

ACTION RESEARCH – 2016

*ELIMINATING THE DIFFICULTIES FACED BY
EIGHTH STANDARD STUDENTS IN MEMORIZING
THE BIOLOGICAL TERMS THROUGH MULTIPLE
EXPOSURE.*

INVESTIGATOR

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I. ACTION RESEARCH TITLE:

Eliminating the difficulties faced by eighth standard students in memorizing the biological terms through **multiple exposure**.

II. BACKGROUND OF THE STUDY

Biology is a major branch of science like physics, chemistry, mathematics etc., Science is an orderly organized study or knowledge confirmed by observations or experiments. If such study describes living objects or living beings (animals & plants) then it is called Biology. The term “Biology” was coined by Lamarck in 1802 by joining two Greek words bios, meaning life and logos meaning a system of study. Biology may be defined as a science which deals with life.

Biology is the study of life and teaches us about ourselves and the natural world around us. A good starting point when studying biology is to admire the perfection of nature and the principles of life.

Importance of Biology

Like other branches of science, biology has also proved a great boon to mankind. Its uses are many. It helps us in the following ways.

- Biology helps us appreciate the living world.
- Conserve environment and natural resources.
- Biology helps us growing more food.
- Biology offers us foundations for certain careers.
- Biology contributes to economic growth of countries.
- Biology helps us to develop hobbies.

How to study for Biology

Many people find Biology the hardest and the most boring subject at school. That's not true, indeed, if you know how to appreciate the beauty of Biology and how to get good results in this subject. Change your attitude towards biology! This might sound difficult and even meaningless if you're currently bogged down in it. However, having the right attitude is really important if you want to make improvement in this subject.

Words in Biology very complicated and difficult to spell. However, most words in this subject come from Latin, and have a prefix and suffix. For example, the word "glucose" can be separated into two parts, "gluco" means sweet, and "-ose" means sugar. As "-ose" means sugar, you know maltose, sucrose, lactose are sugars as well. The term "endoplasmic reticulum" seems difficult. However, if you know "endo" means "within/inside", "plasmic" means cytoplasm and "reti" stands for net, you will know that it is a net-like structure that is found inside the cytoplasm. Knowing prefixes and suffixes that compose the terms help you to spell difficult words and grasp the meaning of the words.

Memory Tips:

Memory is a predominantly visual. Create a mental memory tree. If you're trying to memorize a large number of facts, find a way to relate them in your mind visually with a memory tree. Construct big branches first, then leaves.

The Art of Memorization One of the great challenges of biology is the large number of new terms and concepts you need to memorize. This is especially difficult if you have, like many students, a memory like a sieve. But don't despair-there are many ways to improve your retention of new material:

- Flash cards. Write terms and concepts on the front of 3 x 5 cards and definitions and descriptions on the back. Use these to test yourself. Better yet, get together with a friend and test each other. If possible, make flash cards to help you remember a topic in biology.
- Use the terminology. Make up sentences that employ difficult and unfamiliar words. Using specialized terms will help you learn them much more effectively than simply reading them.
- Teach the material. With a friend, find an empty classroom and teach the material to each other. Speaking and writing on the board will quickly move information to your long-term memory.
- Develop mnemonics. Come up with catchy phrases to help you remember sequences and terms. For example, “Must Be Good” can help you remember stages of embryo development: Morula, Blastula, Gastrula.
- Watching news, reading newspaper and science magazines can help you study Biology. As new technologies emerge everyday (e.g. breakthrough in the cloning technology), and these new things may come out in the exam (application problems), paying attention to current issues help you get the overall idea about the newly invented technologies. Doing so can also make you feel more interested in this subject.
- Go to a helpful, educational website to study from.

Binomial Nomenclature

A system of classification which was introduced by Linnaeus, the Swedish botanist. In this system, each species is assigned two names. The first is the generic name, written with a capital letter, which designates the genus to which

the species belongs. The second is the specific name, which indicates the species. The generic and specific names are in Latin. For example, Man belongs to the species Homo sapiens. Homo is the generic name while sapiens is the specific name. This is called scientific name. This method of calling an animal by two Latinized name is called the binomial system of nomenclature.

