Seeds of Hope:
Report of Assessment

Preface

Initiatives have been taken all over the world to manage the environmental, social and economic challenges with an aim to create a sustainable world. The idea of Education as driver of change has been accepted worldwide. While the attempt has been to provide environment education in a formal setup through a structured curriculum, use of different tools like an exhibition, project based learning, exposure to a naturally important site are found to be effective for communicating concepts of environment. The Decade of Education for Sustainable Development (DESD) followed by Global Action Programme (GAP) has brought in a new paradigm of environmental learning in both formal and informal settings. Many new pedagogies and tools have been evolved to impart environmental education throughout the world.

 "Seeds of Hope" exhibition is such an initiative jointly developed by Soka Gakkai International (SGI) and Earth Charter International (ECI) as a resource to mark the Decade of Education for Sustainable Development (DESD). It stressed the inter-connectedness of the communities and the need for critical thinking which can really link us to the nature by experiencing and reflecting on our day to day life. DESD was an effort led by UNESCO, in which the global community joined hands together to better the quality of life for all. There have been a number of educational initiatives and resources produced to address the crisis.

Centre for Environment Education (CEE) has been a part of the global effort in implementing the UNDESD and acted as the focal point for the decade in India. CEE with its efforts collaborated with national and international agencies to evolve ideas and resources that supplement the DESD initiative. Evidence based analysis of such resources can play a critical role in mainstreaming new and innovative pedagogies. CEE launched the Journal of Education for Sustainable Development.

CEE collaborated with Soka Gakkai International to measure impact of "Seeds of Hope" exhibition in 18 Indian schools. The experiment involved viewing the exhibition with and without facilitated activities. The schools were spread over three Indian cities namely, Delhi, Hyderabad and Kolkata. The study was carried out taking two groups of students through a structured questionnaire following a scientific methodology.

CEE has successfully completed the study in. The findings are presented in this report. The study shows a positive impact of such a tool on young minds.

I hope this study will open new doors for people to engage in similar kinds of activities and open up the scope of collaboration to further take this kind of study at a global scale to create an evidence base for tools that are informally used to educate people.

Kartikeya Sarabhai
Director

About the Exhibition:

"Seeds of Hope" exhibition is a joint initiative of Soka Gakkai International (SGI) and Earth Charter International created as a resource to mark the Decade of Education for Development (DESD). The exhibition uses the "Learn, Reflect and Empower" approach out lined by Disaku Ikeda in his proposal on Education for Sustainable Development (ESD). The Seed of Hope exhibition stresses our interconnectedness with the rest of the community of life and the need to broaden our sphere of compassion and concern. It encourages viewers to overcome feelings of powerlessness and highlights the fact that a single individual can initiate positive change.

The exhibition expresses the vision of Earth Charter that translates making of a sustainable, peaceful and a just society. As per the approach, panels are divided in sets of Inspire, Learn, Reflect and Empower, where a viewer is taken to a journey by telling inspiring stories of great success and pride of many great people all over the world. It unveils the broader meaning of sustainability by giving the idea that environmental protection is not merely the sustainability, but it is to do with social justice and peace. The principles of Earth Charter are described in the exhibition in a manner that every visitor can understand it. The principles are connected to some of the most inspiring success stories from different parts of world. The Reflect section of the exhibition provides opportunity to visitors to reflect upon their individual lives and see how best an individual can contribute towards sustainability. The success stories depicted in the exhibition connects a number of issues with present situation and one can easily make out that an individual can make a big difference. Finally the exhibition tries to instil a confidence among viewers that power of one can make a difference.

Background of the Study:

The Seeds of Hope Exhibition has been showcased in about 34 countries in 13 different languages. The exhibition has reached out to a mass of about 1.5 million visitors of all age.

The idea of measuring the impact of the exhibition among visitors in India evolved from a discussion held between Soka Gakkai International (SGI) and Centre for Environment Education (CEE) in September 2016. While the exhibition has been showcased in different parts of the globe, yet a structured study to measure the impact of the exhibition in terms of clarifying concepts of sustainability has not been done. The discussion between both the organization finally decided to carry out such a study in India taking school children as the target group.

Environmental education in India has been made compulsory by a directive of the honourable Supreme Court of India in 2003. Accordingly, National Curriculum Framework (NCF) has been developed to impart environmental leering in all stages of education in formal, informal and non-formal settings. Various pedagogies have been applied since then for effective environmental education.

While the attempt has been to provide environment education in a formal setup through a structured curriculum, use of different tools like an exhibition, project based learning, exposure to a naturally important site are found to be effective for communicating concepts of environment. To some extent, environmental education has some ties with the idea of self concept. Self concept can be defined as 'feeling of personal worth and level of satisfaction regarding one's self' (Purkey, 1998, Walz, 1991). Children perceive the environment differently than the adults; therefore, in order to change their behaviour and attitude towards the environment different teaching methods and tools are used. Perception is key to change behaviour among children. "Seeds of Hope" exhibition is such a method applied to measure the effectiveness of learning and conceptual understanding among children through a number of interventions.

Objective of the study:

Study the impact of this exhibition among school children

The objective of showcasing the Seeds of Hope exhibition in three Indian cities is to measure the impact of interventions (guided and facilitated interaction) among secondary school children. The primary aim of the exhibition is to instil a sense of belongingness among children about how an individual can make a difference by inspiration, learning, reflecting and taking action.

Methodology:

The exhibition was shown in 6 schools each in Delhi, Kolkata and Hyderabad during February to April 2017. As the language of the exhibition was in English, the Englisgh mediun of instructions was the primary criteria for selection of schools. The exhibition was shown for the purpose of the research to two divisions/sections of Class VIII or IX following a structured programme as detailed in the section that follows. An experimental design with an intervention through activities and facilitatied discussion by CEE in one section and no activities and facilitation for the other section was followed. A pre and post test was administered just before and after the viewing of exhibition.

Sample design:

In each school two sections of Class VIII or IX will were selected. The whole class was treated as a sample irrespective of number of students. In schools where there is only one division of the same standard, the class was divided into two groups and treated as samples. (Note – maximum range of students 70-80 students accordingly).

As mentioned before, one of the two divisions of the class was treated as experimental group 1 and the other was treated as experimental group 2.

The experimental group 1 had just seen the exhibition on their own without any facilitation whereas the Experimental group 2 had facilitation along with relevant activities that simplify the concept of the exhibition content.

