GRAYMATTERS

PROGRAM IMPACT ASSESSMENT REPORT
ADOLESCENT GIRLS PROGRAM GYAN SHALA
2014-15

SCHOOL QUALITY
SETTING QUALITY STANDARDS
& PROMOTING EXCELLENCE

GRAYMATTERS

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EXECUTIVE SUMMARY

The following report contains the findings of an assessment conducted in April, 2015 to understand the impact of the Adolescent Girls Program run by Gyan Shala, a non-profit which runs programs to provide quality basic school education. The Adolescent Girls Program is targeted towards providing after school education to girls in the age groups of 14-25 years.

The assessments were used to test the learning outcomes (Gujarati, Maths and Science) and the non-cognitive skills (Socio Emotional Well Being) of the participants in the program (Treatment group). To compare the results, two groups of participants with similar age and profile were assessed. The details of these groups are as follows (**Table 1** below).

Table 1: Description of the comparison groups

GROUP	DESCRIPTION
Control	Participants who never enrolled in the program
Dropout	Participants who enrolled in the program but dropped out of it between 3 to 12 months after enrollment

MAIN FINDINGS

1) The learning outcomes across participants (in the study) are positively correlated with their non-cognitive ability.

2) On average, in Maths, Science and Gujarati, the treatment group scored more than the control group and the dropout group.

3) On average, in Science and Gujarati, the treatment group scored more than the control group and the dropout group.

Table 2: Average percentage scores of learning outcomes across groups

SUBJECT	TREATMENT GROUP	CONTROL GROUP	DROPOUT GROUP
MATHS	66.3 %	43.7 %	49.7 %
SCIENCE	54.6 %	42.1 %	42.5 %
GUJARATI	62.1 %	45.8 %	48.0 %

4) The treatment group reported better non-cognitive ability than the control and dropout groups.

Table 3: Average percentage scores of student reported SEWB ability across groups

	TREATMENT	DROPOUT	CONTROL
SEWB ability	62.4%	49.7 %	49.3 %

INTRODUCTION

ABOUT GYAN SHALA

Gyan Shala is a non-profit organization registered in India to develop and implement institutional solutions to provide low cost but assured high quality basic education to children from poor urban and rural families, which do not deteriorate on large scale replication.

The mission of Gyan Shala is to ensure the quality of basic education to the children from poor rural and urban families on par with what is available to high income or elite social groups. This would be ensured through the school based education, as the children do not receive educational support from family or parents, who themselves have not been to school.

ABOUT GRAY MATTERS INDIA

Gray Matters India (GMI) is a social enterprise that aspires to transform the landscape of school education in India by using assessments, school ratings and evidence-based analytics towards improving student learning outcomes in schools.

Gray Matters, through its flagship school rating initiative measures school performance through assessment of student learning outcomes, teaching quality, teacher competency, parent satisfaction, school management practices and effective usage of learning infrastructure.

Over the past 3 years Gray Matters has worked across Hyderabad, Delhi & Bangalore with a focus on affordable private schools and impacting more than 300000 students & 20000 teachers in more than 700 schools.

DETAILS OF THE STUDY

PURPOSE

The study was commissioned by Gyan Shala to understand the impact of its Adolescent Girls program (AGP). The two year program aims to provide quality education to adolescent girls (14-25 years of age) through an after school program. It aims to equip the participants with better skills in Maths, Science and Language (Gujarati).

GROUPS

In order to understand the impact of the AGP; Maths, Science, Language and non-cognitive [Social Emotional Well Being (SEWB)] abilities of the participants are assessed. The assessment provides estimates of their current abilities (both academic and non-cognitive). However, the role of the intervention in developing these abilities needs further evidence as the abilities could be the result of natural human development. In order to better understand the program's contribution towards developing these abilities, a counterfactual (comparison) should be established which gives us an estimation of the abilities had they naturally developed. The comparison group provides a benchmark against which all results for academic and non-cognitive achievement can be compared to and any differences arising be attributed to the intervention.

For the current study, three groups are assessed for learning outcomes and SEWB abilities. The details of the 3 groups are as follows:-

a) Treatment Group: - This group contains adolescent girls of age between 14 to 25 years who have enrolled themselves in the AGP and have continued for more than one year.

b) Control Group: - This group contains adolescent girls from the same communities as the treatment group but has never enrolled in the AGP.

c) Dropout Group: - This group contains adolescent girls of age between 14 to 25 years who have enrolled themselves in the AGP but have dropped out of the program after a period of 3 to 12 months.

Additionally, some of the participants in each of the groups attend regular schools.

SAMPLING

The sample for the treatment group includes all the participants currently enrolled in the program. Similarly all the participants who dropped out of the program in less than a year were part of the drop out group. An equivalent number of participants with a similar socio economic profile as the treatment group were included in the control group.

The details of the sample sizes for each of the groups are mentioned below.

Table 4: Group sizes in the study

GROUP	SAMPLE SIZE	NUMBER ASSESSED
Treatment	206	198
Control	201	201
Drop out	198	87

The recruitment of the participants to the control group was done by Gyan Shala. Ideally the control group is supposed to be similar to the treatment population in all aspects. An ex post analysis of the groups show the following trends.

a) Control group was younger (median age 12) than the treatment (median age 16) and dropout groups (median age 17).

b) The number of school going participants is also higher in control group (64%) than the treatment (22%) and the dropout group (10%).

The difference in the participants across the groups makes it difficult to attach causal inferences regarding the impact of the program.

TOOLS

Learning outcomes: - Standardized test instruments containing questions (items) designed according to National Curriculum Framework, 2005 are used to test learning outcomes in Maths, Science and Gujarati. The language of instruction in these test instruments is Gujarati. After testing and calibrating the items, a scale was constructed using the RASCH model for reporting scores.

Each of the test instruments contain approximately 25-35 multiple choice questions with one correct answer. The students were provided as much time as required to completely answer all the questions.

Non-cognitive ability: - The non-cognitive ability of the students is estimated through the Social Emotional Well Being (SEWB) survey. The SEWB is strengths based survey and provides an ecological view of students' wellbeing by assessing their positive & negative emotions, socio-emotional competencies, environmental influences.

The SEWB students' survey consists of a self-rated questionnaire containing various statements related to SEWB indicators. The participants mark whether these statements are a reflection of their personality by choosing yes or no for each statement.

Further, a SEWB teacher questionnaire containing similar statements as the student survey is given to the teacher of each participant. The teacher is expected to rate the participants on the indicators by agreeing or disagreeing the applicability of the statement to the participant.

The responses from the surveys are used to calculate the self and the teacher SEWB score for each participant. The higher the score, the better are the non-cognitive abilities.

TEST ADMINISTRATION

The assessments are administered to all the groups at the 20 centers in a standardized manner by the Gyan Shala team. The administering team is trained on the use of tools by the GMI team. After the assessments, the responses are collected and sent to the GMI office for data tabulation and analysis. Additional data like age, participant going to a school, attendance in the program and the center of attendance are also collected for each participant.