Multiple Exposure

Multi mean, more than one (many), Exposure mean to make visible. In school there are many IEC materials (Alphabet Charts, Vitamins Charts, Health Charts, Table Chart, etc...) were using for many purposes. This IEC materials are hanged or pasted in the walls of the school premises. It is visible to students eyes often, so it would remain in their memory, especially in primary and upper primary school premises.

When I discussed with the teacher and asked for the hard spot in science to the learners especially in Biology, the main concern of the teacher was to develop the skill of memorizing the Biological terms. In Biology, 6-8 std there are more than 50 Biological terms prescribed in the text book. If we develop the skill of memorising the Biological term at elementary level, in future the students will enjoy learning Biology. By having a good knowledge about Biological terms, students will have a better idea about our environment. Students will be able to differentiate the flora and fauna and their classification. Hence, I have preferred to take this topic as my action research.

III. PROBABLE CAUSES :

- ❖ Lack of Subject Teachers.
- ❖ Use of least effective motivational factors in their schools, they studied.
- ❖ Ambiguity of the content of the text.
- ❖ Poor teaching learning strategies adopted in the classroom.
- ❖ Lack of interest among the students in Biology.
- ❖ Lack of basic knowledge about the Biological terms.
- ❖ Fear of learning Biological terms.
- ❖ Teachers and Students do not possess the required aptitude.
- ❖ Memorizing without understanding the meaning.
- ❖ Most of the teachers still practice only chalk and talk method.

IV. PROBABLE SOLUTIONS:

- ❖ To arouse the interest among students to know about the Biology.
- ❖ Booklet should be renovative and colorful with pictures.
- ❖ The Biological term should be bulleted at classroom and corridors (by this the terms would be visible in their eyes often, and it would remain in their memory.
- ❖ At leisure time, students are asked to dictate the Biological terms as a memorising table.
- ❖ The students are nick named by the Biological terms and are called by those names.

- ❖ Students asked to role play by depicting themselves as Biological terms.
- ❖ Paying individual attention to the students and using friendly approach to make learning more meaningful.

V. ACTION HYPOTHESIS

Through multiple exposure, the difficulties in memorising the Biological terms will be eliminated among the eighth standard students.

VI. METHODOLOGY

Sample:

All the eighth standard students (16) of Panchayat Union Middle School, Thevar colony, Thoothukudi, were taken as the sample for the study.

Tool:

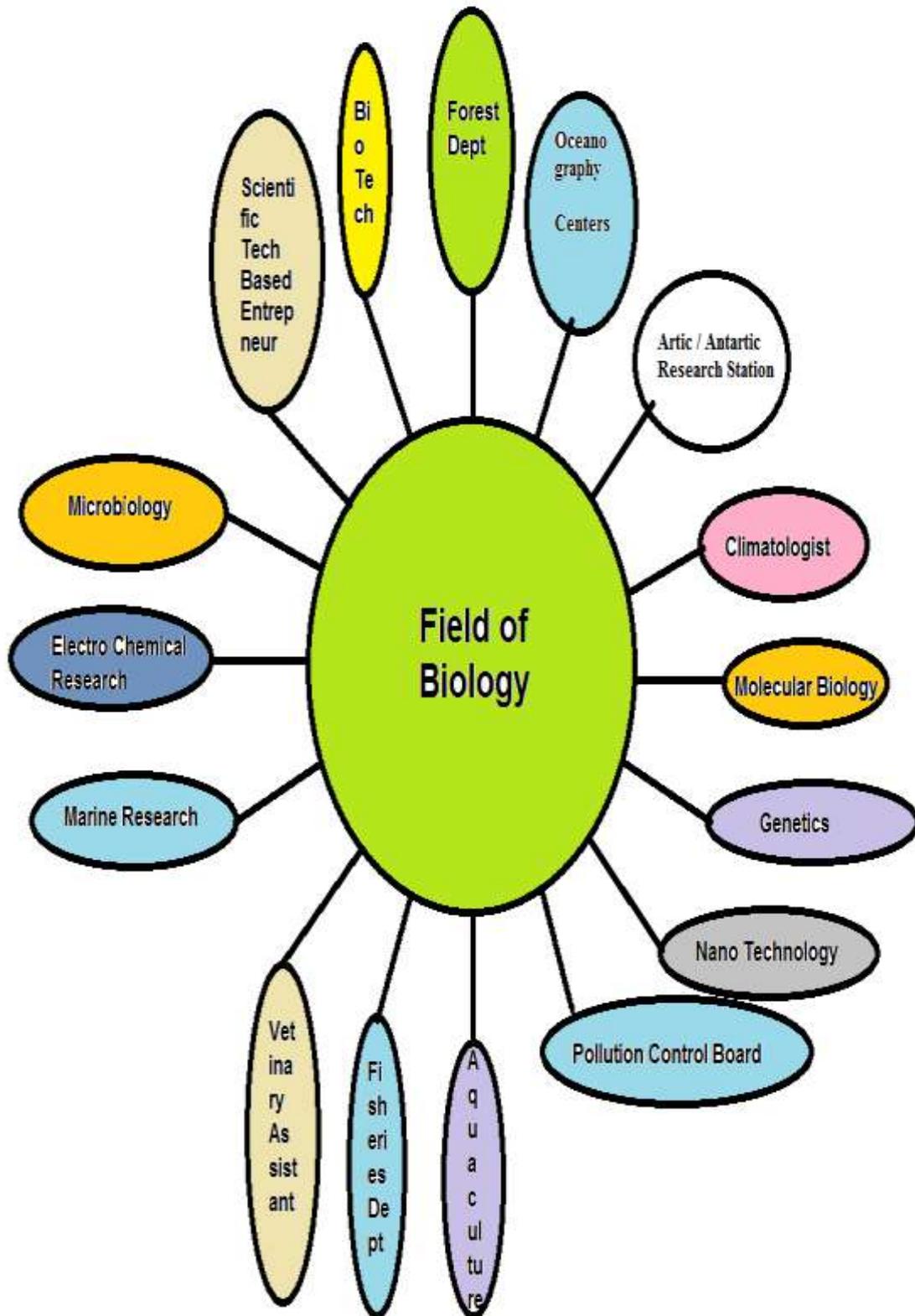
A questionnaire was prepared and administered to 16 students, studying in std VIII in Panchayat Union Middle School, Thevar Colony, Thoothukudi. The questionnaire contained 25 marks objective questions in the form of fill in the blanks(5), choose the correct answers(5), True or False (a5) and Matching (10).

