

INTRODUCTION

Have you ever heard bird's songs? Do you know the birds in your neighbourhood feed grains i.e. feeding behaviour? Does your cat start meowing around the time you usually feed her? Do you know, why colourful feathers displayed by birds? Why Honeybees attracted towards colourful flowers?

Have you noticed any of these things? These are all examples of animal behaviours.

Animals have behaviours for almost every imaginable aspect of life, from finding food to wooing mates, from fighting off rivals to raising offspring.

Broadly, speaking, animal behaviour includes all the ways animals interact with other members of their species, with organisms of other species, and with their environment.

Behaviour can be defined more narrowly as a change in the activity of an organism in response to a *stimulus*, an external or internal cue or combination of cues.

When we taught animal behaviour in the classroom, it is a bit difficult in understanding but this problem can be solved by field visits method and Understanding level would be improved.

That is why, the present action research is based and focused on Increase the interest of B.Sc. B.Ed. VIII semester students (Bio group 2020) towards animal behaviour through field visits.

Objective of study

- To enhance students classroom performance.
- To help Biology group students to understand concepts dealt in the Biology.
- Improve understanding towards Animals behaviour.
- To enhance their skills for active learning and teaching.
- Increases interest towards Biology subjects.

Probable Causes:

- Lack of interest
- Lack of knowledge
- Lack of understanding between theory and practical

MATERIALS AND METHODS

Study Area

Sites of study are selected based on animal diversity and the Regional Institute of Education, Bhopal campus were selected for the study of animal behaviour.

Map of RIE, Bhopal



Picture 1: Showing map of RIE, Bhopal in the Madhya Pradesh.

Courtesy: Google map.

Climatic condition

The Bhopal lies on 503m above sea level. The climate here is tropical. The summers here have a good deal of rainfall, while the winters have very little. The temperature here averages 25.1 °C | 77.2 °F. About 1132 mm | 44.6 inch of precipitation falls annually. The driest month is April, with 2 mm | 0.1 inch of rain. Most of the precipitation here falls in August, averaging 359 mm | 14.1 inch.

Sample

Birds, Honeybees and Spiders were selected for behaviour study.

Materials

Binocular, camera, mobile phones and handouts



Picture 7: Picture showing camouflage behaviour of Crab spider at Science Park, RIE Campus Bhopal.



Picture 5: Picture showing behaviour of garden spider at Science Park, RIE Campus, Bhopal.



Picture 6: Picture showing foraging behaviour of Crab Spider at Science Park, RIE Campus, Bhopal.



Picture 3: Picture of bird jungle babbler showing their behaviour.



Picture 4: Picture of purple sunbird, collecting nectar from flower at RIE Campus.

Methodology

Field visits

Due to biological rhythm of animals, morning and evening time was used for field visits. The study adopted pre-test and post-test experimental design. Students achievement level was determined by dataset tabulating.

Photography and videography



Picture 2: Picture showing birds watching activities at the campus with students during field visits.

Questionnaire

A list of questions were asked that are answered by students in the papers.

Questions was based on behaviour of birds, honeybees and spiders. Self-prepared achievement and diagnostic pre-test based on animal behaviour.

A. Pre test

There were 10 questions with “1” and “0” format in the question papers, which were conducted in the classroom of B.Sc. B.Ed 8th semester (Bio group).

- Q. 1. Have you observed animal behaviour before?
 - a. YES
 - b. NO
- Q. 2. Are you able to understand the communication of birds?
 - a. YES
 - b. NO
- Q. 3. Do you know the social behaviour of birds?
 - a. YES
 - b. NO
- Q. 4. Have you observed honeybee's behaviour?
 - a. YES
 - b. NO
- Q. 5. Are you able to understand the social behaviour of honeybees?
 - a. YES
 - b. NO
- Q. 6. Do you know the spiders behaviour?
 - a. YES
 - b. NO
- Q. 7. Are you able to understand the foraging behaviour of spiders?
 - a. YES
 - b. NO
- Q. 8. Are you able to understand the camouflage of spiders?
 - a. YES
 - b. NO
- Q. 9. Do you know the feeding behaviour of spiders?
 - a. YES
 - b. NO
- Q. 10. Are you able to identify the object before field visits?
 - a. YES
 - b. NO

B. Post test

Same test were conducted after field visit method and result were analysed.

Self-prepared achievement and diagnostic post-test based on field visits.