DATA ANALYSIS AND REPORTING

All the learning outcomes and non-cognitive scores are reported on scale scores. Further, the percentage points wherever reported indicate the percentage of points achieved against the maximum points on the scale score that can be possible. Any differences between groups have been tested for significance through an unpaired Student's t-test at 90%, 95%, and 99% confidence level. Cohen's d representing the effect size across groups has been computed between groups and reported as *d* wherever possible.

STUDY FINDINGS

STUDENT LEARNING OUTCOMES

GUJARATI

The Gujarati language test instrument contains 40 test items to measure the reading comprehension and grammar skills of the test takers in Gujarati. Analysis of the learning outcomes in Gujarati across participants is discussed below.

Comparison of groups

Comparison (**Figure 1**; **Table 8**) of the mean achievement scores across the three groups shows that the treatment group scored more than the control and the drop out group. The difference (**Table 10**) between the treatment group and the control group scores is significant ($d = 1.5$). However, there is no significant difference in the mean scores between control and drop out groups.

Comparison of centers

Center wise analysis of the scores (**Table 12**); reveal that participants of the treatment group scored better than their peers in most of the centers.

(Figure 5) shows the comparison among the centers. The following are the trends noticed.

> Participants in treatment group at Khadavali Chali and Mangal Prabhat scored the best scores, while at Jay Yogesvar and Someshvarnagar, they got the lowest scores.
> At Someshvarnagar and Bai Santok , control group participants scored better than their peers in treatment group.
> At Satya Devna Chhapre, the dropout group participant scored better than their counterparts in the treatment and control group.

Figure 1: Mean scores in Gujarati across groups
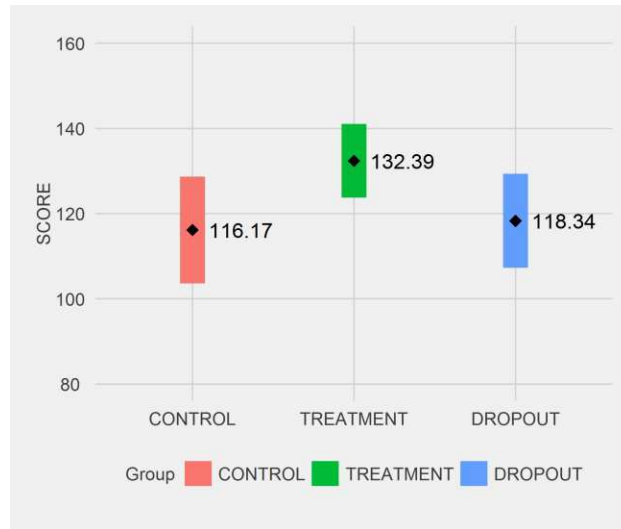
Note: Mean scaled score is represented as ◆, and actual score displayed on the left hand side. The length of the bar represents the middle 68 percentile (± 1 standard deviation from the mean) of the participant scores in each group.

MATHS

The Maths test instrument contains 30 test items to measure the skills in numbers, measurement, geometry and data interpretation. Analysis of the learning outcomes in Maths across all participants is discussed below.

Comparison of groups

Comparison (**Figure 2**) of the mean achievement scores across the three groups shows that the treatment group scored more than the control and the drop out group . The difference (**Table 16**) between the treatment group and the control group scores is significant ($d = 1.85$). However, there is no significant difference in the mean scores between control and drop out groups.

Comparison of centers

Center wise analysis of the scores (**Table 17**); reveal that participants of the treatment group scored better than their peers in most of the centers.

(**Figure 6**) shows the Maths score distribution among the centers. The following trends are seen.

> Participants in treatment group at Fulchand ni Chali, Gandhi Society and Chhatris Ordi centers scored the best scores, while at Jay Yogesvar and Harijivan ni Chali centres, they got the lowest scores.
> At none of the centers did the control group performed better than the treatment group.
> At Mamupathan ni Chali and Harijivan ni Chali centres, the dropout group participants scored better than their counterparts in the treatment and control group.

Figure 2: Mean scores in Maths across groups

Note: Mean scaled score is represented as ◆, and actual score displayed on the left hand side. The length of the bar represents the middle 68 percentile (± 1 standard deviation from the mean) of the participant scores in each group.

SCIENCE

The Science test instrument contains 27 test items to measure the skills in Biology (myself and my surroundings, people, animals and plants), Physics, Chemistry, Earth and space sciences. Analysis of the learning outcomes in Science across all participants is discussed below.

Comparison of groups

Comparison (**Figure 3**) of the mean achievement scores across the three groups shows that the treatment group scored more than the control and the drop out group. The difference (**Table 21**) between the treatment group and the control group scores is significant ($d = 1.34$). However, there is no significant difference in the mean scores between control and drop out groups.

Comparison of centers

Center wise analysis of the scores (**Figure 7**); reveal that participants of the treatment group scored better than their peers in most of the centers. Further analyses reveal the following trends.

Participants in treatment group at Jadbainagar, Fulchandni Chali, Prahalad Nagar centers got the best scores, while Harijivanni Chali and Panditnagar centres got the lowest scores.

At none of the centers did the control group performed better than the treatment group. However, at Bai Santok, Someshvar Nagar and Savansin Nagar, the control group scored almost the same as treatment group.

At Satyadevna Chhapra the dropout group participants scored better than their counterparts in the treatment and control group while at Panditnagar centres, they scored better than the control group and equally well as the treatment group.

Figure 3: Mean scores in Science across groups
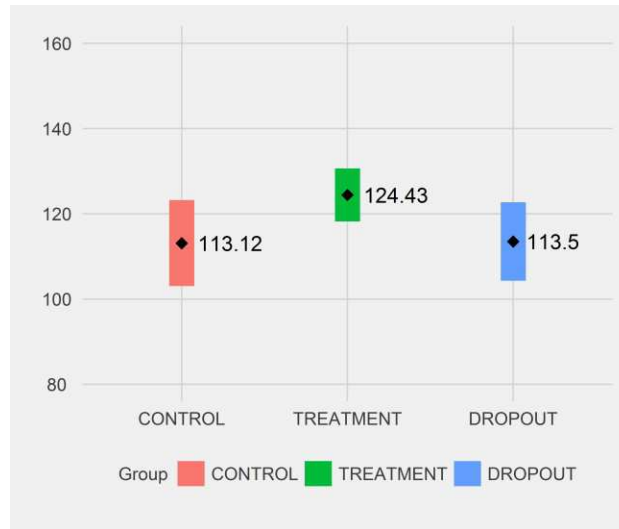
Note: Mean scaled score is represented as ◆, and actual score displayed on the left hand side. The length of the bar represents the middle 68 percentile (± 1 standard deviation from the mean) of the participant scores in each group.