INTERVENTIONS:

Activity 1:

The investigator's ultimate aim is to arouse the interest among the students on Biology. The interest is given by telling them examples of the flora and fauna in our surrounding environment. The ecological diversity, aesthetic and nutritional

value of these plants are given examples. The students should be made aware of the different avenue of carrier in the field of biology.



Activity 2:

Pictorial pamphlets (Booklets) are prepared by the investigator. The booklet should be such as one side should have the picture and other side should have the Biological terms of the picture.



This pictorial representation enhances the grasping power in many students.

பொது பெயர்கள்	அந்நியப் பெயர்கள்
வீ.க ஈ	மஸ்கா பொமஸ்டிகா
சிந்தியத் தேனி	எபீஸ் திண்டிகா
புரா	மெலாமியா லீனா
மல்பர் பாக்யூசு	பாமர்கஸ் ரொர்
மன்தன்	ஜெரோமின் பெய்லன்
நாசி	கென்ஸ் பொமஸ்டிகா

பொது பெயர்கள்	அந்நியப் பெயர்கள்
தேரூ	டாக்கஸ் கரோட்டா
எலுமர்ச்சை	ஈட்ரஸ் ஆண்டி: வொல்யோ
வொங்காயம்	அல்லயம் ஈ:டைவாம்
புள்	பாமர்ன்டஸ் திண்டிகா
கொய்யா	ஈடிமம் சூயாவா
ரெல்	ஜுரைசா ஈ:டைவா
கோங்காய்	கோகாஸ் ந்யூஸ்: பெரா

Activity 4:

Students are asked to dictate their Biological terms, at their leisure time (Assembly hours, Beginning of every class, Interval and lunch Break). By this the average students will be also be benefitted daily by repetition .This Biological terms stay on their heart and not easily forgettable.



Activity 5:

Normally the generic and specific names are hard to memorize. So the students are asked to keep these names as nicknames to their friends. By calling their names again and again in their nicknames, Biological terms easily stay in their mind. Care should be taken by the teachers, that their names, does not affect any students.



Activity 6:

Next attractive tool is role-play. This role plays are done in various ways, like skit, riddles, mono acts and debates. Mono acts are generally welcome. The students are asked to enact by debating themselves, as organism in one side and asked to show the picture of the organism, and other side the Biological term of the fauna and flora. The placard which the students depicts should be attractive and colorful. The biological term should be capital and bold. The students are asked to repeat, the terms while the students in enacts.