- Q. 1. Have you observed animal behaviour after field visit?
b. YES b. NO
- Q. 2. Are you able to understand the communication of birds?
b. YES b. NO
- Q. 3. Do you know the social behaviour of birds?
b. YES b. NO
- Q. 4. Have you observed honeybee's behaviour?
b. YES b. NO
- Q. 5. Are you able to understand the social behaviour of honeybees?
b. YES b. NO
- Q. 6. Do you know the spiders behaviour?
b. YES b. NO
- Q. 7. Are you able to understand the foraging behaviour of spiders?
b. YES b. NO
- Q. 8. Are you able to understand the camouflage of spiders?
b. YES b. NO
- Q. 9. Do you know the feeding behaviour of spiders?
b. YES b. NO
- Q. 10. Are you able to identify the object after field visits?
b. YES b. NO

Participants

Table 1: List of the students (participants)

S.N.	NAME	Pre-test Total YES	Pre-test Total NO	Post-test Total YES	Post-test Total NO
1	Akanksha	03	07	10	0
2	Anamika	0	10	10	0
3	Anshu	04	06	10	0
4	Archana	02	08	10	0
5	Arnika	03	07	10	0
6	Bhagyashri	04	06	10	0
7	Bhavna	02	08	10	0
8	Disha	05	05	10	0
9	Divya	02	08	10	0
10	Hanna	03	07	10	0
11	Jagruti	01	09	10	0
12	Neha	02	08	10	0
13	Jyoti	02	08	10	0
14	Kamini	01	09	10	0
15	Jucy	00	10	10	0
16	Mahtab	01	09	10	0
17	Mamta	00	10	10	0
18	Manisha	01	09	10	0
19	Pooja	02	08	10	0
20	Pratiksha	02	08	10	0
21	Rashi	00	10	10	0
22	Ratna	02	08	10	0
23	Sandali	05	05	10	0
24	Sara	00	10	10	0
25	Shimon	04	06	10	0
26	Siddharth	05	05	10	0
27	Simran Bathla	00	10	10	0
28	Simran Yadav	04	06	10	0
29	Soujanya	03	07	10	0
30	Suruchi	00	10	10	0
31	Vaibhav	02	08	10	0
32	Vinita	05	05	10	0
33	Vivek	00	10	10	0

25	1	0	1	0	0	1	0	1	0	0
26	1	0	1	1	1	0	0	1	0	0
27	0	0	0	0	0	0	0	0	0	0
28	0	1	1	1	1	0	0	0	0	0
29	1	1	1	0	0	0	0	0	0	0
30	0	0	0	0	0	0	0	0	0	0
31	1	0	0	0	0	0	0	1	0	0
32	1	1	1	1	0	0	0	0	1	0
33	0	0	0	0	0	0	0	0	0	0

Data interpretation of the pre-test was done for the frequencies dataset, pie charts, descriptive, mean and bar graphs of the choice questions answered by the students.

Table 3: Frequencies Dataset

Statistics		
	Status	Students
N	Valid	330
	Missing	0
Mean	.2121	17.0000
Std. Error of Mean	.02254	.52496
Median	.0000	17.0000
Mode	.00	1.00 ^a
Std. Deviation	.40943	9.53636
Variance	.168	90.942
Range	1.00	32.00
Minimum	.00	1.00
Maximum	1.00	33.00

Sum	70.00	5610.00
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a. Multiple modes exist. The smallest value is shown

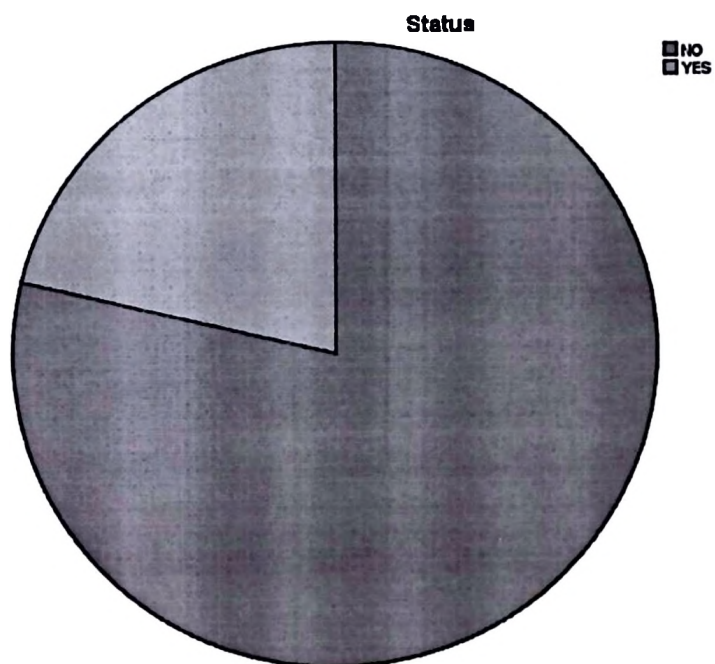
Table 4: Frequency Dataset Table

Status				
	Frequency	Percent	Valid Percent	Cumulative Percent
Valid 0	260	78.8	78.8	78.8
Valid 1	70	21.2	21.2	100.0
Valid Total	330	100.0	100.0	