SOCIAL EMOTIONAL WELL BEING (SEWB)

STUDENT SURVEY

The SEWB students' survey consists of a self-rated questionnaire containing various statements related to indicators of SEWB, resilience, positive social orientation, positive work orientation and positive environment at community, home and school. The students agree or disagree with the statements on the indicators mentioned above. For each statement, agreement with a positive statement is given a score of 1 while disagreement with it is given a score of 0. Conversely, disagreement with a negative statement gives a score of 1 while agreement with it gives a score of 0. The scores of all individual statements are summed up and the sum total score is converted to a scaled score. A higher scale score indicates a better SEWB ability. **The minimum score is around 25 and the maximum possible score is about 80.**

Comparison of groups
Comparison of the mean SEWB scores based on student surveys across the three groups; show that the treatment group reported better SEWB than the control and the dropout groups. Further, analysis reveals that there is no difference between control and dropout groups.

Comparison of centers
Center wise analysis of the SEWB scores (**Figure 8**); reveal that participants of the treatment group reported higher SEWB than their peers in most of the centers. Further analyses reveal the following trends.

a) In the treatment group, participants at Someshvarnagar , Khadavali Chali and Mangal Prabhat centers reported the highest SEWB while Harijivanni Chali and Sivansinanagar reported the lowest SEWB.

b) In Fulchandni Chali and Savasinagar, participants in control group reported higher SEWB than the participants of the treatment group at these centers.

c) In Jadibanagar and Harijivanni Chali, the participants of the dropout group reported higher SEWB than the treatment and the control group participants at these centers.

Comparison of indicators

(**Table 5** see below) shows the percentage agreement of participants across groups with the indicators in the SEWB student survey. Participants across all the three groups reported highest agreement to positive work orientation while the lowest agreement to indicators of Resilience.

The participants in the treatment group report more agreement than the control and the dropout group across all indicators. However, the dropout and the control group report similar levels of agreement across the indicators.

(**Table 23**) shows the question wise agreement across the three groups. Analysis of these responses indicate the following trends

a) Participants of the treatment groups have reported better agreement than the control and the dropout group participants in most of the statements.

b) Participants of the control group have reported better agreement than the treatment group in the following statements
- o I could do a lot better in my schoolwork.[#]
- o I get into too much trouble.[#]
- o When I get stressed out about things, I find someone to talk with to calm down.[#]
- o I have a parent who spends time talking with me about how to make friends and solve problems.

c) Participants of the dropout group have reported better agreement than the treatment group in the following statement
- o I could do a lot better in my schoolwork.[#]
- o I feel lonely.[#]
- o I have a parent who makes time for me and listens.
- o I have a parent who spends time talking with me about how to make friends and solve problems.
- o When I get stressed out about things, I find someone to talk with to calm down.
- o I have a parent who discusses with me the importance of doing my best in my schoolwork.

(# - Indicates a negative statement. The disagreement to these questions is equivalent to the agreement on a positive statement)

Figure 4: Mean SEWB ability score reported by students across groups
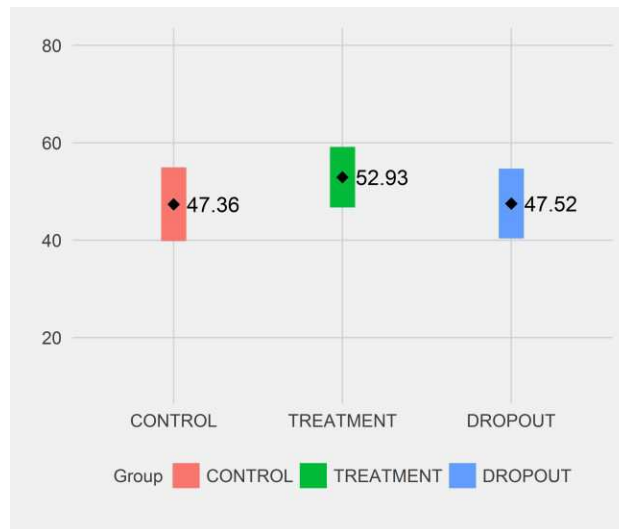
Note: Mean scaled score is represented as ◆, and actual score displayed on the left hand side. The length of the bar represents the middle 68 percentile (± 1 standard deviation from the mean) of the participant scores in each group.

Table 5: Percentage agreement with indicators in the student survey across groups

INDICATOR	CONTROL	TREATMENT	DROPOUT
INDICATORS OF A POSITIVE WORK ORIENTATION	68%	84%	70%
POSITIVE SCHOOL INDICATORS	71%	83%	70%
INDICATORS OF A POSITIVE SOCIAL ORIENTATION	65%	78%	66%
POSITIVE COMMUNITY INDICATORS	68%	77%	67%
POSITIVE HOME INDICATORS	67%	74%	69%
INDICATORS OF SEWB	62%	73%	63%
INDICATORS OF RESILIENCE	50%	52%	46%

TEACHER SURVEY

The SEWB teacher survey is a questionnaire given to the teacher for each participant to estimate the SEWB ability of the participant. The teacher is expected to rate the participants on each of the indicators (positive social orientation, positive work interaction, resilience and SEWB) by agreeing or disagreeing the applicability of the statement to the participant. The scoring is similar to that followed in the SEWB student survey, with agreement to positive statements and disagreement to negative statements given a score of one. Conversely, disagreement to positive statement and agreement to positive statements is given a zero score. The sum of scores from each individual statement is calculated and a corresponding scale score is generated. Higher the scale scores reported, higher is the SEWB attributed to the participant by the teacher.

For this survey, no data was collected for the control group as the teachers were not available for the study. Results are reported for only the treatment and the dropout group.

Comparison of groups

Comparison (**Table 6** see below) of the mean SEWB scores reported by teachers for the participants across the groups, show that the teachers reported significantly more SEWB to the treatment group than the dropout group. The effect of dropping out from the program seems to have a small effect (d=0.39) on the SEWB attributed to the participants.

Table 6: Comparison of mean and standard deviation of SEWB scores of participants reported by teachers across groups

GROUP	MEAN	STD.DEV
TREATMENT	52.11	11.03
DROPOUT	48.14	8.87

Comparison of centers

Center wise analysis of the SEWB scores reported by teachers, (**Figure 9**) reveal that participants of the treatment group are reported to have higher SEWB than the dropout group in most of the centers.

Among the centers, the following trends are noticed.

a) In the treatment group, participants at Arti society and Mangal Prabhat centers are reported to have highest SEWB while Kadhavali Chali and Jay Yogesvar are reported to have the lowest SEWB.

b) In Bai Santok, Sarkhej Salatvas and Khadavali Chali, participants in dropout group are reported to have higher SEWB than the participants of the treatment group at these centers.

Comparison of indicators

Table 7 shows the teachers' agreement on the SEWB indicators in the survey across the treatment and the control group. The teachers have reported higher percentage of agreement across all indicators for the treatment group when compared to the drop out group. Indicators of positive social orientation is the indicator with the highest agreement and indicators of SEWB has the lowest agreement for both treatment and dropout groups.

Question wise comparison of agreement reported by the teachers' for both groups is shown in (**Table 24**). Analysis of the agreement reveals the following patterns.

a) Teachers have reported higher percentage of agreement to the treatment group than the dropout group on most of the questions.

b) Dropout group participants have been reported to have higher agreement on the following questions
   o Disrupt class lessons[#]

o Relate well to classmates who are different (e.g., different cultural economic background, gender, with a "handicap").
o be disorganized (forgets material needed for class, messy papers, does not write down homework assignments clearly)[#].
o Put himself / herself down when he/she does not do well on a piece of work.
o Calm down when very upset[#].