Activity 7:

Generally the students are in various categories. Topers, average and below average. Teachers should not handle all the students same. The teacher must be, friendly as well as good guide. The biology teacher must be well versed in their biology subjects, and things related to it. Since Biology is inter connected with our day to day life, the teacher should deliver our life related environmental issues as example.

Activity 8:

After 10 days, the investigator asked the questions about the Biological terms. The students answered the questions asked by the investigator. Through multiple exposure, the investigator eliminated the difficulties among the students in memorizing the biological terms. After such strategies were followed, a post test was conducted to the student and their improvement was evaluated.



VII. DATA ANALYSIS:

Pre test marks were tabulated:

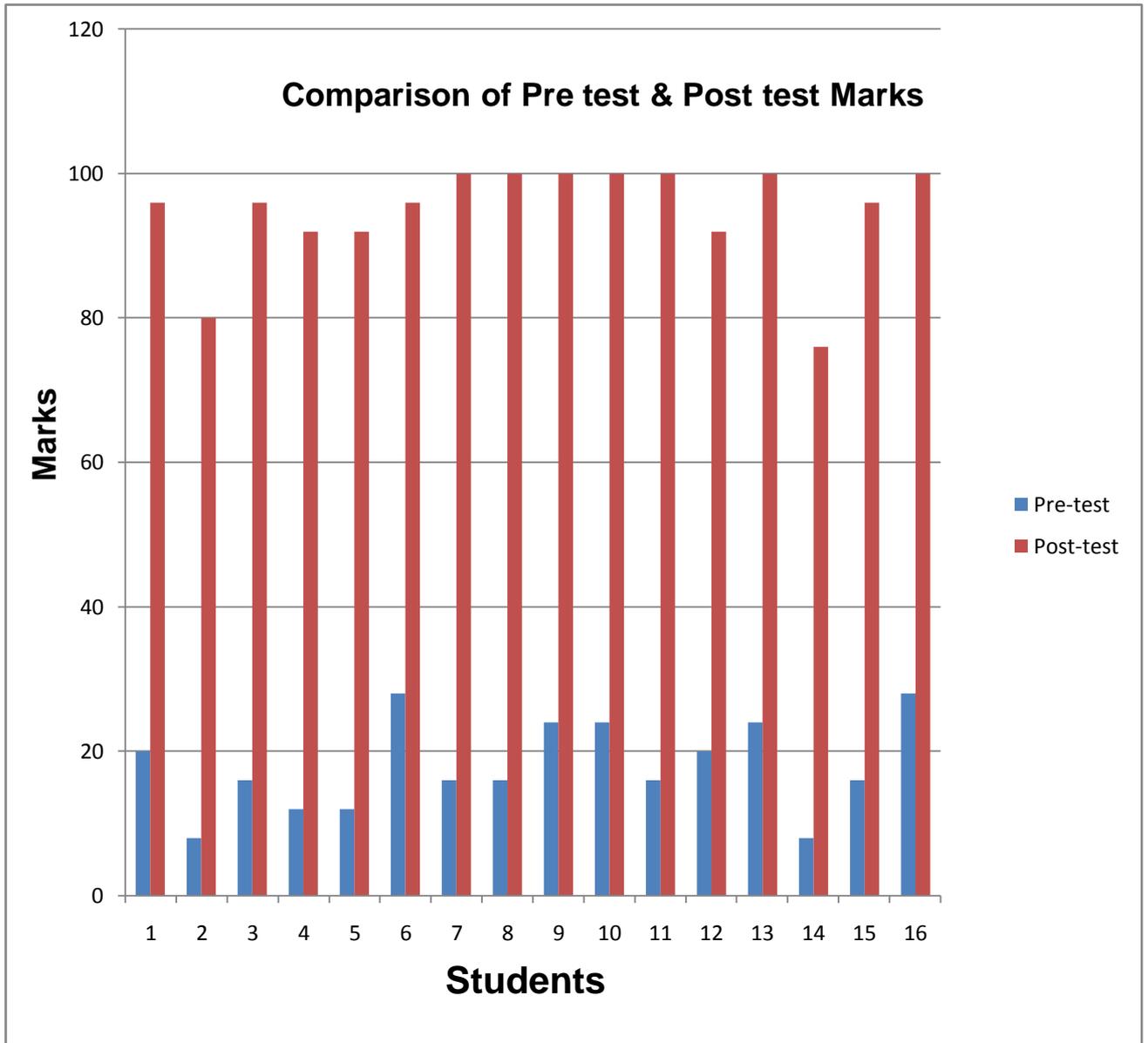
S. No.	Pre test (25)	Pre test (100)
1	5	20
2	2	8
3	4	16
4	3	12
5	3	12
6	7	28
7	4	16
8	4	16
9	6	24
10	6	24
11	4	16
12	5	20
13	6	24
14	2	8
15	4	16
16	7	28
TOTAL	72	288