Development of the Scale:

The scale was developed based on the content and expectations of the exhibition. A brainstorming session was organised with the team that works with different school, youth and interpretation programmes. 16 staff members participated in the discussion that looked at each panel and developed a list of statement that they felt were the messages being communicated. All the messages were put together and after deliberation it was decided to only look at disposition related messages as experimental design was not adequately looking at the knowledge or facts being communicated as an intervention and also it is difficult to see any behaviour change in such a short intervention. At the best we can measure the difference in intent to act which is closer to disposition.

Disposition simply means how one responds to environmental issues. NAAEE 2011 frame work after extensive literature review list sensitivity, attitudes and concern toward the environment, assumption of personal responsibility, locus of control/self-efficacy and motivation, and intention to act as the major sub domains.

All the short listed messages were then written as statement that can be ranked on a five point likert scales that had a range of choice of strongly agree, agree, undecided, disagree and strongly disagree. The pilot instrument developed with about 40 questions was sent to experts and discussed in a small workshop mode and finally 28

statements were retained. Two qualitative open ended questions were also added to see if the children are able to relate to any change maker in the city they live in and also the person that has inspired them the most as the dominant theme of the exhibition was of change.

The pilot instrument was tested with 80 students. The data gathered was analysed qualitatively and using statistical means. Based on analysis the questions that did not relate to the overall test were removed and based on feedback on the team that did the pilot testing and interacted with the students minor changes in the wording of the questions were done.

The final scale had a pre-test and post-test. The pre-test and post-test both had 4 open ended question capturing the name of child, class, school and date of the exhibition. Both pre and post-test had 18 statements asking a response on scale and three open ended questions that asked for naming a change maker of their city, a person who has inspired them the most and whether they have heard about Principles of Earth Charter. The post-test in addition also asked for the panel they liked the most, a message that has motivated them the most and whose work inspired them the most.

The test was administered for 15 minutes before and after the exhibition.

Process followed:

- Minimum 2 facilitators were engaged to conduct the research.

- At no point during the entire programme the two groups were allowed to interact with each other.

- A Pre-test for both Experimental group 1 and the Experimental group 2 was carried out through a scale derived from the overall content of the exhibition.

- Pre and post Exhibition questions for both the Experimental group 1 and the Experimental group 2 were the same. However, there were few more questions added in the post test based on the exhibition content.

- Pre-test for both Experimental group 1 and the Experimental group 2 were conducted at the same time in separate classrooms. The post test for the experimental group 1 was conducted in a separate room but for the experimental group, it was done in the exhibition venue.

Group 1

- After the pre-test, the Experimental Group 1 was taken to see the exhibition. (Note* - students are required to take a pen and a notebook).

- Students were not informed of any time limit to visit the exhibition. However, once the facilitator felt the students have seen the exhibition, they were sent back to the class room.

- Facilitator was expected to keep a note of the time taken by the group to visit the exhibition (Time was to be calculated: First child entering the exhibition room to the last child leaving the exhibition room).

- Facilitator was instructed not to help/guide or intervene when the students in the Experimental Group 1 are in the exhibition room.

- Once all students have seen the exhibition, they were sent back to their classroom.

- A post-test was then conducted for the Experimental Group 1 in their class room (questions for the pre-test and post-test for this group were the same). There were few qualitative questions added in the questionnaire

- Facilitator was instructed not to take the post-test in the exhibition room.

- Only at the end of the post-test the purpose of the exhibition and about the exhibition was briefed to the students

Group 2

- After the pre-test, the Experimental group 2 was taken to a separate area (indoor/outdoor) for an activity before they see the exhibition. This was the 'web of life' game which CEE has been conducting with the students. Looking at the group strength a few students were directly involved in the game and rest were asked to see the game and understand the concept. Through this game students were introduced to the concepts of co-existence, oneness, interconnectedness (indirectly condition them to the exhibition, which has these messages in the opening panels)

- It was so conducted that when Experimental group 2 was playing the Web of Life game, the Experimental Group 1 was taken to the exhibition

- After the Web of life game, students from the group 2 were taken to the exhibition by the time the experimental group 1 would have left the exhibition room so that room so that there was no interaction among the students

- Facilitator guided the students through the exhibition. Facilitators helped clear doubts and also explained the concepts. Students were not informed of any time limit to visit the exhibition.

Pre-Exhibition activities for Group 2

Web of Life: It is a group activity to brief about our interconnectedness among various life forms in this earth ecosystem. A group of 10-12 students are required to play this game. It explains how a food web connects us and ensure our survival in this world. Students are connected through a rope to create a web. They are given different photographs of animals, plants, insects etc. to hold in their hands and ask to act accordingly. Once they ate connected properly, some of them are asked to leave their knots. Gradually they see that the web becomes loose and weak and many of the elements are disconnected from the web. The facilitator then explains the importance of the web and how it holds us together and once we disturb it the consequences are irreversible.

Post Exhibition activities for Group 2

- 1. Needs & wants.
- 2. Empowered & powerless
- 3. My leader
- 4. You can/ I will

Details of the activities:

Activity 1 – Needs & wants.

This starts with by imagining a hypothetical story situating as if students are going to the moon via shuttle. They can carry 15 essential things along with them initially. Students, will list down in their notebooks the names of the things they will be taking along with them. The story moves forward and the facilitator can now mention that it was found that the shuttle did not have adequate space to fit in 15 things per person. So, the number of things would need to be reduced to 8. Then, as the story goes forward the things are further reduced to 4 and then 2/3 as most essential things. The facilitator should possibly guide them to include –water, air, etc to help them understand the importance of natural resources and instilling in them a sense of belonging. This activity will help a discussion around the concepts of consumption, lifestyles, and importance of human interactions, interconnectedness. This activity draws its key concepts from the **Inspire** panels. (20 min)

Activity 2 – Empowered and powerless:

Taking example of a real-life situation, whereby if a student is expected to manage solid waste management of his/ her city, how he/she can do it? If yes, then, How? If No, then why? Categorize few students picking up them randomly according their answers as Yes & No in Empowered & powerless groups simultaneously. This can also be done by identifying two corners/sections/ left and right side of the facilitator as 'empowered' and 'powerless', and then asking the students to stand in the section according to what their answer is to the question. This can be followed by a discussion on why they feel empowered or powerless in the context of the situation given. The discussion can facilitate introspection and be an opportunity for the facilitator to discuss

the power of 'action'. You may use examples from Learn & reflect panels. (15 min.) **Activity 3 – My leader.**

In this activity, students will be required to re-tour the exhibits for 10 minutes in order to choose their leader and write a few lines about that leader with a reason for their admiration. This should be followed by a discussion about their choices of leaders. (15 min.)

