
Title of Case Study: “Poor Vocabulary of Students”

2. Brief history of the Organization :

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- d. Contact person / Coordinator: Dr. Mrs Sushma S. Kulkarni
- e. When QC movement started: 2004
- f. No. of QCs in the Organization: 02
- g. No. of employees - Executives:
Executives / Staff / Staff (Non- Teaching):
Employees: 210
Employees(Teaching):
180
- h. Product / Service: Education
- i. Other Quality Concepts Five-S
Implemented: viz.

Five-S/Kaizen/TPM/SMED.
Etc.
- j. QCFI Institutional Membership 054003102670
No:

3. Brief History QC :

- a. Circle No./Name: “Enthuse”
- b. Department/Section: Electrical Engineering
- c. Facilitator: Dr. V N Kalkhambkar
- d. Leader/Dr. Leader: Mr. P. D. Bamane
- e. Name of the member: Mr. P. D. Bamane Leader
 Mr. A. K. Koshti Co-leader
 Mr. S. S. Kumbhar Member
 Mr. K. M. Nathgosavi Member
 Mr. K. S. Kulkarni Member
- f. When QC started : January 2021
- g. Meeting Priority: Fortnightly
 Weekly/Fortnightly/monthly
- h. Duration of Meeting – 1 hour
 1 hour / 2 hours

4. Problem Solving Process contents

a. Problem Identification:

The activity starts with making a list of problems. To make the list we all brainstorm amongst the group member and colleagues. These problems are listed below in Table 1.1.

LIST OF PROBLEMS IDENTIFIED

Table 1.1 Problems identified through Brainstorming at a glance

Sr. No.	Problems Identified
1	Poor self-study skills of student's.
2	Lack of engineering ethics.
3	Non fluent English communication skill (of both faculty and students).
4	Inability to develop motor skills in the students.
5	Poor presentation skills (of faculty).
6	Waste of water in washroom.
7	Poor understanding of practical.
8	Less concentration of the students during lecture.
9	Problems of direct second year students (due to late admission).
10	Lack of sincerity.
11	Poor ventilation in chemistry lab.
12	Lack of two wheeler parking facilities
13	Poor Research activity Improvement in department.
14	Poor aptitude skill of students.
15	Less Participation in other college activities.
16	Poor Verbal & Written Communication of students
17	Poor Result

18	Less time for handling practical equipment.
19	Conventional method of conducting labs
20	Poor Ventilation in drawing hall.
21	Acoustics and sound insulation in classrooms.
22	Green building concept application in college campus.
23	Biogas generation with the help of organic waste.
24	Drinking water treatment plant.
25	Wastewater treatment plant.
26	Energy generation from waste.
27	Poor vocabulary of the students
28	Development of lab.
29	Improving technical communication among students.
30	Faculties' paper publication in reputed journal.
31	Students' paper publication.
32	Poor Research activities in department
33	Library facilities for Ad-hoc faculties
34	Stress management activities for faculties
35	College bus timing and tracking system.
36	Programming skills.
37	Communication gap between students and faculty.
38	Industry institute interaction.
39	Quality of student's projects.
40	Communication gap amongst the students.
41	Traditional teaching methodology
42	Unavailability of smart classroom.

43	Less interaction of parents with faculty
44	Lack of interest and awareness among student regarding in-plant training.
45	Identification of companies for in-plant training.
46	Student attendance automation.
47	Improving placed students' joining ratio.
48	Less usage of Moodle by students.
49	Timely submission of micro-projects by students
50	Different software training for staff.
51	Annual medical check-up for faculty.

b. Problem Selection:

Once we were armed with a probable list of problems we used the rating method tool to select the problem. Out of the 30 problems listed we filtered 10 problems and rated them on a scale of 5 per group member, after this the points were cumulated and the highest rated problem was finalized. The rating method is shown in the Table 2.1.