Students				
	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Akanksha	10	3.0	3.0	3.0
Anamika	10	3.0	3.0	6.1
Anshu	10	3.0	3.0	9.1
Archana	10	3.0	3.0	12.1
Arnika	10	3.0	3.0	15.2
Bhagyashri	10	3.0	3.0	18.2
Bhavna	10	3.0	3.0	21.2
Disha	10	3.0	3.0	24.2
Divya	10	3.0	3.0	27.3
Hanna	10	3.0	3.0	30.3
Jagruti	10	3.0	3.0	33.3
Neha	10	3.0	3.0	36.4
Jyoti	10	3.0	3.0	39.4
Kamini	10	3.0	3.0	42.4
Jucy	10	3.0	3.0	45.5
Mahtab	10	3.0	3.0	48.5

Mamta	10	3.0	3.0	51.5
Manisha	10	3.0	3.0	54.5
Pooja	10	3.0	3.0	57.6
Pratiksha	10	3.0	3.0	60.6
Rashi	10	3.0	3.0	63.6
Ratna	10	3.0	3.0	66.7
Sandali	10	3.0	3.0	69.7
Sara	10	3.0	3.0	72.7
Shimon	10	3.0	3.0	75.8
Siddharth	10	3.0	3.0	78.8
Simran Bathla	10	3.0	3.0	81.8
Simran Yadav	10	3.0	3.0	84.8
Soujannya	10	3.0	3.0	87.9
Suruchi	10	3.0	3.0	90.9
Vaibhav	10	3.0	3.0	93.9
Vinita	10	3.0	3.0	97.0
Vivek	10	3.0	3.0	100.0
Total	330	100.0	100.0	

Pie Chart 1:



Pie Chart 2:

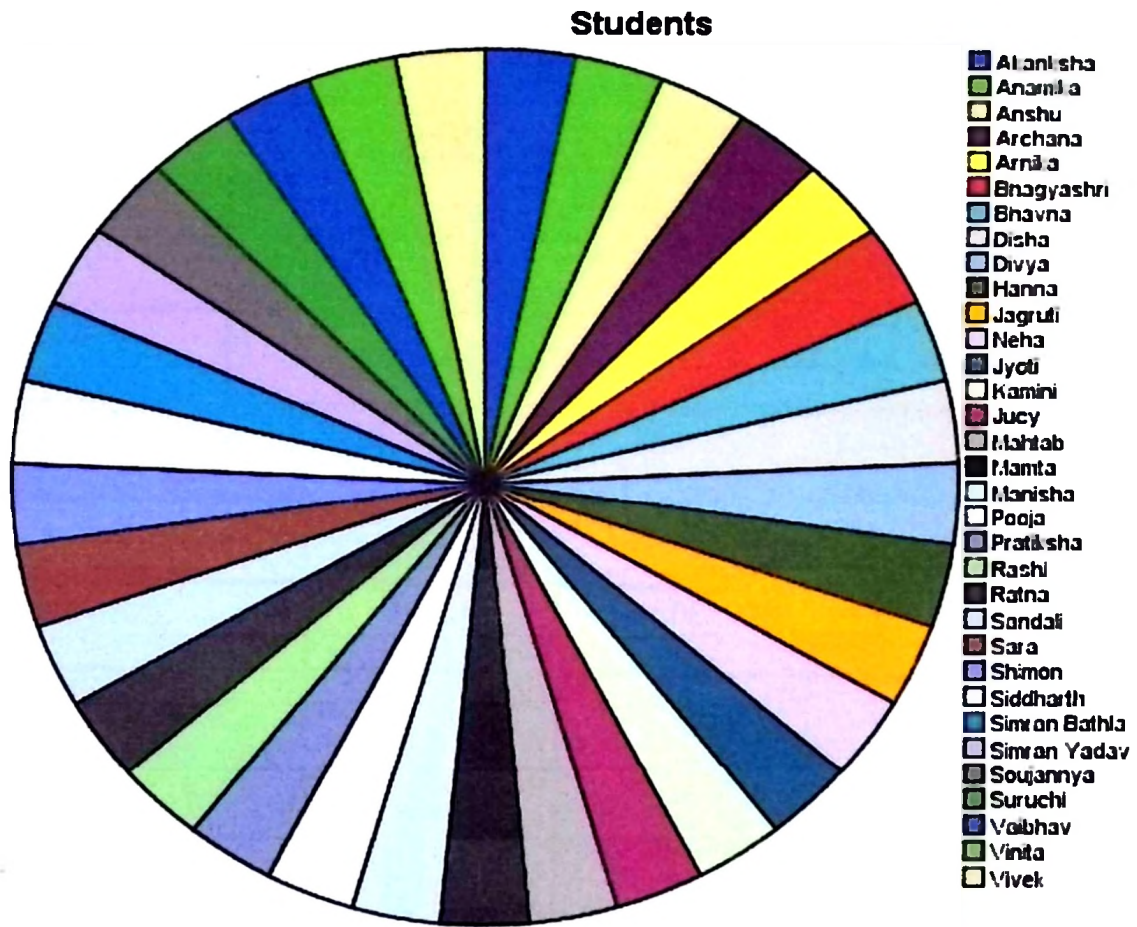


Table 5: Descriptives

Descriptive Statistics

	N	Range	Minimum	Maximum	Mean		Std. Deviation	Var
	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Statistic
Status	330	1.00	.00	1.00	.2121	.02254	.40943	.
Students	330	32.00	1.00	33.00	17.0000	.52496	9.53636	90.!
Valid N (listwise)	330							