Activity 4 – You can/ I will.

In this, a few blank sheets of A-4 size will be folded alternatively as it takes fan shape. Each student will write down few lines about what he/she can contribute towards environment/ sustainability/ conservation aspects in each fold of the paper. The students are expected not to repeat the statements made by the other students. By the end of the activity every group will have at least 10 or more (according to the number of folds) unique actions they can take. The groups can share and add new ones to the list. The importance of the intent and action can be brought out through this activity. (15 min.)

Notes for the Facilitators:

1. Please visit the school at least a day prior to holding this study, to work out the logistics for the event – exhibition space, class rooms, time etc.

2. The total time taken for the study could be around 2-2.30 hours. Take permissions accordingly. It would be good to avoid making a reference to the study to the school before you actually conduct it so as to ensure that there is minimum effect on the results.

3. You will need at least 3-4 persons to help you conduct the entire experiment in the school. They would need to be oriented about the study method and purpose thoroughly.

4. Ensure that you have the pre and post questionnaire copies, activity kits.

5. All observations for both the groups, besides the pre- and post survey include

    a. Time taken to go over the panels

    b. Are there any specific panels where they are more attentive

    c. Are they attentive at all?

    d. What are they discussing?

  e. Anything else which you notice. Observations need to be noted in a way that is not noticed by the students. Please also take adequate pictures.

6. Make detailed notes of the questions asked by students of each group (keep them as separate groups of notes for the purpose of comparison later)

7. Also, a note on the overall experience, and if any variations done (in the activities), should be done.

Coding:

A detailed analysis of the study has been done based on the inputs received. Analysis is done for sixteen questions of the questionnaire where responses were coded as below:

Strongly Agree: 5

Agree: 4

Undecided: 3

Disagree: 2

Strongly Disagree:1

Missing: 0

Only for the question number 12 of the questionnaire, a reverse coding is followed as below:

Strongly Agree: 1
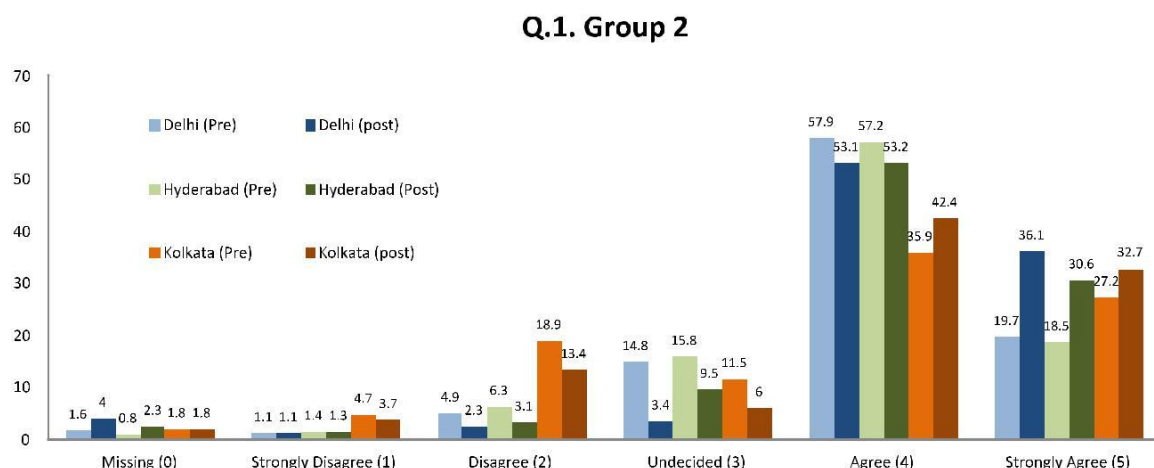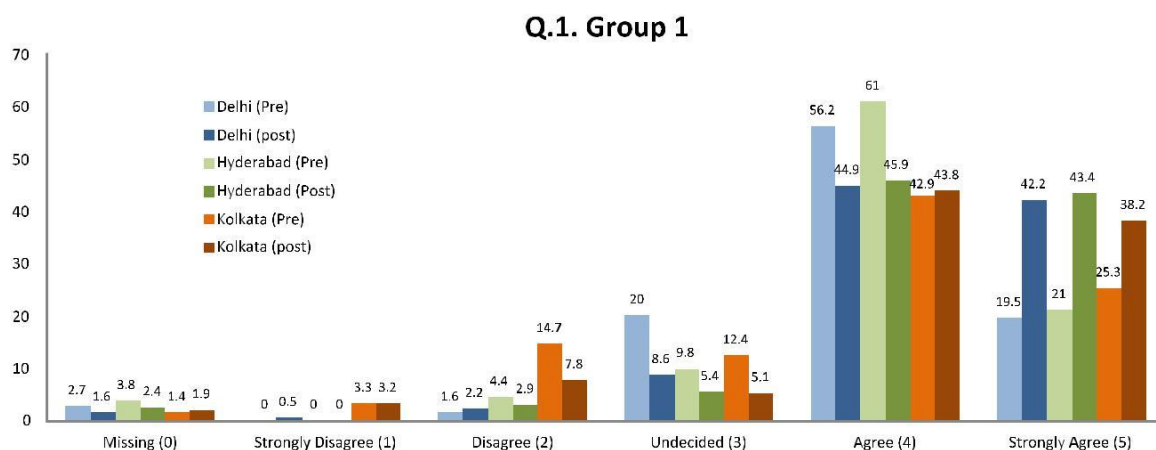
Agree: 2

Undecided: 3

Disagree: 4

Strongly Disagree:5

Missing: 0

Results and Discussions:

Question wise findings are discussed below for both the groups:

1. Ancient culture had the vision of sustainability

Q.1. Group 1

Q.1. Group 2

In Delhi, a major change was observed in strongly agree option, with a difference of 23 percent in the post test. Similarly, in group 2 too, there can be seen a noticeable change of 16 percent more students in the post test.

In Hyderabad, 22 percent students showed progress by selecting the strongly agree option. However, in Group 2, around 6 percent students choose the undecided option in the post test when compared with the pre-test.