PROBLEM SELECTION**Table 2.1 Problem Selected through rating method**

Sr. No.	PROBLEM	VNK (5)	PDB (5)	AKK (5)	KMN (5)	SSK (5)	KSK (5)	TOTAL (30)
1	Poor research activities in department	2	3	2	3	3	2	15
2	Lack of students' paper publication.	3	4	2	5	2	4	20
3	No industry sponsored lab	5	3	3	2	3	2	16
4	Poor vocabulary of the students	5	4	4	4	4	4	25
5	Poor quality of students project	3	2	3	3	3	3	18
6	No tracking system to college bus	3	2	3	2	3	2	14
7	Poor self-study skills of student's.	3	3	2	3	2	2	15
8	Less participation in other college activities	3	3	3	2	2	2	15
9	Poor programming skill of student	4	3	3	4	4	4	22

10	Ineffective utilization of Practical lab	4	4	2	3	3	2	18
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b.1 Pareto Diagram

The fig. 2.1 shows the Pareto diagram, representing the weightage of each identified problem. It depicts that the problem **Poor vocabulary of the students** has maximum rating as compared to other problems. The rating of maximum rating problem is shown in Table 2.2.

Rating

Table 2.2 Problem Selected through rating method

Sr. No.	PROBLEM	VNK (5)	PDB (5)	AKK (5)	KMN (5)	SSK (5)	KSK (5)	TOTAL (30)
27	Poor vocabulary of the students	5	4	4	4	4	4	25

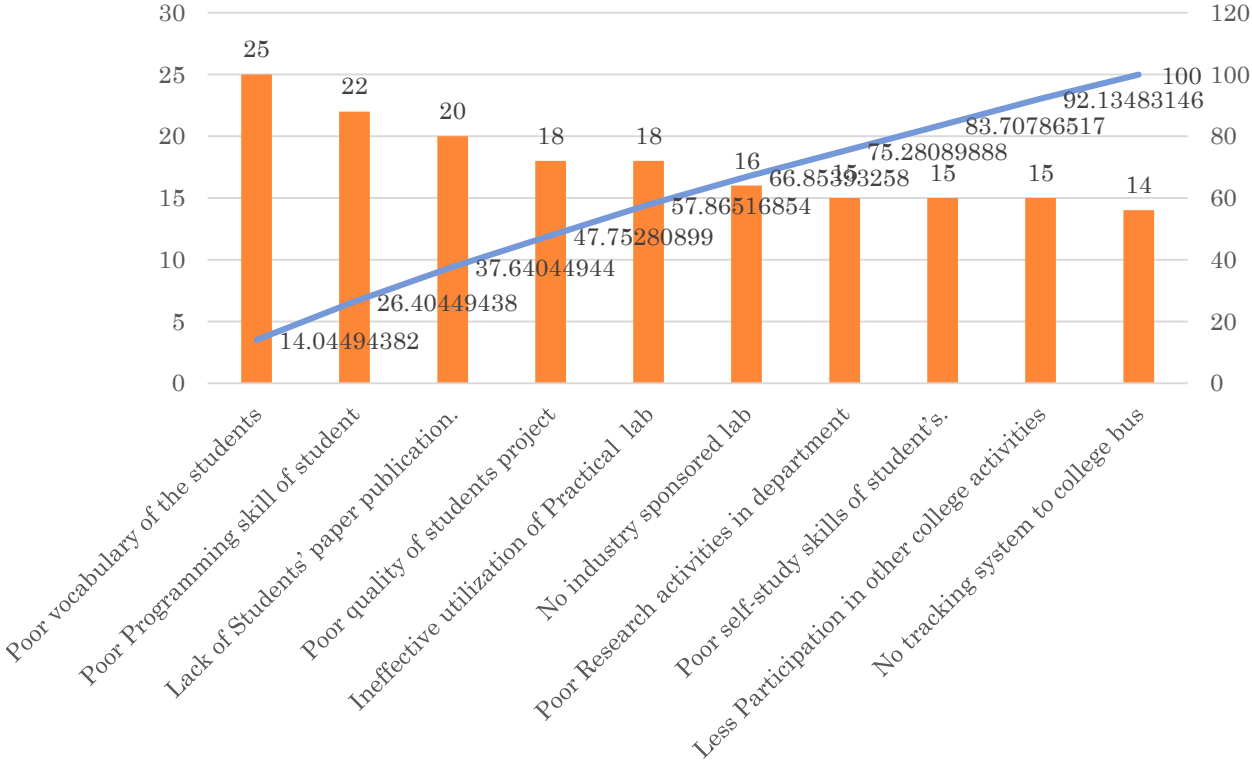


Figure 2.1 Pareto Diagram

c. Problem Definition:**c.1 Definition of Problem:**

For any engineering college the placement is main parameter to showcase the performance of college and students. To improve year by year the placement office always takes feedback from employers after the placement drive. The main concern they find during this drive is the communication of the students. Keeping this philosophy in mind our “Quality Circle Group”, after successive meetings and elaborative brainstorming with rating method has decided to address the problem “**Poor vocabulary of the students**”.