Table 6: Means Dataset**Case Processing Summary**

	Cases					
	Included		Excluded		Total	
	N	Percent	N	Percent	N	Percent
Status * Students	330	100.0%	0	0.0%	330	100.0%

Report

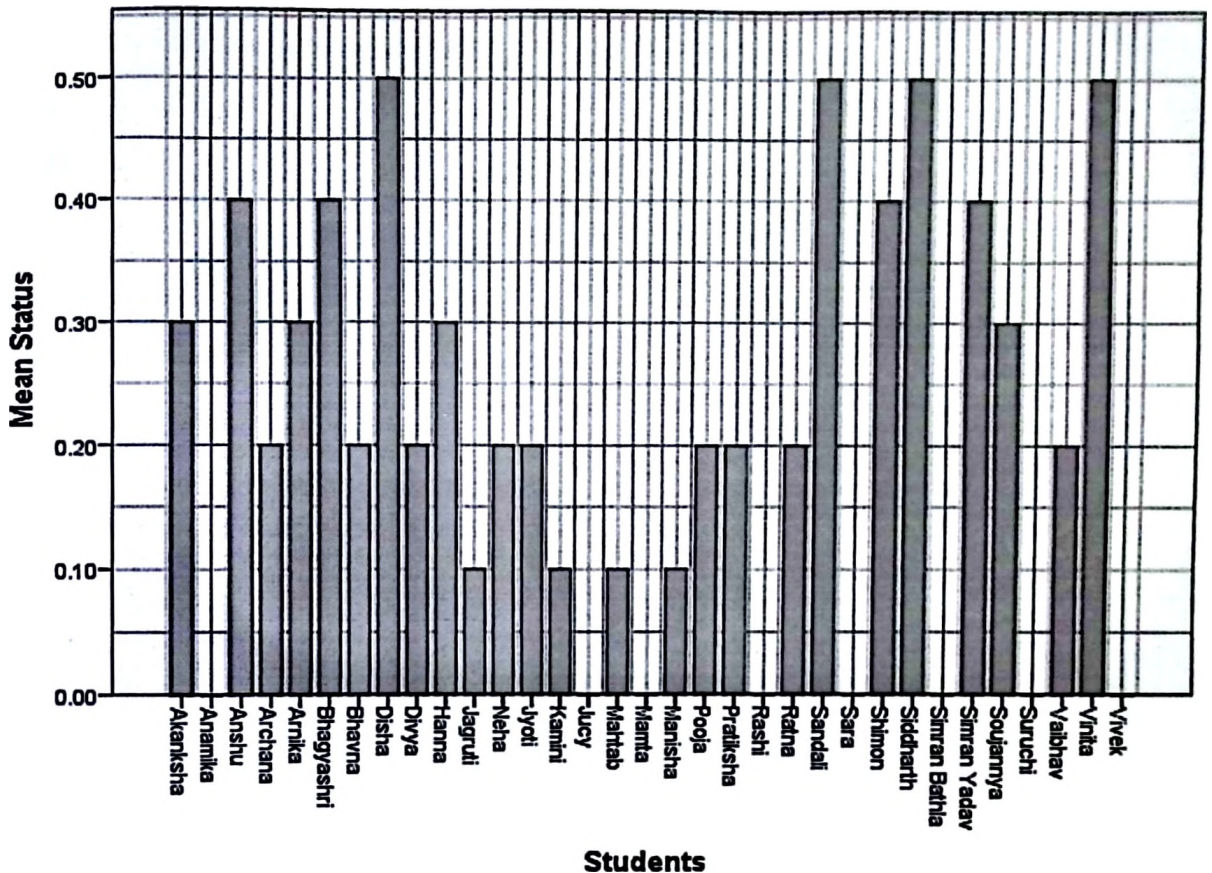
Status Students	Mean	N	Std. Deviation
Akanksha	.3000	10	.48305
Anamika	.0000	10	.00000
Anshu	.4000	10	.51640
Archana	.2000	10	.42164
Arnika	.3000	10	.48305
Bhagyashri	.4000	10	.51640
Bhavna	.2000	10	.42164
Disha	.5000	10	.52705
Divya	.2000	10	.42164
Hanna	.3000	10	.48305
Jagruti	.1000	10	.31623
Neha	.2000	10	.42164
Jyoti	.2000	10	.42164
Kamini	.1000	10	.31623
Jucy	.0000	10	.00000
Mahtab	.1000	10	.31623
Mamta	.0000	10	.00000
Manisha	.1000	10	.31623
Pooja	.2000	10	.42164
Pratiksha	.2000	10	.42164
Rashi	.0000	10	.00000
Ratna	.2000	10	.42164
Sandali	.5000	10	.52705
Sara	.0000	10	.00000