In Kolkata, one could see a similar trend of 13 percent students choosing the strongly agree option. Similarly, in group 2, an increase of 6 percent students was observed. There was also an increase of 7 percent students opting for the agree option.
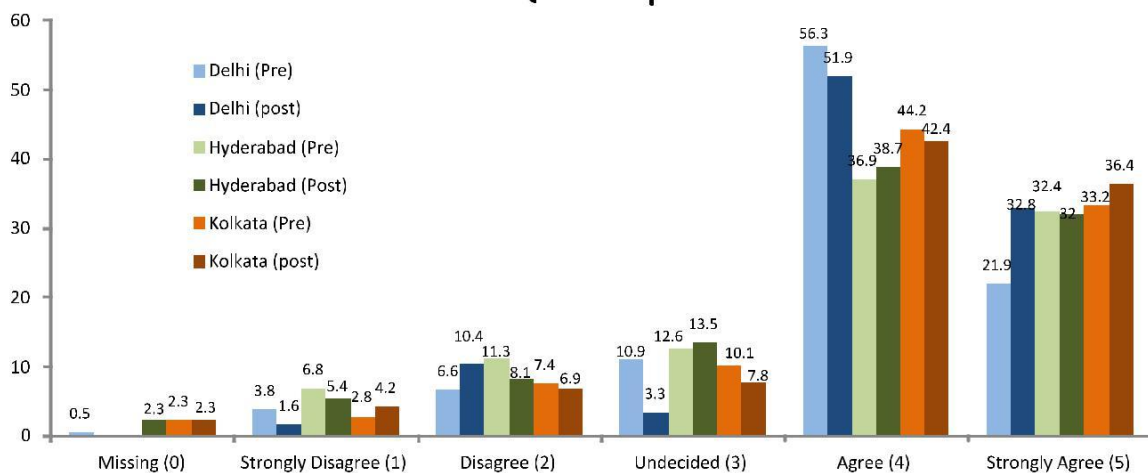
With respect to Q1 both the groups have shown an increasing trend in all cities except in Hyderabad with respect to the post test scores i.e. both the groups believe that ancient civilizations had the vision for sustainability.

2. Science and Technology have caused a rapid degradation in our natural environment

Q2. Group 1
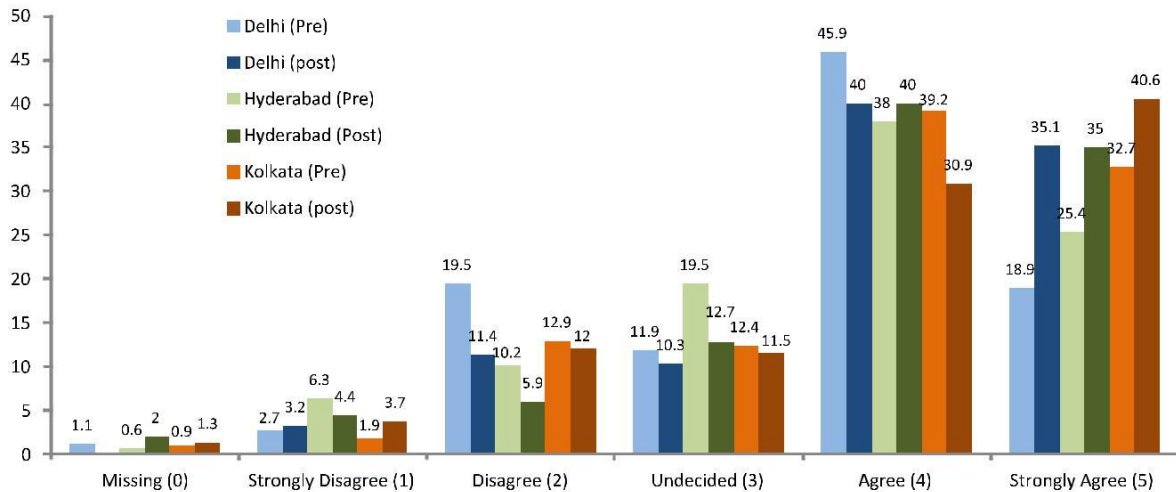
Q2. Group 2

In Delhi, Group 1, one can observe a change of 16 percent students choosing the strongly agree option when the post test scores are compared with the pre test scores. In Group 2 as well, one can observe this movement.
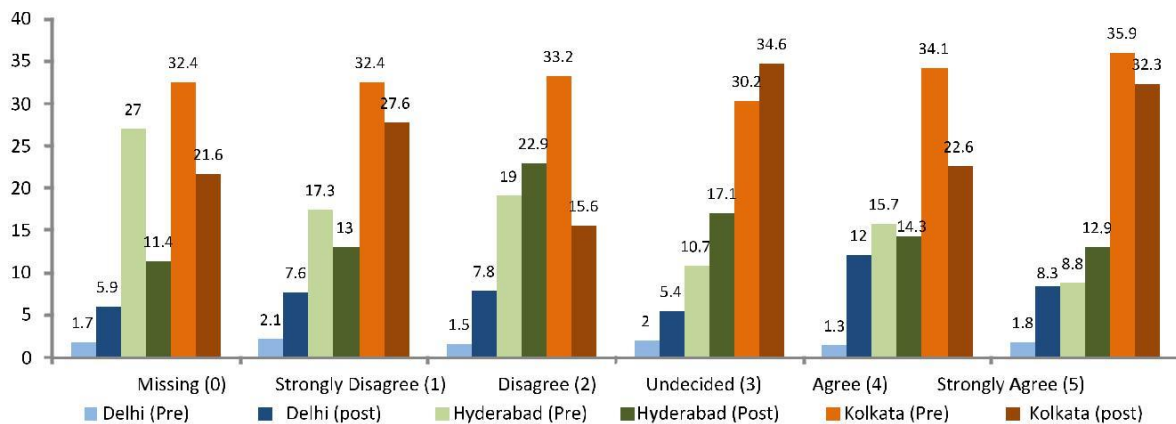
In Hyderabad too, in Group 1 one can observe an addition of 10 percent students opting for the strongly agree option when the post and pre test scores are compared, however, in group 2, there is a minor or negligible movement between undecided (1 percent), agree (2 percent) and strongly agree (0.4 percent) pre test and post test scores

In Kolkata, both the groups show an increasing number of students (8 percent, 3 percent) option for the strongly agree option when their pre-and post test scores are compared.