(# - Indicates a negative statement. For ease and uniformity of reporting, disagreement to these questions has been reported as agreement.)

Table 7: Percentage agreement with indicators in the teachers' survey across groups

INDICATORS	TREATMENT	DROPOUT
INDICATORS OF A POSITIVE SOCIAL ORIENTATION	81%	75%
INDICATORS OF A POSITIVE WORK ORIENTATION	69%	62%
INDICATORS OF RESILIENCE	72%	70%
INDICATORS OF SEWB	68%	62%

DISCUSSION

On average, participants of the treatment group do better than participants in control and drop out groups in both academic (learning outcomes) and non-cognitive (SEWB) abilities. The heterogeneity among the participant profiles (age, going to school) amongst the groups makes it difficult to conclusively attribute academic and non-cognitive differences among group as program effects only. There might be other factors contributing to the differences.

A correlation table (**Table 25**) between the learning outcomes, SEWB and other profile related variables of the participants show the following:
a) There is high (>60%) positive correlation between the learning outcome scores of Gujarati, Maths and Science. So, the students who do well in Gujarati, also do well in Maths & Science.

b) SEWB scores reported by students are positively correlated with learning outcomes. This supports the research that non-cognitive skills play a role on learning outcomes. The program should investigate this further to strengthen and build non-cognitive abilities among students.

Further, SEWB reported by teachers is not as positively correlated with learning outcomes as self-reported student scores. The difference between student and teacher reported SEWB scores suggest a difference in perceptions of the teacher towards the non-cognitive ability of the students. In order to achieve better congruity, teachers should be trained to assess these skills in students.

c) Going to school seems to have slightly negative correlation to learning outcomes in Maths and Gujarati while having a small positive correlation to learning outcomes in Science. The difference in distribution of school going children in the control group versus the treatment group makes segregation of 'going to school effect' from 'program related effect' difficult and needs further investigation.

d) Age of the participant also seems to have small positive correlation with the learning outcomes. This could also play a part in explaining the results of the participant group, since they are much older than the control group. However, the lack of differences between the dropout group and the control group learning outcomes, despite the difference in age shows that the relationship needs further study.

SUMMARY

Preliminary analysis reveals that participants of the treatment group scored better than the control group in both academic (learning outcomes in Maths, Gujarati and Science) and non-cognitive (SEWB) abilities. While the differences in achievement (academic and non-cognitive ability) are significant (statistically), the difference in the profile (age, going to school) of the treatment and the control group doesn't allow for a true causal inference to be associated to the program. Further investigation with a suitable counterfactual can be used to understand the impact of the program more conclusively.

APPENDIX

Table 8: Mean Scores in Gujarati across groups

GROUP	MEAN SCORE	STANDARD DEVIATION
Control	116.17	12.56
Treatment	132.39	8.67
Dropout	118.34	11.02

Table 9: Mean percentage scores in Gujarati across groups

GROUP	MEAN SCORE	STANDARD DEVIATION
Control	46%	13%
Treatment	62%	9%
Dropout	48%	11%

Table 10: Differences in mean scores in Gujarati across groups

GROUP 1	GROUP 2	DIFFERENCE	P VALUE	SIGNIFICANCE
Treatment	Control	16.21	0	***
Treatment	Dropout	14.05	0	***
Dropout	Control	2.16	0.26	No. Sig

No.Sig = p>.1, *= p < .1, ** = p<.05, *** = p<.01

Table 11: Difference in percentage scores in Gujarati across groups

GROUP 1	GROUP 2	DIFFERENCE
Treatment	Control	16%
Treatment	Dropout	14%
Dropout	Control	2%

Table 12: Center wise distribution of mean scores in Gujarati across groups

Center Name	CONTROL	TREATMENT	DROPOUT
KHADAVALI CHALI	102.07	143.07	136.00
MANGAL PRABHAT	108.30	142.56	126.19
JADIBANAGAR	111.21	137.08	132.30
PANDITNAGAR	103.54	136.94	114.05
SARKHEJ SALATVAS	107.10	136.59	106.80
PRAHLADNAGAR	120.99	136.37	116.53
CHHATRIS ORDI	123.06	135.95	126.65
FULCHANDNI CHALI	118.72	135.04	109.07
JAVAHAR NAGAR	109.29	133.65	112.03
SORAINAGAR	119.05	133.37	114.88
SATYDEVNA CHHAPRA	103.62	131.45	134.28
ARTI SOCIETY	112.37	130.95	112.93
BALOLNAGAR	115.46	130.16	124.53
GANDHI SOCIETY	121.52	129.96	112.55
MAMUPATHAN NI CHALI	122.95	129.86	129.68
SAVANSINAGAR	125.13	127.08	117.60
HARJIVANNI CHALI	113.18	126.36	113.30
BAI SANTOK	134.89	125.16	112.53
JAY YOGESVAR	114.55	124.73	114.30
SOMESHVARNAGAR	132.71	124.28	113.50

Table 13: Mean scores in Maths across groups

GROUP	MEAN SCORE	STANDARD DEVIATION
Control	119.07	12.90
Treatment	141.09	10.78
Dropout	124.95	14.95

Table 14: Mean percentage scores in Maths across groups

GROUP	MEAN SCORE	STANDARD DEVIATION
Control	44%	13%
Treatment	66%	11%
Dropout	50%	15%

Table 15: Differences in percentage scores in Maths across groups

GROUP 1	GROUP 2	DIFFERENCE
TREATMENT	CONTROL	23%
TREATMENT	DROPOUT	17%
DROPOUT	CONTROL	6%

Table 16: Differences in mean scores in Maths across groups

GROUP 1	GROUP 2	DIFFERENCE	P VALUE	SIGNIFICANCE
TREATMENT	CONTROL	22.02	0	***
DROPOUT	TREATMENT	16.13	0	***
DROPOUT	CONTROL	5.88	0	***

No.Sig = p>.1, *= p < .1, ** = p<.05, *** = p<.01

Table 17: Center wise comparison of mean scores in Maths across groups

CENTER NAME	CONTROL	TREATMENT	DROPOUT
KHADAVALI CHALI	115.25	139.82	129.60
MANGAL PRABHAT	112.67	147.50	126.86
JADIBANAGAR	118.34	144.65	115.80
PANDITNAGAR	119.96	140.59	128.05
SARKHEJ SALATVAS	104.49	139.92	108.70
PRAHLADNAGAR	120.30	137.69	106.20
CHHATRIS ORDI	127.62	153.74	125.98
FULCHANDNI CHALI	124.62	154.88	120.33
JAVAHAR NAGAR	124.68	141.08	135.76
SORAINAGAR	122.09	135.29	122.80
SATYDEVNA CHHAPRA	105.13	138.29	137.38
ARTI SOCIETY	119.55	138.20	129.90
BALOLNAGAR	113.86	135.58	132.49
GANDHI SOCIETY	125.11	154.75	114.72
MAMUPATHAN NI CHALI	122.35	144.53	147.46
SAVANSINAGAR	128.25	133.65	127.16
HARJIVANNI CHALI	114.49	130.06	131.80
BAI SANTOK	129.31	145.78	107.60
JAY YOGESVAR	109.95	132.01	98.20
SOMESHVARNAGAR	129.10	140.22	122.30