Post test marks were tabulated:

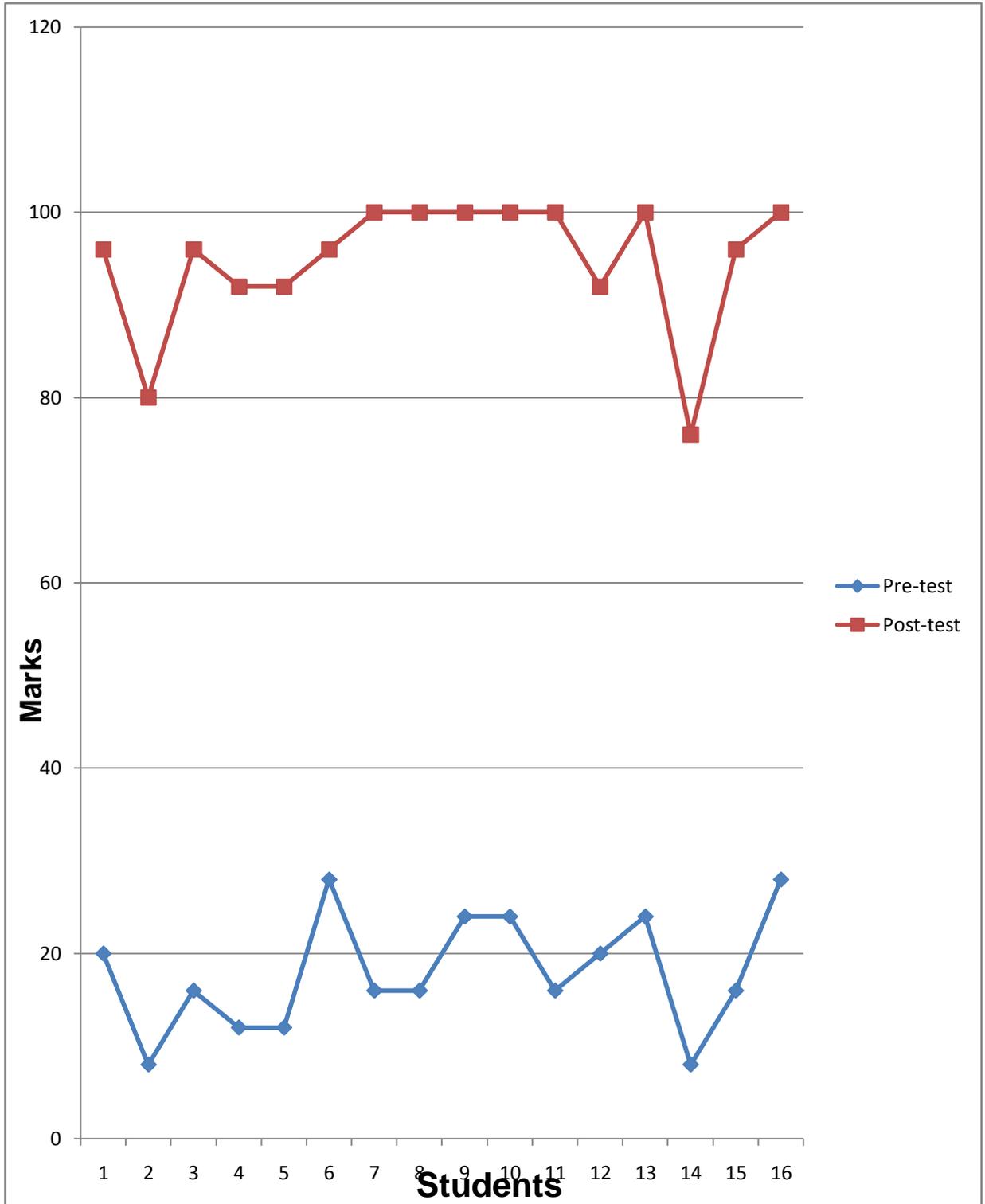
S. No.	Post test(25)	Post test(100)
1	24	96
2	20	80
3	24	96
4	23	92
5	23	92
6	24	96
7	25	100
8	25	100
9	25	100
10	25	100
11	25	100
12	23	92
13	25	100
14	19	76
15	24	96
16	25	100
TOTAL	379	1516