Thus, one can say that with respect to Q2 both the groups have shown an increasing trend in all cities barring Hyderabad with respect to the post test scores. Thus, both the groups believe that Science and Technology have caused a rapid degradation in our natural environment

3. Humans and Nature cannot exist together because of human selfishness.

Q3. Group 1

Q3. Group 2
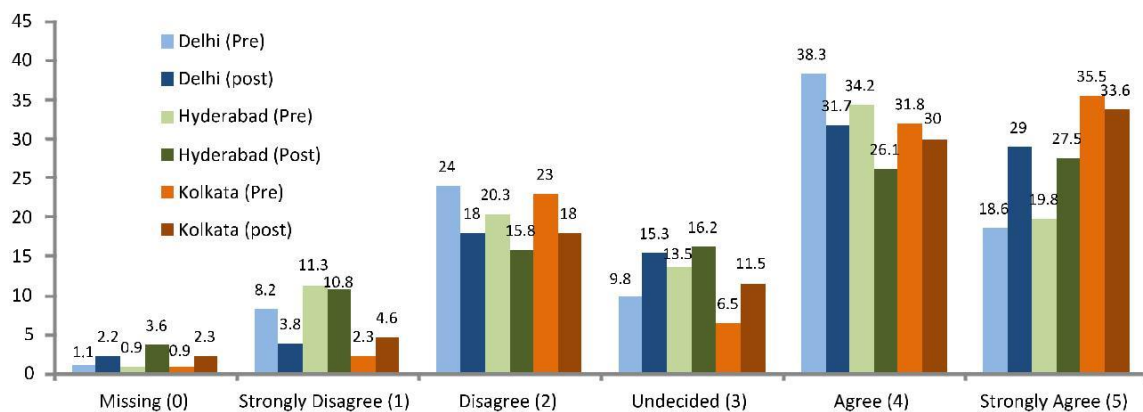
In Delhi, for group 1, one can observe that there are 6 percent students who have opted for the strongly agree option, similarly in the group 2 too there 10 percent students more who opted for the strongly agree option

In Hyderabad, in group 1, there are 19 percent students who have chosen strongly agree option and similarly in group 2 there are 8 percent more students who have progressed to the strongly agree option.

In Kolkata as well, when group 1 pre and post test scores are compared, one can observe that 10 percent students have selected the strongly agree option while there was a reduction of 2 percent seen in group 2 in the strongly agree option.

Thus, pre and post test scores for both the groups are compared, one can say that the students have progressed to the strongly agree option except for Kolkata. i.e. they strongly agree that Humans and Nature cannot exist together because of human selfishness.

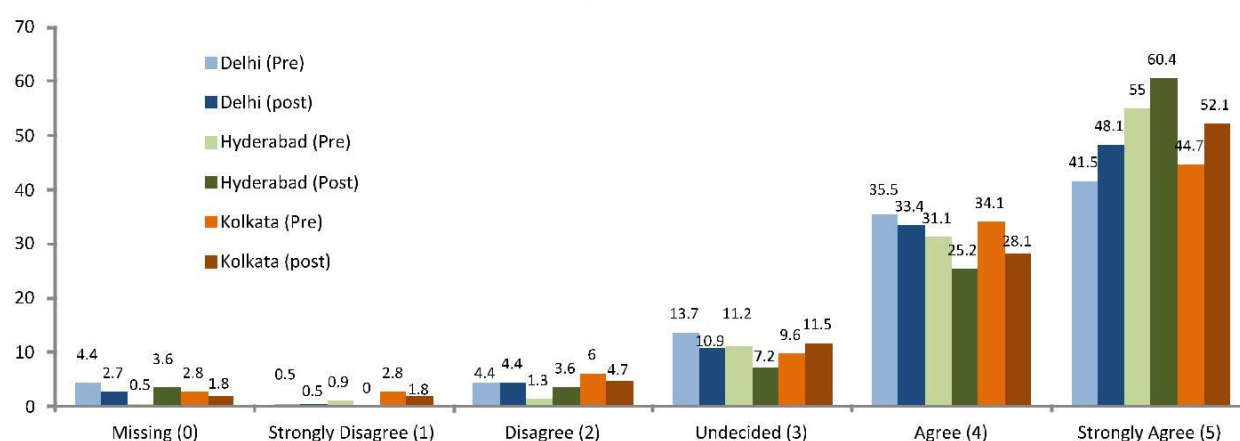4. Tribal communities have rights to protest if the places they live in are diverted for other developmental activities.

Q4 Group 1

Delhi (Pre) | Delhi (post) | Hyderabad (Pre) | Hyderabad (Post) | Kolkata (Pre) | Kolkata (post)

	Missing (0)	Strongly Disagree (1)	Disagree (2)	Undecided (3)	Agree (4)	Strongly Agree (5)
Delhi (Pre)	2.2	2.2	5.9	7	34.6	48.1
Delhi (post)	2.1	2.2	4.9	10.3	33.5	47
Hyderabad (Pre)	1	2.4	2	8.8	27.3	58.5
Hyderabad (Post)	2	1.5	2	4.8	31.7	58
Kolkata (Pre)	2.9	3.2	4.1	13.8	28.1	47.9
Kolkata (post)	2.6	0.5	6.5	13.4	28.6	48.4

Q4 Group 2

Delhi (Pre) | Delhi (post) | Hyderabad (Pre) | Hyderabad (Post) | Kolkata (Pre) | Kolkata (post)

	Missing (0)	Strongly Disagree (1)	Disagree (2)	Undecided (3)	Agree (4)	Strongly Agree (5)
Delhi (Pre)	4.4	0.5	4.4	13.7	35.5	41.5
Delhi (post)	2.7	0.5	4.4	10.9	33.4	48.1
Hyderabad (Pre)	0.5	0.9	1.3	11.2	31.1	55
Hyderabad (Post)	3.6	0	3.6	7.2	25.2	60.4
Kolkata (Pre)	2.8	2.8	6	9.6	34.1	44.7
Kolkata (post)	1.8	1.8	4.7	11.5	28.1	52.1