Shimon	.4000	10	.51640
Siddharth	.5000	10	.52705
Simran Bathla	.0000	10	.00000
Simran Yadav	.4000	10	.51640
Soujannya	.3000	10	.48305
Suruchi	.0000	10	.00000
Vaibhav	.2000	10	.42164
Vinita	.5000	10	.52705
Vivek	.0000	10	.00000
Total	.2121	330	.40943

ANOVA Table

		Sum of Squares	Df	Mean Square	F	Sig.
Status * Students	Between Groups (Combined)	9.152	32	.286	1.846	.005
	Within Groups	46.000	297	.155		
	Total	55.152	329			

Graph Dataset 01:



Results: For B.Sc. B.Ed VIII semester (Biology group) Serial No. 1 to 33 were seen to be least “YES” answering (below 50% i.e. 21.2%) and “NO” answering (More than 50% i.e. 78.8%). The mean of status is .2121 and mean of students are 17.0; median of status is .00 and median of students are 1.0; SD of status is .40943 and SD of students are 9.53636; variance of status is .168 and variance of students are 90.942.

26	1	1	1	1	1	1	1	1	1	1	
27	1	1	1	1	1	1	1	1	1	1	
28	1	1	1	1	1	1	1	1	1	1	
29	1	1	1	1	1	1	1	1	1	1	
30	1	1	1	1	1	1	1	1	1	1	
31	1	1	1	1	1	1	1	1	1	1	
32	1	1	1	1	1	1	1	1	1	1	
33	1	1	1	1	1	1	1	1	1	1	

Data interpretation of the post-test was done for the frequencies dataset, pie charts, descriptive, mean and bar graphs of the choice questions answered by the students.

Table 8: Frequencies Dataset

Statistics

		Status	Students
N	Valid	330	330
	Missing	0	0
Mean		1.0000	17.0000
Std. Error of Mean		.00000	.52496
Median		1.0000	17.0000
Mode		1.00	1.00 ^a
Std. Deviation		.00000	9.53636
Variance		.000	90.942
Range		.00	32.00
Minimum		1.00	1.00
Maximum		1.00	33.00
Sum		330.00	5610.00

a. Multiple modes exist. The smallest value is shown

Table 09: Frequency Table Dataset

Status				
	Frequency	Percent	Valid Percent	Cumulative Percent
Valid 1	330	100.0	100.0	100.0

Students					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Akanksha	10	3.0	3.0	3.0
	Anamika	10	3.0	3.0	6.1
	Anshu	10	3.0	3.0	9.1
	Archana	10	3.0	3.0	12.1
	Arnika	10	3.0	3.0	15.2
	Bhagyashri	10	3.0	3.0	18.2
	Bhavna	10	3.0	3.0	21.2
	Disha	10	3.0	3.0	24.2
	Divya	10	3.0	3.0	27.3
	Hanna	10	3.0	3.0	30.3
	Jagruti	10	3.0	3.0	33.3
	Neha	10	3.0	3.0	36.4
	Jyoti	10	3.0	3.0	39.4
	Kamini	10	3.0	3.0	42.4
	Jucy	10	3.0	3.0	45.5
	Mahtab	10	3.0	3.0	48.5
	Mamta	10	3.0	3.0	51.5
	Manisha	10	3.0	3.0	54.5
	Pooja	10	3.0	3.0	57.6
	Pratiksha	10	3.0	3.0	60.6
Rashi	10	3.0	3.0	63.6	
Ratna	10	3.0	3.0	66.7	

Sandali	10	3.0	3.0	69.7
Sara	10	3.0	3.0	72.7
Shimon	10	3.0	3.0	75.8
Siddharth	10	3.0	3.0	78.8
Simran Bathla	10	3.0	3.0	81.8
Simran Yadav	10	3.0	3.0	84.8
Soujannya	10	3.0	3.0	87.9
Suruchi	10	3.0	3.0	90.9
Vaibhav	10	3.0	3.0	93.9
Vinita	10	3.0	3.0	97.0
Vivek	10	3.0	3.0	100.0
Total	330	100.0	100.0	

