pyrobrain concentration method in the development of academic achievement is 58.60%.
- Thus it can be concluded that the pyrobrain concentration method has helped to enhance academic achievement among X standard students.

**Conclusion:** The pyrobrain concentration method has helped to develop academic achievement in the students of standard X of the experimental group. The contribution of pyrobrain concentration method in the development of academic achievement was found to be 58.60%. Thus it can be concluded that the pyrobrain concentration method has helped to enhance academic achievement among X standard students.

**References:**

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