In Delhi, one can observe a movement (3 percent) in the undecided category in group 1, while in group 2 one can observe a major progress in the undecided (3 percent) and agree (2 percent) category in the pre-test to the strongly agree (7 percent) category in the post test.
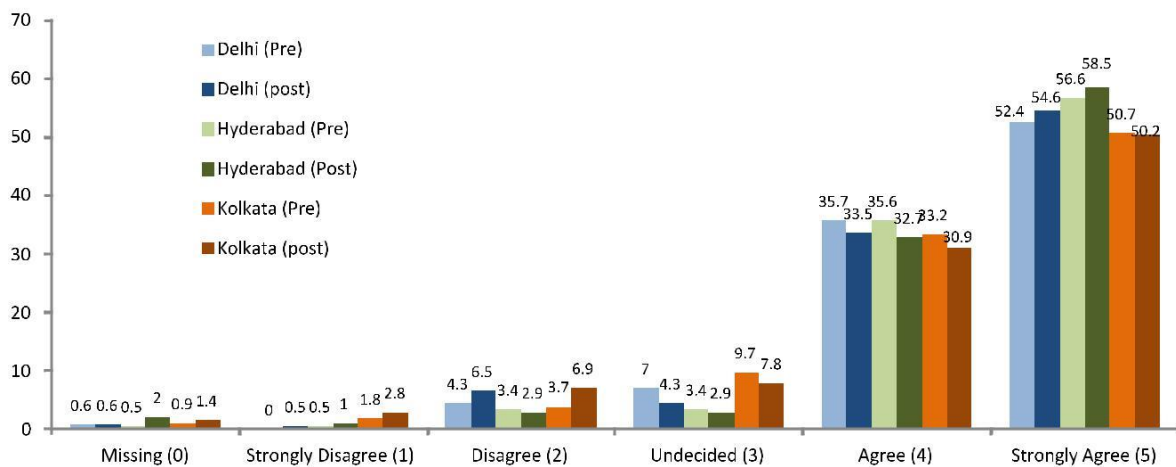
In Hyderabad, one can observe students have progressed (8 percent) from the undecided category to the agree category in group 1, while in group 2, the movement is inclined more towards the strongly agree category.

In Kolkata, 2 percent students have been added to the disagree category, while not much change has been observed in the rest of the categories in the group 1, however in group 2 positive change has been seen, the several students (7 percent) have moved to the strongly agree category when their pre and post test scores are compared.
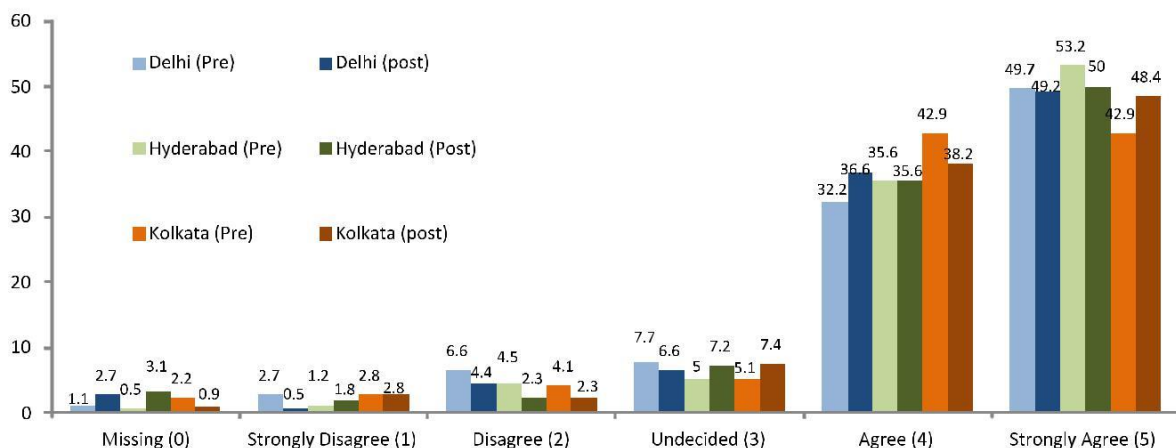
With respect to Q4, one can say that both the groups have shown progress and have opted for the strongly agree option when their pre and post test scores are compared. By the time of the post test both the groups show that they strongly believe that tribal communities have rights to protest if the places they live in are diverted for other developmental activities

5. Everything we do as humans has an impact on Earth

Q5. Group 1

Legend: Delhi (Pre), Delhi (post), Hyderabad (Pre), Hyderabad (Post), Kolkata (Pre), Kolkata (post)

	Missing (0)	Strongly Disagree (1)	Disagree (2)	Undecided (3)	Agree (4)	Strongly Agree (5)
Delhi (Pre)	0.6	0	4.3	7	35.7	52.4
Delhi (post)	0.6	0.5	6.5	4.3	33.5	54.6
Hyderabad (Pre)	0.5	0.5	3.4	3.4	35.6	56.6
Hyderabad (Post)	2	1	2.9	2.9	32.7	58.5
Kolkata (Pre)	0.9	1.8	3.7	9.7	33.2	50.7
Kolkata (post)	1.4	2.8	6.9	7.8	30.9	50.2

Q5. Group 2

Legend: Delhi (Pre), Delhi (post), Hyderabad (Pre), Hyderabad (Post), Kolkata (Pre), Kolkata (post)

	Missing (0)	Strongly Disagree (1)	Disagree (2)	Undecided (3)	Agree (4)	Strongly Agree (5)
Delhi (Pre)	1.1	2.7	6.6	7.7	32.2	49.7
Delhi (post)	2.7	0.5	4.4	6.6	36.6	49.2
Hyderabad (Pre)	0.5	1.2	4.5	5	35.6	53.2
Hyderabad (Post)	3.1	1.8	2.3	7.2	35.6	50
Kolkata (Pre)	2.2	2.8	4.1	5.1	42.9	42.9
Kolkata (post)	0.9	2.8	2.3	7.4	38.2	48.4

In Delhi, group 1, one can observe a minor change in students (2 percent) opting for the strongly agree option while in group 2 too one can see a minor change in the agree category (4 percent).

In Hyderabad, there is a minor change (1 percent) in the pre and post test scores in group 1 and similarly in group 2, one can observe the same trend, barring the strongly agree category where the number of students (3 percent) have declined whereas they have increased in the undecided category (2 percent).

In Kolkata, one observes an increase in the post test scores in both the groups when they are compared with their pre test scores (for group 1- 2 percent and for group 2- 3 percent)
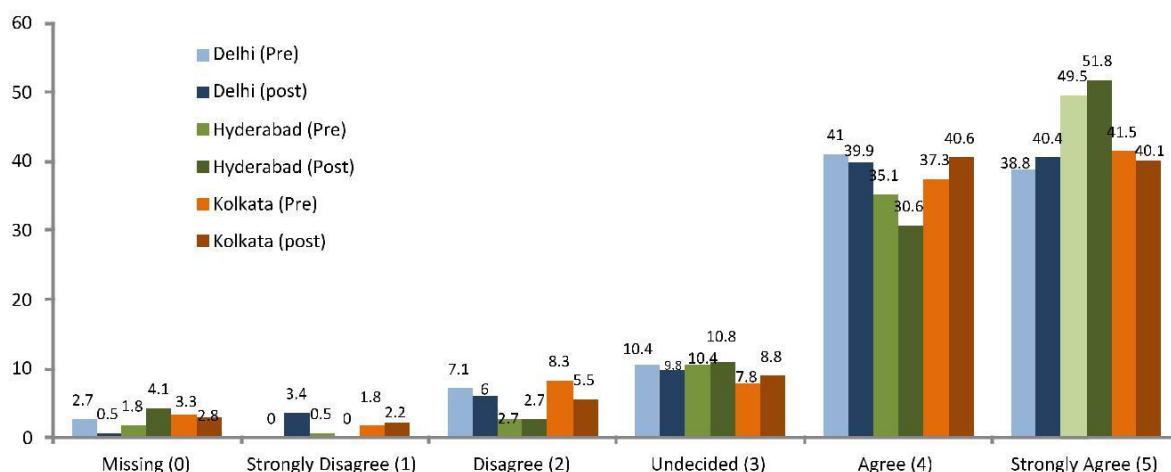
One can say that in students both the groups except for Hyderabad Group 2 students strongly agree that 'everything we do as humans has an impact on Earth', In Hyderabad Group 2 there are 2 percent students who have opted for the undecided category