Table 18: Mean scores in Science across groups

GROUP	MEAN SCORE	STANDARD DEVIATION
Control	113.12	10.09
Treatment	124.43	6.22
Dropout	113.50	9.21

Table 19: Mean percentage scores in Science across groups

GROUP	MEAN SCORE	STANDARD DEVIATION
Control	42%	11%
Treatment	55%	7%
Dropout	43%	10%

Table 20: Difference in percentage scores in Science across groups

GROUP 1	GROUP 2	DIFFERENCE
Treatment	Control	12.49%
Treatment	Dropout	12.07%
Dropout	Control	0.42%

Table 21: Differences in mean scores in Science across groups

GROUP 1	GROUP 2	DIFFERENCE	P VALUE	SIGNIFICANCE
Treatment	Control	11.31	0	***
Treatment	Dropout	10.93	0	***
Dropout	Control	0.38	0.94	No. Sig

No. Sig = p>.1, *= p < .1, ** = p<.05, *** = p<.01

Table 22: Center wise comparison of mean scores in Science across groups

Center Name	CONTROL	TREATMENT	DROPOUT
KHADAVALI CHALI	109.20	127.87	126.05
MANGAL PRABHAT	100.82	127.77	114.74
JADIBANAGAR	109.10	132.05	122.05
PANDITNAGAR	103.11	117.28	117.08
SARKHEJ SALATVAS	106.08	123.13	104.10
PRAHLADNAGAR	118.98	130.61	105.77
CHHATRIS ORDI	118.24	125.41	115.75
FULCHANDNI CHALI	106.06	132.02	118.63
JAVAHAR NAGAR	115.97	123.90	105.41
SORAINAGAR	116.74	121.09	111.53
SATYDEVNA CHHAPRA	107.66	128.05	129.00
ARTI SOCIETY	109.12	123.03	116.10
BALOLNAGAR	112.09	118.83	116.67
GANDHI SOCIETY	113.10	126.63	108.01
MAMUPATHAN NI CHALI	113.60	124.05	121.04
SAVANSINAGAR	119.48	119.48	115.80
HARJIVANNI CHALI	109.28	113.39	111.45
BAI SANTOK	126.05	126.56	110.03
JAY YOGESVAR	116.15	123.56	118.10
SOMESHVARNAGAR	121.57	121.91	107.45

Table 23: Question wise percentage agreement to SEWB student survey

QUESTION	CONTROL	TREATMENT	DROPOUT
There are many activities to do at school that interest me.	82%	95%	84%
I get along with most of my classmates.	72%	95%	76%
I get along pretty well with the members of my family.	68%	94%	70%
Teachers remind students about the importance of doing their best in their schoolwork.	77%	93%	70%
I feel like I belong in my school.	75%	93%	77%
I feel bad when other people feel hurt.	69%	92%	65%
At school, time is spent discussing the importance of people being respectful, honest, fair, caring, responsible, and good citizens.	77%	92%	79%
I have a parent who praises me when I have done a good job in my schoolwork or acted responsibly.	72%	91%	76%
I want to do my very best in my schoolwork.	77%	91%	65%
I am someone who loves to learn.	76%	90%	80%
*I use drugs.	68%	90%	85%
I am good at understanding how other people feel.	72%	90%	66%
I drink alcohol alot.*	64%*	90%	76%
I care about the environment (parks, waterways, animals) and want to make my community a better and safer place to live.	66%	89%	67%
I am good at working cooperatively with others on projects.	77%	88%	75%
Most of my teachers say something positive to me when I have done my very best.	70%	88%	75%
I get along with most of my teachers.	76%	88%	77%
Teachers discuss ways I can be confident, persistent, and organised in my approach to doing my schoolwork.	75%	88%	72%
I am very enthusiastic and have lots of energy.	68%	88%	77%
I think about planning my time so that I get all my work and jobs done on time.	69%	87%	71%
I am very hopeful about my future.	70%	87%	77%
My friends work hard and behave well.	73%	86%	71%
I like helping people with problems.	79%	86%	76%
I can be trusted to do what I say I am going to do.	75%	86%	78%
I like the kind of person I am.	72%	86%	58%
I am persistent and try very hard to complete all my schoolwork.	62%	86%	71%
I am confident when doing difficult schoolwork.	75%	84%	82%
My teachers try hard to help and be nice to me.	69%	84%	68%
I feel safe and free from danger.	60%	84%	69%
I know how to make friends.	70%	84%	58%
I am a happy person.	76%	84%	73%
When I have worked hard and acted responsibly, there is an adult outside of my school and family who praises me.	79%	83%	69%
Students feel they have a say in classroom rules, as well as a voice in the activities and events our school offers.	62%	83%	61%
I try hard not to say or do things that hurt other people's feelings.	65%	82%	70%
I have a parent who shows s/he is interested in what I am studying at school.	72%	81%	70%
I think it is important to treat others, including classmates from different cultural backgrounds, with respect.	65%	81%	68%
I volunteer to do things to make my school and community a safer and better place to live.	71%	80%	72%

Most of my teachers go out of their way to help us appreciate people from different cultural backgrounds.	75%	80%	80%
I try to make sure that everyone has a fair chance to win, even if it means that I lose.	72%	80%	76%
I have a hard time controlling how worried I get.	70%	79%	67%
I am very curious about why things are the way they are.	72%	79%	68%
There are interesting things for me to do at home with my family.	68%	79%	71%
There are lots of activities I can do after school and on weekends (sport, music, art, hobbies) that interest me.	63%	77%	69%
Teachers discuss "school rules" with students and what happens if they behave badly.	62%	77%	60%
At my school, students have different opportunities for discussing how they can make school a better and safer place to be.	72%	76%	62%
I am good at solving conflicts without fighting.	68%	76%	67%
In school, I am learning about different feelings people can have and how I can cope with stress.	67%	75%	69%
I have a parent who asks me lots of questions about what I am learning in school.	66%	75%	70%
I have a parent who makes time for me and listens.	74%	74%	82%
I have a parent who discusses with me what is acceptable behaviour and what will happen if I behave badly.	67%	74%	68%
I have a parent who spends time talking with me about the importance of people being respectful, honest, fair, caring, responsible, and good citizens.	65%	74%	65%
I have a parent who talks with me about my feelings and how to cope with stress.	63%	74%	72%
I have a parent who discusses the importance of me being confident, persistent, and organised when it comes to my schoolwork.	66%	72%	54%
I have a parent who discusses with me the importance of doing my best in my schoolwork.	65%	72%	75%
At home, I feel I am accepted for who I am.	63%	72%	70%
Where I live, adults make opportunities available for young people to do things that make their community a better place to live (e.g., volunteer, youth representatives on committees).	60%	70%	65%
I have a "say" when it comes to making decisions about the way we do things at home.	64%	69%	65%
Outside of my school and family, there is an adult who shows s/he cares a lot about me.	66%	68%	62%
I participate in many different activities inside and outside of school (e.g., clubs, sport, music, drama, community).	66%	67%	66%
*I feel very stressed.	52%	67%	50%
*I am disorganised (forget material I need for class, have messy papers, do not write down homework clearly).	45%	67%	60%
In school, we spend time learning about how to make friends and solve problems.	59%	65%	64%
*I can't stand having to behave well and follow rules.	51%	62%	63%
*When I get angry, I act without thinking.	48%	60%	48%
I have a parent who spends time talking with me about how to make friends and solve problems.	66%	59%	66%
*When I don't understand something I'm learning, I think that "I really don't have what it takes to be successful."	47%	54%	48%
*During the past six months, I have felt so hopeless and down almost every day for one week that I have stopped doing my usual activities.	48%	53%	35%
*When I do badly in my schoolwork, I think, "I'm a failure."	52%	53%	41%
*I am sometimes quite mean to other people.	46%	51%	38%
*I think that someone who treats me unfairly is a bad person and that it is okay to hurt them back.	46%	50%	51%
*I lose my temper a lot.	41%	48%	40%
*I feel lonely.	43%	46%	58%