To limit this problem, we have finalized one solution which is nothing but the reading activity for students and then testing their improvement.

c.2 Problem Statement:**Energy Conservation in RIT:**

Learning how to build a better vocabulary can be a pleasurable and profitable investment of both your time and effort. At least fifteen minutes a day of concentrated study on a regular basis can bring about a rapid improvement in your vocabulary skills, which in turn can increase your ability to communicate by writing, conversing, or making speeches. Acquiring a large vocabulary can benefit you in school, at work, and socially. It will enable you to understand others' ideas better and to have the satisfaction of getting your thoughts and ideas across more effectively.

In line with the above mentioned reasons we have planned to give reading material to the students, after defining problem we have informed all the student and faculties in our department regarding the finalization of our problem statement under quality circle activity.

d. Problem:**d.1 Analysis of Problem:**

In order to see in the improvement we decided to test the students first. We called these test as Pre Test. In this Pre Test we conducted 3 tests. For applying the method, we have taken S. Y. B. Tech students as a sample class.

The tests that we have conducted are listed below.

1. A test of vocabulary range
2. A test of verbal speed
3. A test of verbal responsiveness

Evaluation criteria plays very important role in the assessment. So to assess the students we have set following evaluation criteria for each test.

1. Categorization of score for a test of vocabulary range:

- i. 0–11: below average
- ii. 12–35: average
- iii. 36–48: above average
- iv. 49–54: excellent
- v. 55–60: superior

2. Categorization of score for a test of verbal speed:

- i. 0–5: below average
- ii. 6–10: average
- iii. 11–15: above average
- iv. 16–20: excellent
- v. 20–25: superior

3. Categorization of score for a test of verbal responsiveness

- i. 0–10: below average
- ii. 11–15: average
- iii. 16–20: above average
- iv. 21–25: excellent
- v. 26–30: superior

The marks of test are given below as well the categorization of each test is also given below.

Table 2.3 marks of test

Sr. no	Roll no.	Test 1- A test of vocabulary range	Test 3 - A test of verbal speed	Test 5 - A test of verbal responsiveness
		Marks (60)	Marks (25)	Marks (30)
1	1708046	29	11	12
2	1808007	30	AB	15
3	1808009	34	AB	AB
4	1808016	29	13	16
5	1808017	28	14	11
6	1808021	29	11	12
7	1808044	AB	14	16
8	1808046	28	15	12
9	1808048	29	16	11
10	1808052	22	15	14
11	1808053	29	15	10
12	1906014	AB	12	12
13	1908001	21	17	15
14	1908002	34	AB	18
15	1908003	30	9	15
16	1908004	28	AB	13
17	1908005	27	14	18
18	1908006	28	16	19
19	1908007	30	11	10
20	1908008	AB	11	8
21	1908009	25	12	AB
22	1908010	34	14	14
23	1908011	34	16	12

24	1908012	38	14	AB
25	1908013	28	14	16
26	1908014	28	12	13
27	1908015	27	17	14
28	1908016	35	1	12
29	1908017	31	10	12
30	1908018	29	14	10
31	1908019	AB	12	7
32	1908020	38	AB	AB
33	1908021	31	14	13
34	1908022	21	10	16
35	1908023	36	14	AB
36	1908024	29	12	21
37	1908025	24	1	AB
38	1908026	29	7	13
39	1908027	33	12	16
40	1908028	29	0	13
41	1908029	AB	12	15
42	1908031	28	12	15
43	1908032	30	14	AB
44	1908033	24	0	18
45	1908034	7	9	AB
46	1908035	29	6	10
47	1908036	26	10	10
48	1908038	22	18	14
49	1908039	30	11	13
50	1908040	29	16	17
51	1908041	41	12	13
52	1908042	AB	0	19
53	1908043	26	16	5