S.NO	Test	Mean
1.	Pre Test	18.00%
2.	Post Test	94.75%

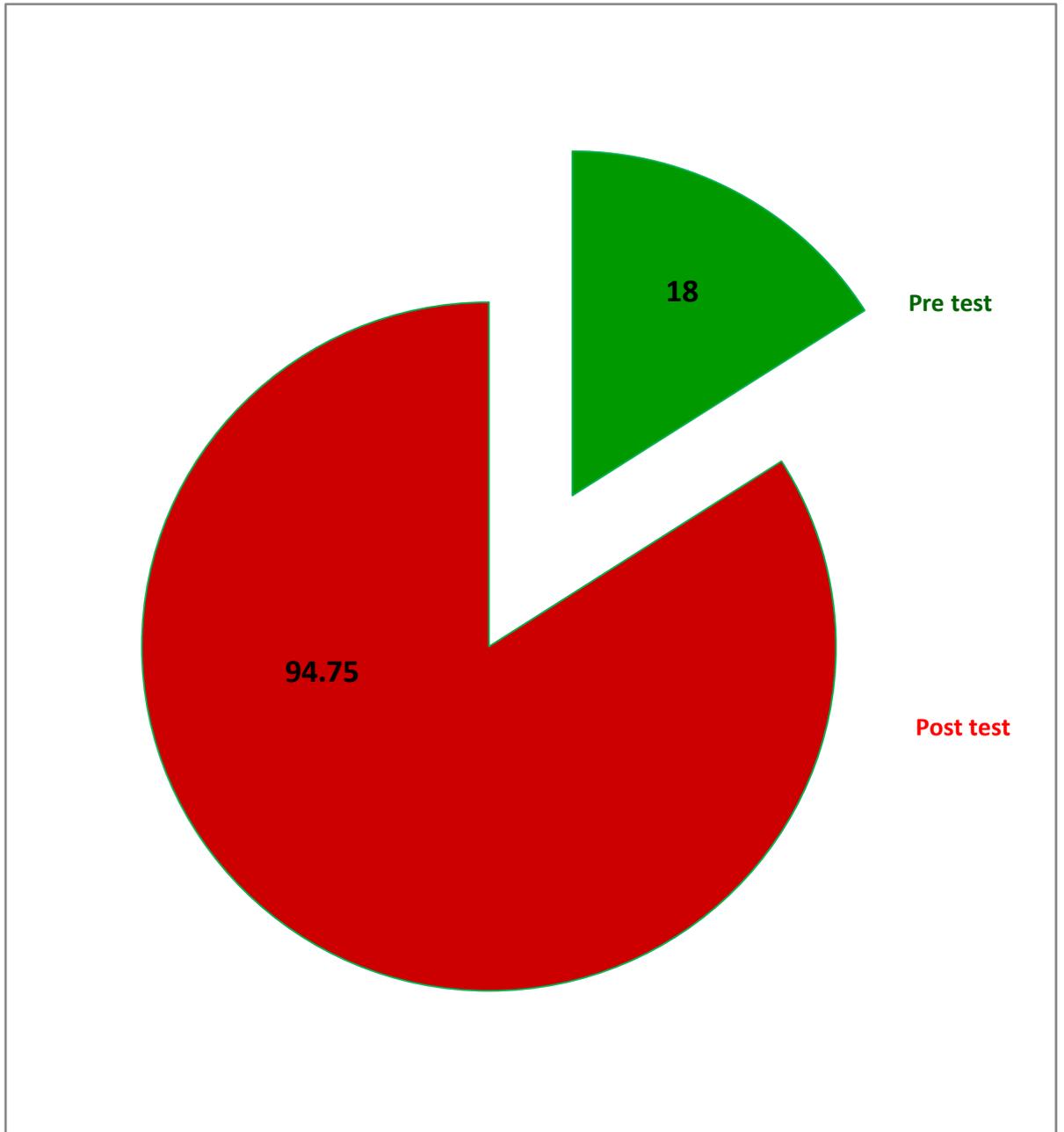
From the table it was found that the mean scores were increased in the post test than in the pre test.