Table 10: Characteristics

Characteristics				
	Frequency	Percent	Valid Percent	Cumulative Percent
Valid				
Have you observed animal behaviour before	33	10.0	10.0	10.0
Are you able to understand the communication of birds	33	10.0	10.0	20.0
Do you know the social behaviour of birds	33	10.0	10.0	30.0
Have you observed honeybee's behaviour	33	10.0	10.0	40.0
Are you able to understand the social behaviour of honeybees	33	10.0	10.0	50.0
Do you know the spiders behaviour	33	10.0	10.0	60.0

Are you able to understand the foraging behaviour of spiders	33	10.0	10.0	70.0
Are you able to understand the camouflage of spiders	33	10.0	10.0	80.0
Do you know the feeding behaviour of spiders	33	10.0	10.0	90.0
Are you able to identify the object before field visits	33	10.0	10.0	100.0
Total	330	100.0	100.0	

Bar Graph dataset 02:

	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Statistic
	c	c			c			c
Status	330	.00	1.00	1.00	1.0000	.00000	.00000	.000
Characteristic	330	9.00	1.00	10.00	5.5000	.15835	2.87664	8.275
Students	330	32.00	1.00	33.00	17.0000	.52496	9.53636	90.942
Valid N (listwise)	330				0			

Table 12: Means Dataset

Case Processing Summary

	Cases					
	Included		Excluded		Total	
	N	Percent	N	Percent	N	Percent
Status * Students	330	100.0%	0	0.0%	330	100.0%