6. Should one be thankful that human existence is supported by natural services that are free

Q6. Group 1
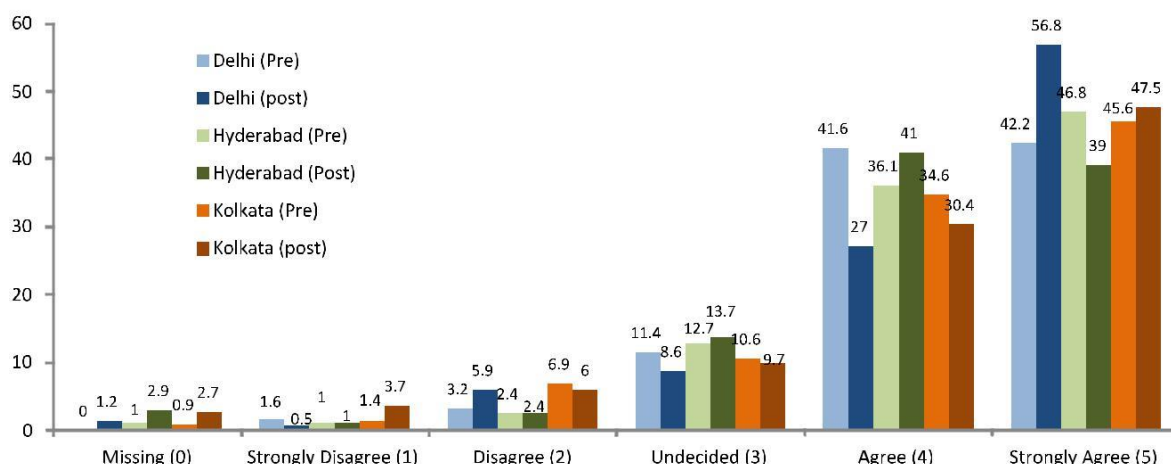
Q6. Group 2

In Delhi, with respect to group 1, we can see a major jump (13 percent) in the strongly agree category when the pre and post test performances are compared to group 2.

In Hyderabad, when we compare the pre and the post test scores, we see that participants have opted for the agree category (36 percent) above the strongly agree (39 percent) one in group 1, while in group 2, one can observe a minor jump (2 percent) in strongly agree category. The number of students who were either absent and also those who did not attempt this question totalled up to 2 percent.

In Kolkata, too the number of students moved to the strongly agree category have increased in group 1 while they the number has increased in the agree category in group 2.
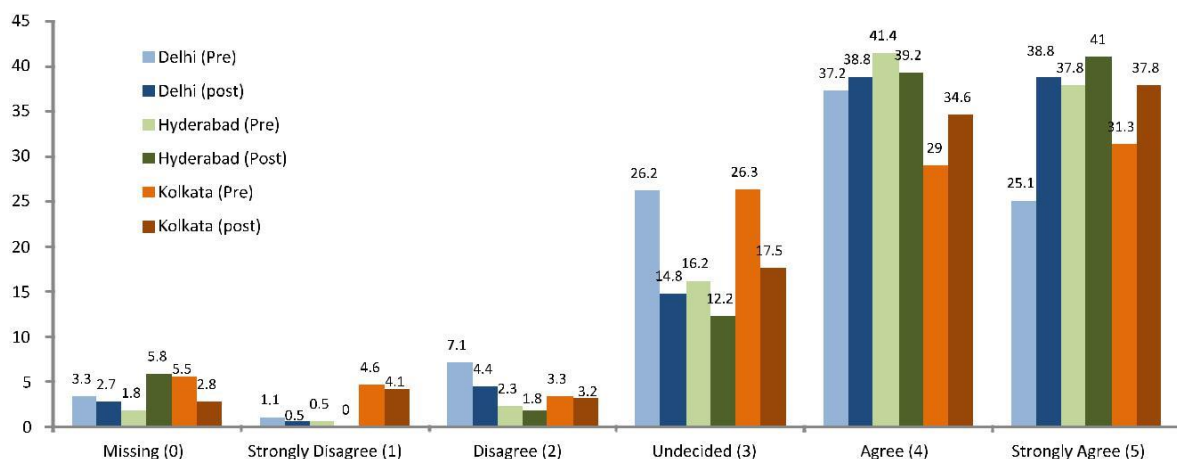
With respect to Q6 we can say that students of the three cities barring 8 percent students from Group 1 strongly believe that 'one should be thankful that human existence is supported by natural services that are free'.