*I think that the reason people sometimes treat me badly or unfairly is because I'm such a hopeless person.	44%	43%	45%
*I get into too much trouble.	51%	38%	38%
*When I get stressed out about things, I find someone to talk with to calm down.	34%	26%	31%
*I could do a lot better in my schoolwork.	24%	10%	25%

* This is a negative statement. Disagreement to these statements is equivalent to agreement on positive statements.

Table 24: Question wise percentage agreement to questions on the Teacher survey across groups

QUESTIONS	TREATMENT	DROPOUT
Care about other people's feelings	89%	87%
Care about the environment (parks, waterways, animals, does not litter).	89%	83%
Have good empathy skills (understands how other people feel).	86%	81%
* Be dishonest a lot (lies, cheats or steals).	86%	83%
Be someone who loves to learn.	85%	75%
Go out of his/her way to help someone who seems unhappy or needs help.	85%	81%
Be good at working cooperatively with others on projects.	84%	73%
Try hard not to say or do things that hurt other people's feelings	84%	84%
Plan his/her time so that he/she gets all his/her work done when due.	83%	68%
Understand that mistakes are a natural part of learning and is not afraid to make mistakes.	82%	79%
Listen to others who have a different opinion from his/her own.	82%	75%
Seem positive and hopeful about the future.	82%	70%
Express feelings easily.	82%	80%
Have positive self-esteem.	82%	82%
Demonstrate good friendship-making skills (e.g., sharing, waiting turns, listening/conversation skills).	82%	75%
Seem very curious about why things are the way they are.	81%	74%
Like to make his/her school and community a better place to live.	81%	71%
Feel like he/she belongs and likes being in school.	80%	70%
Be popular with classmates.	80%	64%
put in extra effort in subjects/classes he/she finds difficult.	80%	66%
be very enthusiastic and have lots of energy.	79%	67%
*Use bad language and have bad manners.	78%	73%
Want to do his/her very best in his/her schoolwork.	78%	61%
Control how nervous he/she gets in pressure situations.	77%	70%

Calm down when very upset.	77%	80%
Believe he/she has what it takes to be successful, even in his/her most difficult subjects or classes.	76%	60%
Check work when completed to make sure it is correct.	76%	70%
Make sure that everyone has a fair chance to win, even if it means that he/she will lose.	76%	72%
Be calm, not stressed.	75%	72%
Show real confidence about doing difficult schoolwork, including answering difficult questions in class.	73%	59%
Have good conflict resolution skills.	72%	66%
Volunteer to do things to make his/her school and community a safer and better place.	69%	68%
Relate well to classmates who are different (e.g., different cultural economic background, gender, with a "handicap").	69%	74%
Control how "down" he/she gets when someone teases him/her, when he/she is not included by classmates, or when receiving a poor grade.	67%	64%
Be happy (e.g., smiles a lot).	64%	54%
*Lose his/her temper a lot.	63%	65%
Participate in many different activities inside and outside of school (e.g., clubs, sport, music, drama, community).	62%	61%
*Physically bully or verbally taunt other students.	60%	54%
* Be disorganized (forgets material needed for class, messy papers, does not write down homework assignments clearly).	60%	64%
Condemn others for perceived slights and believes that retaliation is deserved.	55%	44%
*Act without thinking when angry.	55%	54%
*Disrupt class lessons.	53%	61%
*Have gone through a week or more of feeling so unhappy that he/she has stopped doing his/her usual activities.	51%	41%
*Have trouble getting along with some of his/her teachers.	47%	38%
*Under-achieve in much of his/her schoolwork. (have slower rate of learning than expected from capabilities)	45%	39%
*Think that everything he/she does at school should be fun and exciting and, if it isn't, he/she shouldn't have to do it.	42%	43%
*Get into trouble a lot.	39%	35%
*Put himself/herself down when he/she does not do well on a piece of work.	28%	32%

* This is a negative statement. Disagreement to these statements is equivalent to agreement on positive statements.

Table 25: Correlation table between variables

	Age	Att	Sewbst	Guj	Maths	Sci	GoSch	Sewbt
Age		-0.007	0.097	0.206***	0.272***	0.194***	-0.601***	0.150*
Att	-0.007		0.284***	0.501***	0.419***	0.419***	-0.023	0.277***
SEWBSt	0.097	0.284***		0.438***	0.497***	0.409***	-0.067	0.175*
Guj	0.206***	0.501***	0.438***		0.699***	0.717***	-0.146*	0.191*
Maths	0.272***	0.419***	0.497***	0.699***		0.642***	-0.247***	0.229**
Sci	0.194***	0.419***	0.409***	0.717***	0.642***		-0.153**	0.146.
GoSch	0.601***	-0.023	-0.067	-0.146*	-0.247***	0.153**		-0.001
SEWBt	0.150*	0.277***	0.175*	0.191*	0.229**	0.146.	-0.001	

Sig. codes: **.** = p < .1, * = p<.05, ** = p<.01, *** = p<.001

Variables: Age - age of the participant in years, Att – attendance of the participants to the centers (applicable to only treatment and dropout groups) in days, Sewbst – SEWB ability of the participants in scale score, Guj – scale score in Gujarati assessement, Maths – scale score in Maths assessment, Sci – scale score in Science assessment, GoSch – do the participants goes to school currently (yes/no), Sewbt – scale score of SEWB through teacher survey.