Comparison of Pre test & Post test Marks



Comparison of Pre test & Post test Marks



VIII. FINDINGS

1. The pretest and post test achievement scores analysis reveals that the intervention adopted by the investigator in this action research has brought about an appropriate learning strategies to enhancing the importance of studying biological terms among the students.
2. Their attainment level has improved to a satisfactory level. It is evident from the average pretest percentage score **18%** to the average post test percentage score **94.75%**
3. The strategies adopted in the study become helpful in activating the students in the learning process.
4. This study also helps the students to develop the skills and scientific attitudes.

IX. NET GAINS OF THE PRESENT EFFORT:

- ✓ The strategy can be applied to some other subjects based on the need.
- ✓ This kind of study maybe conducted in students of std VI onwards.
- ✓ The same strategy can also be used in other areas of EVS.
- ✓ Innovative strategies can be used for encouraging children in the learning process.
- ✓ Workshops are to be conducted for developing innovative strategies.
- ✓ Training should be give to teachers in maintaining the spirit of effective teaching.
- ✓ Similar studies may be conducted among the in service programme.
- ✓ It has helped to create scientific temper and interest among the staff and Students.

X. SUMMARY OF THE ACTION RESEARCH:

The study entitled eliminating the difficulties faced by VIII standard students in memorizing the biological terms through **multiple exposure** was carried out for the sample [16 students] of Panchayat Union Middle School, Thevar Colony, Thoothukudi. The investigator found that, students felt difficult to understand and memorise the biological terms in science, without understanding the meaning and not proper practice. Pre test- post test design was selected and questionnaire was prepared. After using multiple exposure technique among students, the student's scores in the post test were increased than in the pre test. This attempt proved highly useful to the students

Reference Books:

1. Std VI-VIII, Science Text Books, Tamilnadu Text Book Society.
2. A dictionary of Biology – F.W.Roberts
3. ICSE, Biology Book-I, Class IX, P.N.Pandey, Santhosh Vidyarthi
4. Introduction to Action Research – DTERT, Chennai

10. புறாவின் உயிரியல் பெயர்

- அ) கொலம்பா லிவியா ஆ) கேனிஸ் டொமஸ்டிகா
இ) மஸ்கா டொமஸ்டிகா ஈ) ராணா ஹெக்சாடாக்டைலா

II. கீழ்க்கண்ட வாக்கியங்களை சரியா? தவறா? என்று குறிப்பிடவும்: (5x1 =5)

11. அகாலிஃபா இண்டிகா என்பது குப்பைமேனி.
12. ஆசிமம் சாங்டம் என்பது வல்லாரை.
13. சாண்டலம் ஆல்பம் என்பது சந்தனமரம்.
14. வெர்டிபிரேட்டாக்கள் முதுகெலும்பு அற்றவை.
15. ஸீரோபைட் ∴ ஸீரோபிலஸ் என்பவை ஈரநிலத் தாவரங்கள்.

III. பொருத்துக:

(10x1 =10)

- | | |
|---------------------------|------------------------|
| 16. புளி | - மூடிய விதைத் தாவரம் |
| 17. இரத்த வெள்ளை செல்கள் | - டாமரிண்டஸ் இண்டிகா |
| 18. கொய்யா | - ராம்பென் செஃபலான் |
| 19. வெங்காயம் | - லியூகோசைட்டுக்கள் |
| 20. நெல் | - சிடியம் குயாவா |
| 21. ஆஞ்ஜியோஸ்பெர்ம் | - எக்கினோ டெர்மேட்டா |
| 22. பின்முளை | - அல்லியம் சட்டைவம் |
| 23. முள்ளாடலிகள் | - ஹோமோ செப்பியன்ஸ் |
| 24. மல்பெரி பட்டுப்பூச்சி | - திறந்த விதைத் தாவரம் |
| 25. மனிதன் | - பாம்பிக்ஸ் மோரி |
| | - ஓரைசா சட்டைவா |