54	1908044	23	12	17
55	1908045	29	AB	11
56	1908046	40	13	12
57	1908047	29	10	16
58	1908048	29	AB	24
59	1908049	29	6	11
60	1908050	29	12	9
61	1908051	30	19	5
62	1908052	28	13	17
63	1908053	28	8	15
64	1908054	27	7	17
65	1908055	20	AB	14
66	1908056	AB	11	17
67	1908057	29	12	16
68	1908058	29	AB	19
69	1908059	37	9	19
70	1908060	29	AB	14
71	1908061	24	17	15
72	1908062	29	16	15
73	1908064	29	16	AB
74	1908066	29	20	13
75	1908067	30	AB	10
76	1909039	27	14	15
77	2058001	29	2	11
78	2058002	29	17	0
79	2058003	29	12	0
80	2058004	29	18	11
81	2058005	29	18	11
82	2058006	31	14	15
83	2058007	31	19	15

84	2058008	11	18	13
85	2058009	29	AB	AB
86	2058010	AB	12	15

After this we evaluated students and the evaluation is given in the below table.

Table 2.4 Analysis of test

	Test 1 (Marks 60)	Test 2 (Marks 25)	Test 3 (Marks 30)
Below Average	2	6	13
Average	70	12	42
Above Average	6	38	19
Excellent	0	18	2
Superior	0	0	0
Absent	8	12	10
Total	86	86	86
Average Score	28.67	10.48	11.86
Percentage	47.78	41.91	39.53

From this we understood that the average percentage obtained in the 3 tests is around the 42 %. It depicts that there is chance to improve the vocabulary.

e. Identification of the Causes:**e.1 Listing of Causes:**

Any problem can be tackled efficiently only if we have a sound and in-depth knowledge of the reasons responsible for the problem. We started by making a rough **list of the causes** which were responsible for poor vocabulary.

Table e.1 List of causes

Sr. No.	Causes
A.	Less reading activities by the students
B.	Unaware about technique of remembering words
C.	Lack of listening activity of the students
D.	Lack of activities related to improvement of the vocabulary of the students
E.	Less events in colleges related to vocabulary of the students
F	Hesitation of students for taking initiative while speaking
G	Lack of surrounding atmosphere of students to improve communication