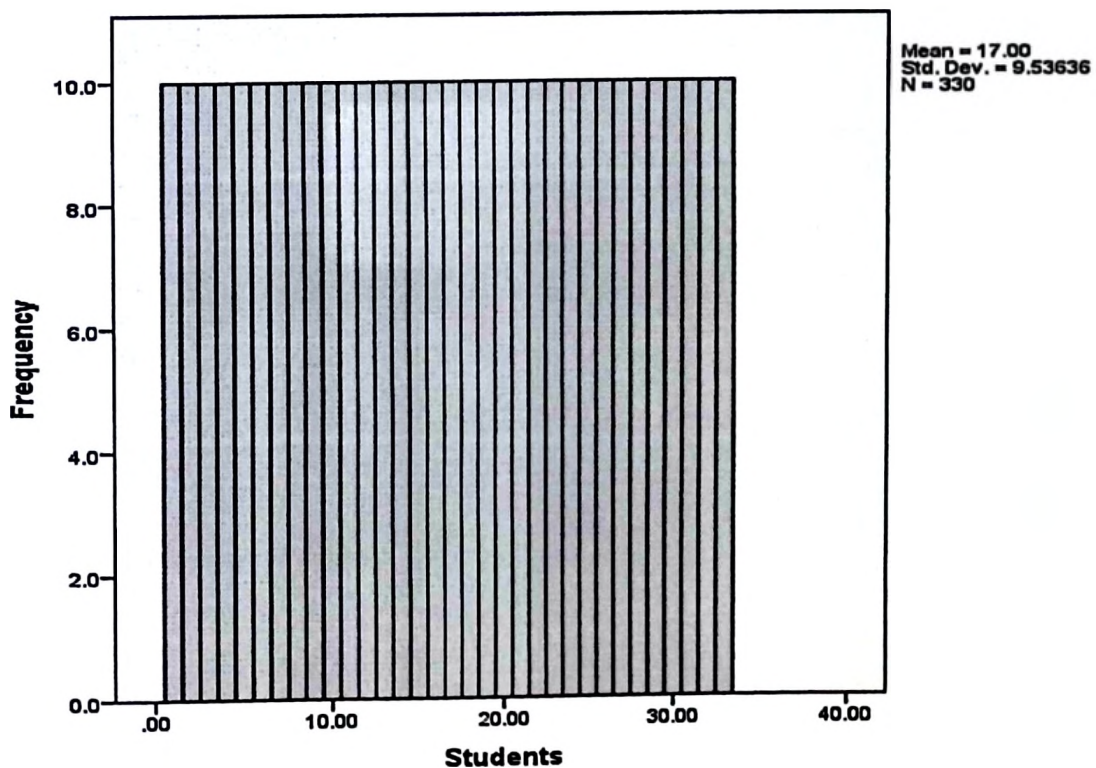
Report

Status

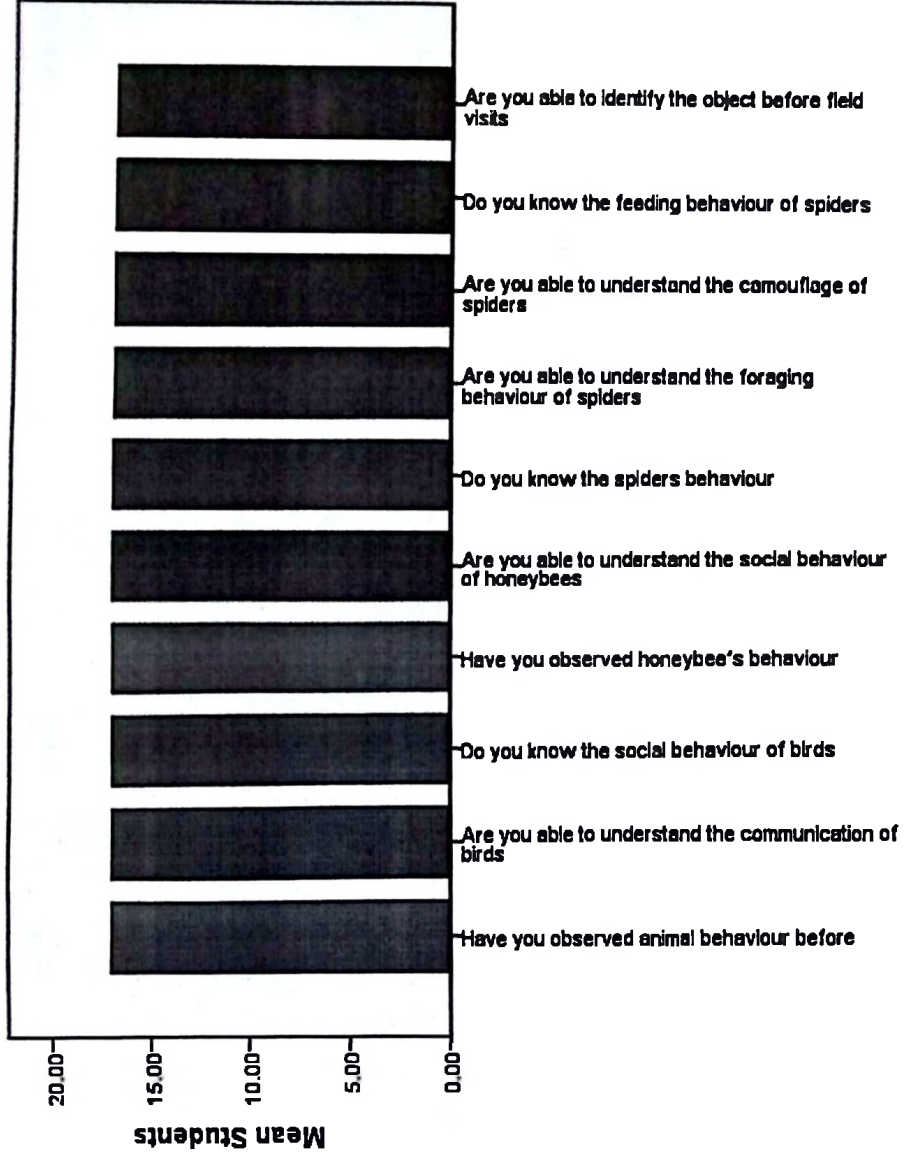
Students	Mean	N	Std. Deviation
Akanksha	1.0000	10	.00000
Anamika	1.0000	10	.00000
Anshu	1.0000	10	.00000
Archana	1.0000	10	.00000
Arnika	1.0000	10	.00000
Bhagyashri	1.0000	10	.00000
Bhavna	1.0000	10	.00000
Disha	1.0000	10	.00000
Divya	1.0000	10	.00000
Hanna	1.0000	10	.00000
Jagruti	1.0000	10	.00000
Neha	1.0000	10	.00000
Jyoti	1.0000	10	.00000
Kamini	1.0000	10	.00000
Jucy	1.0000	10	.00000

Mahtab	1.0000	10	.00000
Mamta	1.0000	10	.00000
Manisha	1.0000	10	.00000
Pooja	1.0000	10	.00000
Pratiksha	1.0000	10	.00000
Rashi	1.0000	10	.00000
Ratna	1.0000	10	.00000
Sandali	1.0000	10	.00000
Sara	1.0000	10	.00000
Shimon	1.0000	10	.00000
Siddharth	1.0000	10	.00000
Simran Bathla	1.0000	10	.00000
Simran Yadav	1.0000	10	.00000
Soujannya	1.0000	10	.00000
Suruchi	1.0000	10	.00000
Vaibhav	1.0000	10	.00000
Vinita	1.0000	10	.00000
Vivek	1.0000	10	.00000
Total	1.0000	330	.00000