Table 26: Item descriptors in Maths

STRAND	ITEM DESCRIPTOR
Numbers/Operations	Recognise a 2-digit number written in words
Numbers/Operations	Add two 1-digit numbers
Numbers/Operations	Recognise a 2-digit number written in words
Numbers/Operations	Solve a simple addition given in words and a picture
Numbers/Operations	Recognise a 3-digit number written in words
Numbers/Operations	Match a '+' number sentence to a picture
Numbers/Operations	Add three small 1-digit and 2-digit numbers
Numbers/Operations	Use 'Just After' & recognize a 2 digit number in word form
Numbers/Operations	Solve a + ? = b (2-digits)
Numbers/Operations	Identify a simple counting pattern
Numbers/Operations	Solve the problem using ordinal numbers (first, second etc)
Numbers/Operations	Add three 1-digit numbers
Numbers/Operations	Subtract two 1-digit numbers to solve an amount of money
Numbers/Operations	Recognise the expression that matches a given picture
Numbers/Operations	Recognise that half is doubled to make a whole
Numbers/Operations	subtract a 2-digit number from a 3-digit number
Numbers/Operations	Calculate change from Re1
Measurement/Geometry	Identify the longest among objects placed side-by-side
Measurement/Geometry	Identify complete shape from a partially traced object
Measurement/Geometry	Recognise a triangle among other 2D shapes
Measurement/Geometry	Identify the shape with curved sides only
Measurement/Geometry	Recognise a cube among other 3D objects
Measurement/Geometry	Recognise a square among other 2D shapes
Measurement/Geometry	Calculate number of mugs required to fill half a container
Measurement/Geometry	Recognise the cuboid with the smallest capacity
Data Interpretation	Recognise information in a pictograph
Data Interpretation	Find the missing value in a data table
Data Interpretation	Identify the next stage in the life cycle of a butterfly
Data Interpretation	Read a date for a given day from a calendar month
Data Interpretation	Find the difference between 2 data values in a table

Table 27: Item descriptors in Science

STRAND	ITEM DESCRIPTOR
Biology (Myself & My Surroundings)	Identify oil yielding part of a sunflower plant
Biology (Myself & My Surroundings)	Identify a utensil's property that helps in cooking
Biology (Myself & My Surroundings)	Identify utensil's shape that helps in cooking rice
Biology (Myself & My Surroundings)	Identify food source of common animals
Biology (Myself & My Surroundings)	Identify function of sloping roof in a house
Biology (People, Plants & Animals)	Identify function of leaves
Biology (People, Plants & Animals)	Understand a food chain
Biology (People, Plants & Animals)	Understand role of sun in a food chain
Biology (People, Plants & Animals)	Compare leaves to determine their growth rate
Biology (People, Plants & Animals)	Identify common features of different types of leaves
Biology (People, Plants & Animals)	Identify a plant product
Biology (People, Plants & Animals)	Know sunlight helps plants make food
Biology (People, Plants & Animals)	Identify a common feature of birds
Biology (People, Plants & Animals)	Know role of webbed feet in birds
Biology (People, Plants & Animals)	Understand information given in a pictograph
Biology (People, Plants & Animals)	Identify an indoor game
Chemistry & Earth Sciences	Identify an underground source of water
Chemistry & Earth Sciences	Identify which water is not fit for drinking
Chemistry & Earth Sciences	Identify objective of an experiment
Chemistry & Earth Sciences	Understand roots hold plants to soil
Chemistry & Earth Sciences	Compare volume of water in different sized containers
Chemistry & Earth Sciences	Know glass is transparent & can be used as a utensil
Physics & Space Sciences	Understand information given in a pictograph
Physics & Space Sciences	Identify fastest means of personal communication
Physics & Space Sciences	Identify methods of information that use electrical energy
Physics & Space Sciences	Know process involved in making clay pots
Physics & Space Sciences	Know reason for baking clay pots

Table 28: Item descriptors in Language

STRAND	ITEM DESCRIPTOR
Strand 1: Retrieval of Information	Identify information in a list that meets a given standard
Strand 1: Retrieval of Information	Link a writer with a given idea in a short convincing text
Strand 1: Retrieval of Information	Make generalisation about a section of a short standard text
Strand 1: Retrieval of Information	Identify a character's behaviour in a short narrative text
Strand 1: Retrieval of Information	Retrieve information from middle of a short narrative text
Strand 1: Retrieval of Information	Infer aspect of a character's personality in narrative text
Strand 1: Retrieval of Information	Infer reason for a character's behaviour in a narrative text
Strand 2: Interpretation & Vocabulary	Infer meaning of a word from its context in a narrative text
Strand 2: Interpretation & Vocabulary	Locate stated information from title of a persuasive text
Strand 2: Interpretation & Vocabulary	Identify the type of text
Strand 2: Interpretation & Vocabulary	Link information across sentences in a persuasive text
Strand 2: Interpretation & Vocabulary	Locate stated information in simple persuasive text
Strand 2: Interpretation & Vocabulary	Understand intended effect of a sentence in persuasive text
Strand 2: Interpretation & Vocabulary	Interpret details in a persuasive text
Strand 2: Interpretation & Vocabulary	Identify synonymous match in a simple information text
Strand 2: Interpretation & Vocabulary	Locate stated information in simple information text
Strand 2: Interpretation & Vocabulary	Understand the main idea of a simple information text
Strand 2: Interpretation & Vocabulary	Retrieve detail from an information text
Strand 3: Inference & Reflection	Infer attitude of the author in a simple information text
Strand 3: Inference & Reflection	Identify clues to draw conclusion in simple information text
Strand 3: Inference & Reflection	Retrieve directly stated information from a narrative text
Strand 3: Inference & Reflection	Infer the likely reason for a situation in a narrative text
Strand 3: Inference & Reflection	Identify reason for a group's behaviour in narrative text
Strand 3: Inference & Reflection	Identify the sequence of events in a narrative text
Strand 3: Inference & Reflection	Establish the meaning of a statement in a narrative text

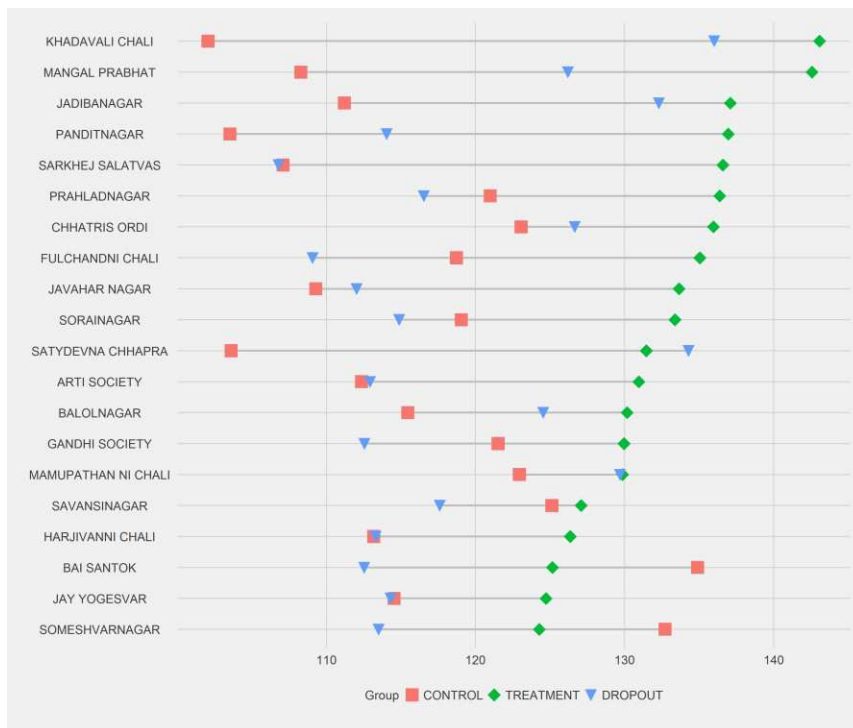## Figure 5: Center wise comparison of Gujarati scores across groups