e.2 FISH-BONE DIAGRAM: -

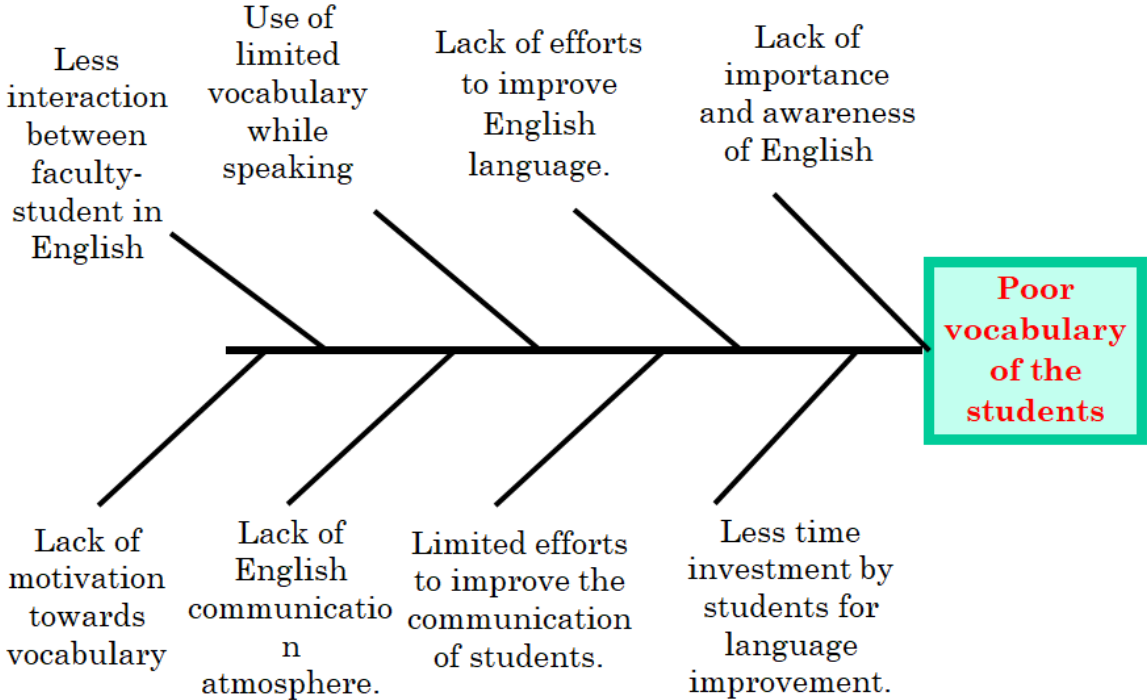


Figure e.2 Fish-bone diagram

f. Root Cause Analysis: (Weightage Point Method)**Table f.1 Root Cause Analysis**

Sr. No.	Causes	Average Weightage out of 10
A.	Less reading activities by the students	7
B.	Unaware about technique of remembering words	7
C.	Lack of listening activity of the students	7
D.	Lack of activities related to improvement of the vocabulary of the students	8
E.	Less events in colleges related to vocabulary of the students	6
F.	Hesitation of students for taking initiative while speaking	6
G.	Lack of surrounding atmosphere of students to improve communication	7

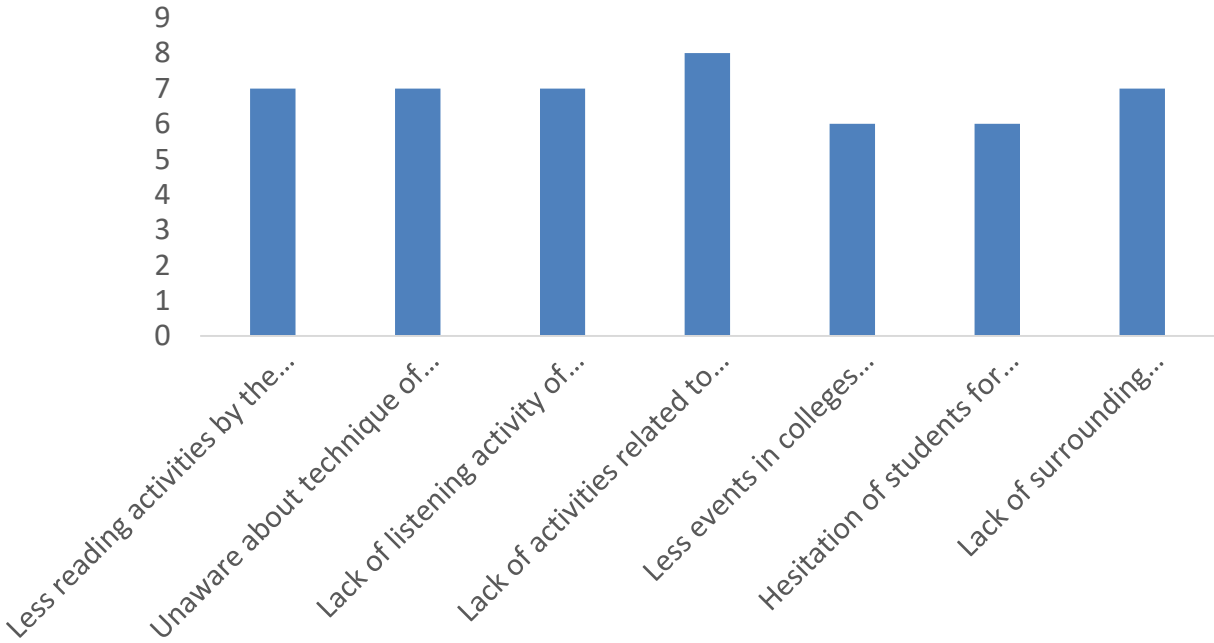


Figure f.1 Pareto Diagram of the causes related to the poor vocabulary

g. Development of Solution:

From the analysis of the problem we understood that there is lot of chance to improve the vocabulary of the students. Building your vocabulary is one of the easiest ways to improve the power of your writing and make any writing task that much easier, as you will have several synonyms in your repertoire to pull from every time. Developing your vocabulary need not be difficult or painful. Here are some ways you can improve your writing vocabulary every day.