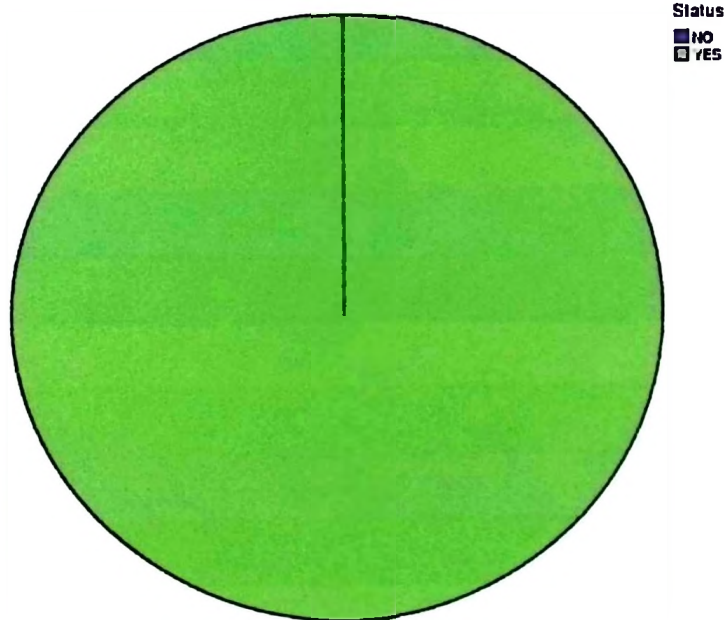
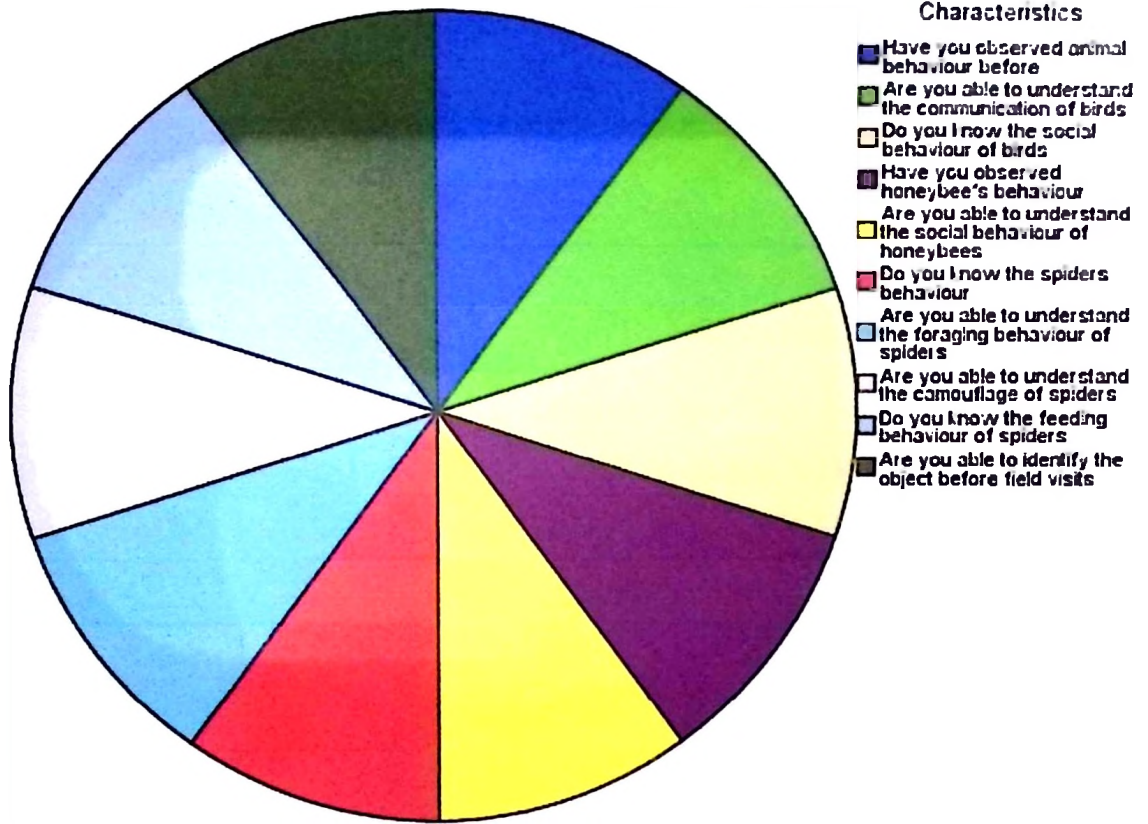
Graph Dataset 03:



Mean Graph dataset 04:



Pie chart 03 and 04: Pie chart Showing characteristics and status of experimental design.



Results: For B.Sc. B.Ed VIII semester (Biology group) Serial No. 1 to 33 were seen to be raise “YES” answering (above 50% i.e. 100%) and “NO” answering (less than 50% i.e. 0). The mean of status is 1.0 and mean of students are 17.0; median of status is 1.0 and median of students are 17; SD of status is .00 and SD of students are 9.53636; variance of status is .00 and variance of students are 90.942. “YES” answering (below 50%) and “NO” answering (Above 50%) in pre-test but all have raised to above 50%. Therefore, there is drastic increase in correct answering.

So that we conclude here i.e. drastic increase in numbers shows, improvement in understanding level of B.Sc. B.Ed. VIII semester students towards animal behaviour through field visits.

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