Figure 6: Center wise comparison of Maths scores across groups
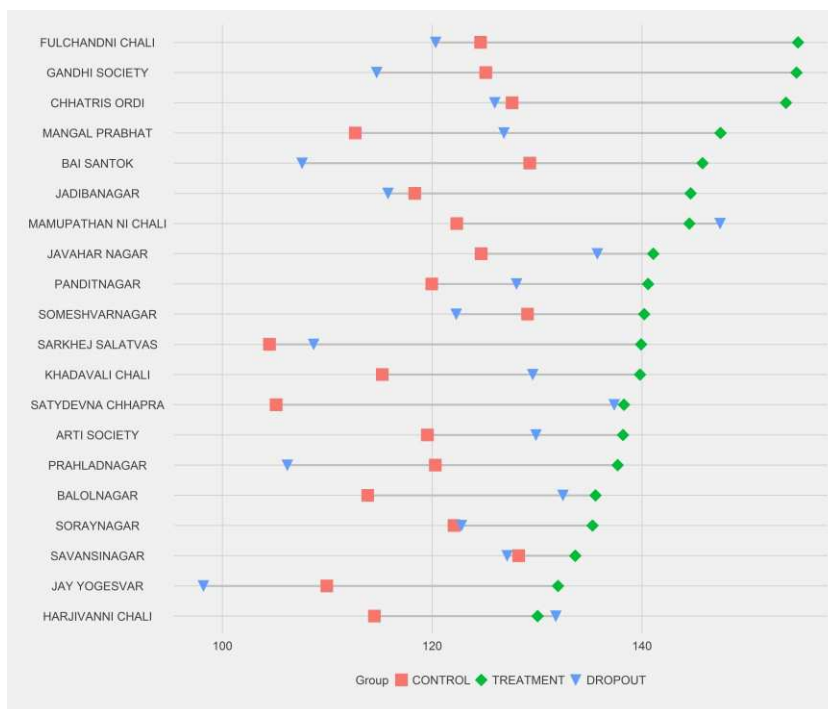
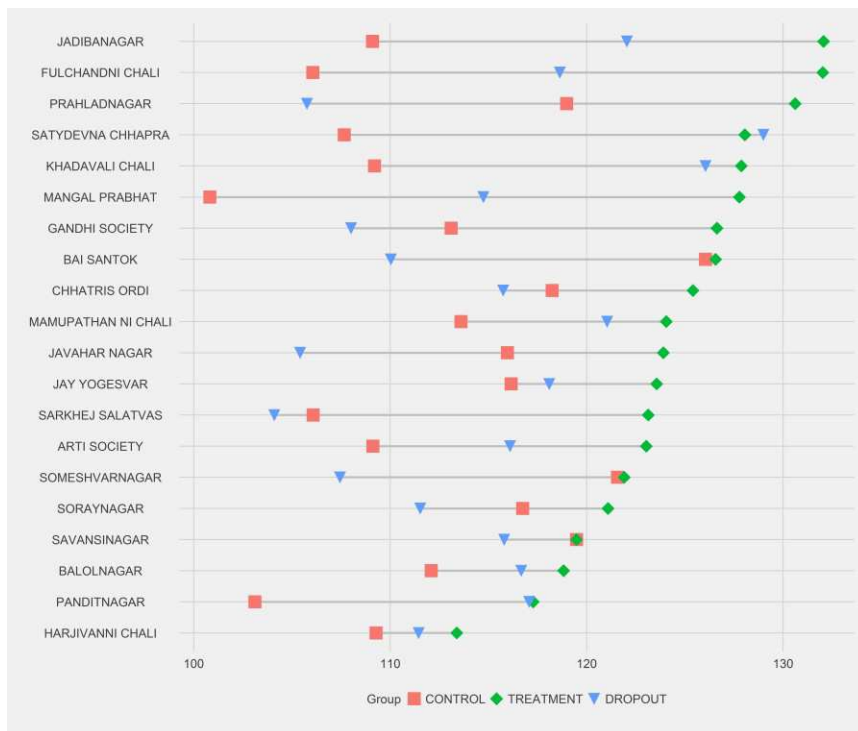## Figure 7: Center wise comparision of science scores across groups

Figure 8: Center wise comparison of mean SEWB ability reported by students across groups
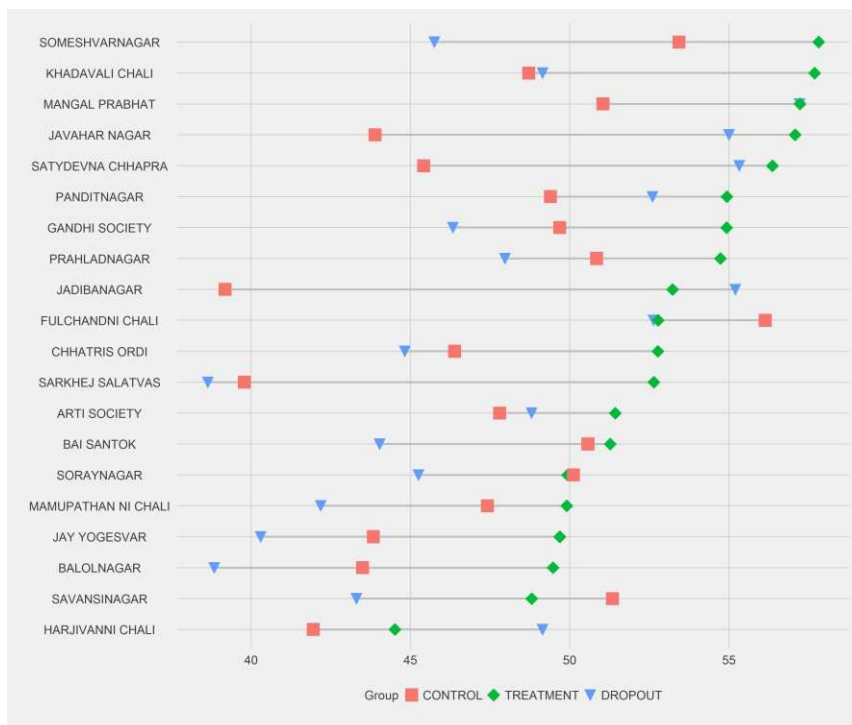
Figure 9: Center wise distribution of SEWB ability reported by teachers across group