Use new words, read every day, learn roots, use a thesaurus, develop practical vocabulary, learn new words every day, look up words you don't know, keep a journal, identify empty words, diversify your reading list, do word puzzles, try word board games, practice new words in divergent ways, make up associations, visualize new words, make your own vocabulary tests, make synonym word lists, take a writing course, edit your own writing, and ask for feedback.

From this we can understand that unless and until any one read more and practice, he will not improve the vocabulary. So because of this we decided to give the reading material to students and then force them to read and practice. And to check whether there is improvement or not one more test we will take. We called that test as Post Test. We prepared a timetable for that and divide entire work in the group. The tentative schedule is given below.

Tentative Timetable

Sr. no	Activity	Coordinators for the activity	Timeline
1	Pretest 1. A test of vocabulary range 2. A test of verbal speed 3. A test of verbal responsiveness	PDB and AKK	29 th to 30 th March, 2021
2	Reading Activity		
	4. Chapter 1	PDB and AKK	08 th to 09 th April, 2021
	5. Chapter 2 and 3	KMN and KSK	12 th to 16 th April, 2021
	6. Chapter 4 and 5	SSK	19 th to 23 th April, 2021

	7. Chapter 6 and 7	PDB and AKK	26 th to 30 th April, 2021
	8. Chapter 8 and 9	SSK	03 rd to 07 th May, 2021
	9. Chapter 10 and 11	KMN and KSK	03 rd to 07 th May, 2021
	10. Chapter 12 and 13	SSK	10 th to 14 th May, 2021
3	Post test	KMN and KSK	17 th May, 2021

h. Foreseeing Probable Resistance:

Team conducted a brainstorming session to foresee the probable resistance. Along with this, we asked other faculty so that we could receive few suggestions as well as we were open to the criticism about the developed solution. After receiving various suggestions from students and faculties we came across certain probable resistances which are as listed below.

1. What kind of work we have to do exactly?
2. What will happen if we cannot able to improve the vocabulary of the students?
3. Whether we will get sufficient time through our academic schedule for the activity?
4. How students will manage the activity?

i. Trial Implementation and Checking the Performance / Results:

The study material is provided and the finally performance of students is checked again through tests. Here also same test carried out so that we can understand the reach of the students.

The tests that we have conducted are listed below.

1. A test of vocabulary range
2. A test of verbal speed
3. A test of verbal responsiveness

So to assess the students we have again set following evaluation criteria for each test. And it is same as that of Pre Test.

Evaluation criteria:

1. Categorization of score for a test of vocabulary range:
 - i. 0–11: below average
 - ii. 12–35: average
 - iii. 36–48: above average
 - iv. 49–54: excellent
 - v. 55–60: superior
2. Categorization of score for a test of verbal speed:
 - i. 0–5: below average
 - ii. 6–10: average
 - iii. 11–15: above average
 - iv. 16–20: excellent
 - v. 20–25: superior
3. Categorization of score for a test of verbal responsiveness
 - i. 0–10: below average
 - ii. 11–15: average
 - iii. 16–20: above average
 - iv. 21–25: excellent
 - v. 26–30: superior

The marks of test are given below

Table i.1 marks of post test

Sr. No.	Roll No.	Test 1- A test of vocabulary range	Test 2- A test of verbal speed	Test 3 - A test of verbal responsiveness
		Marks (60)	Marks (25)	Marks (30)
1	1708046	30	16	18
2	1808007	34	14	14
3	1808009	35	13	10
4	1808016	AB	15	16
5	1808017	32	15	12
6	1808021	32	13	13
7	1808044	36	12	17
8	1808046	25	14	AB
9	1808048	24	15	AB
10	1808052	28	9	15
11	1808053	32	12	11
12	1906014	14	14	12
13	1908001	23	15	14
14	1908002	31	11	19
15	1908003	32	13	18
16	1908004	32	14	14
17	1908005	AB	16	19
18	1908006	27	18	21
19	1908007	34	14	AB
20	1908008	29	14	10
21	1908009	28	10	14
22	1908010	36	11	16
23	1908011	36	16	11
24	1908012	38	11	12

25	1908013	34	16	15
26	1908014	32	15	14
27	1908015	AB	19	15
28	1908016	38	12	11
29	1908017	36	16	AB
30	1908018	30	16	10
31	1908019	30	16	AB
32	1908020	34	14	14
33	1908021	33	13	14
34	1908022	27	11	15
35	1908023	39	15	15
36	1908024	31	16	19
37	1908025	26	12	8
38	1908026	AB	14	AB
39	1908027	31	11	11
40	1908028	31	11	12
41	1908029	31	16	16
42	1908031	33	17	AB
43	1908032	33	14	12
44	1908033	26	12	19
45	1908034	29	15	10
46	1908035	AB	13	16
47	1908036	33	14	14
48	1908038	32	16	12
49	1908039	34	12	12
50	1908040	33	14	16
51	1908041	45	11	14
52	1908042	31	12	18
53	1908043	29	7	9
54	1908044	30	14	16

55	1908045	32	5	15
56	1908046	45	14	14
57	1908047	33	11	9
58	1908048	27	11	21
59	1908049	26	11	11
60	1908050	27	AB	8
61	1908051	32	13	12
62	1908052	36	14	12
63	1908053	AB	15	14
64	1908054	26	11	19
65	1908055	28	14	18
66	1908056	34	10	16
67	1908057	31	11	19
68	1908058	35	10	18
69	1908059	36	7	18
70	1908060	33	15	16
71	1908061	36	AB	14
72	1908062	32	18	17
73	1908064	25	12	14
74	1908066	24	15	11
75	1908067	36	11	16
76	1909039	29	16	14
77	2058001	27	10	13
78	2058002	28	15	12
79	2058003	28	AB	11
80	2058004	27	AB	13
81	2058005	AB	19	14
82	2058006	32	16	16
83	2058007	32	21	14
84	2058008	24	19	12

85	2058009	26	12	11
86	2058010	26	14	16

After this we evaluated students once again and the evaluation is given in the below table.

Table i.2 Analysis of post test

	Test 1 (Marks 60)	Test 2 (Marks 25)	Test 3 (Marks 30)
Below Average	0	1	8
Average	66	7	44
Above Average	13	55	25
Excellent	0	18	2
Superior	0	1	0
Absent	7	4	7
Total	86	86	86
Average Score	31.44	12.90	13.03
Percentage	52.39	51.58	43.45

From this we understood that the average percentage obtained in the 3 tests is around the 50 %. The percentage improvement is seen in each test. It depicts that reading, continues assessment and motivation will improve the vocabulary.

j. Regular Implementation:

For experimental basis we tried this concept on second year B. Tech students. We are now planning to apply it on other classes too.

m. Benefits Achieved By Solving Problem:

After implementing the concept the benefits that we have seen are as follow:

1. Since students are forced to read to problem so we have seen the improvement in students. So students got benefited from this activity.
2. Initially there was resistance seen from students once they got idea about the importance of the activities the attendance of the students got improved.
3. The students are now giving at least 15 to 20 minutes of time for reading activity.
4. Students got idea about how to improve the vocabulary.

n. Special Gains for the Members:

1. The team members got satisfaction through this activity since we contribute to the development of the students.

o. Future Plan:

1. To implement this activity in Electrical Department so that we will again and test and improve the activity.
2. After seeing the result and mass scale we can implement it in entire institute also.

p. Acknowledgements:

We take this opportunity to thank Dr. V. N. Kalkhambkar, HoD Electrical Department, for the whole hearted support to the Best practices activity. Dr. V. N. Kalkhambkar gave lots of input and suggestions to bring out the best in us. The encouraging words that have been extended were great boost for the completion of this work.

We would like to thank the Director, Dr. Mrs. Sushama S. Kulkarni of Rajarambapu Institute of Technology, Rajaramnagar for giving us an opportunity to carry out this activity. The motivation that has been extended to us from the very first interaction with our facilitator Head of Department Mr. Sushant S. More made us more dedicated and result oriented. The encouragement that has been extended in every stage of the progress of Best practices activity was unexplainable.

My sincere thanks to Mrs. Savita Awate who encouraged us to undertake this activity.