7. Sustainable development has the aspect of consuming in a way such that the needs of future generations are met

Q7. Group 1
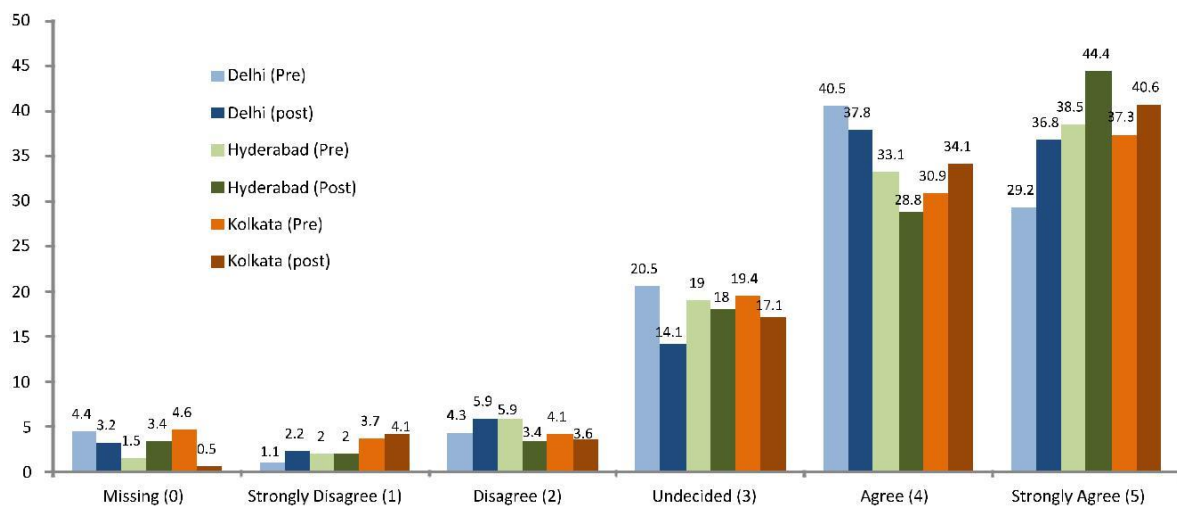
Q7. Group 2

In Delhi, Group 1, one can see an increase of 8 percent students opting for the strongly agree option and likewise in Group 2, the trend continues and one can observe that there 14 percent students who have also opted for the strongly agree option

In Hyderabad, when the pre and post test scores are compared for both the groups, in group 1, one can see that there are 6 percent students who have opted for the strongly agree option while this number stands at 3 percent in group 2..

In Kolkata, a major jump can be seen in the post test scores of group 2 (7 percent) as compared to group 1(3 percent).

Overall with respect to Q7, one can say that both the groups have progressed, however the number in group 2 is much more than that in group 1 i.e. students of both the groups believe that 'Sustainable development has the aspect of consuming in a way such that the needs of future generations are met' however the movement is numbers in group 2 who received inputs in addition to simply viewing the exhibition, is much more than compared to group 1.

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8. Do we need to consider the effects of our actions on the environment

Q8. Group 1
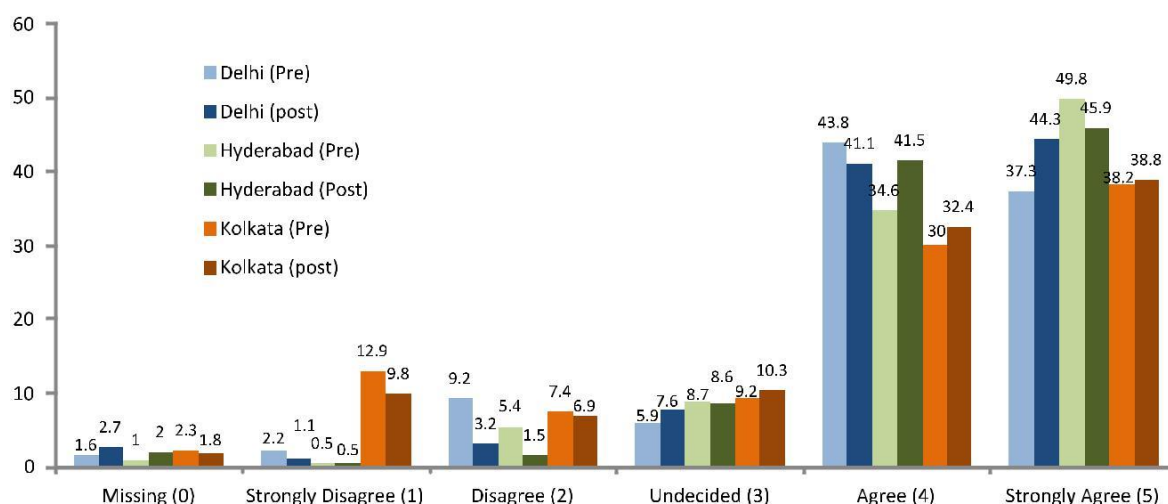
Q8. Group 2
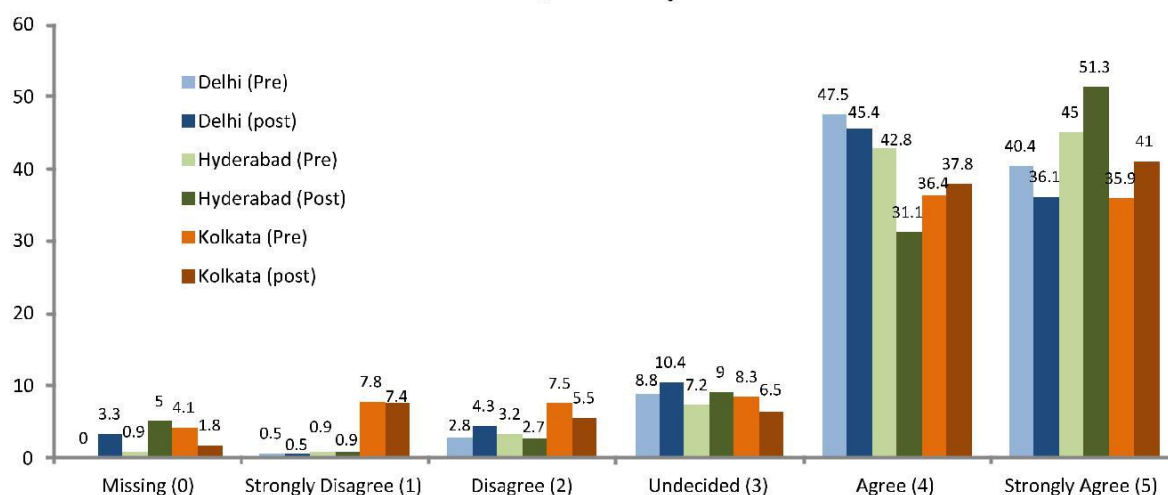
In Delhi, Group 1, there is a sharp increase in the number of students i.e. 7 percent of them have opted for the strongly agree option in the post test as compared to the pre test while in group 2, this number has reduced to 4 percent in the strongly agree category and the number in the undecided category has seen a minor increase (2 percent).

In Hyderabad, when we compared the post test scores with the pre test scores in both the groups, one finds that 7 percent students have opted for the strongly agree option in group 2 as compared to group 1.

In Kolkata too, this trend continues, in group 1, the increase is only by (0.4 percent) student as compared to that in group 2, where the increase is 5 percent.

Thus with respect to Q8 as well, one can say that, the number of students have progressed in both the groups but the number in Group 2 is much more than that of Group 1. Thus students of both the groups believe that 'we need to consider the effects of our actions on the environment'

9. Environmental problems need a solution at local level. For example, waste segregation at home to manage waste efficiently

Q9. Group 1
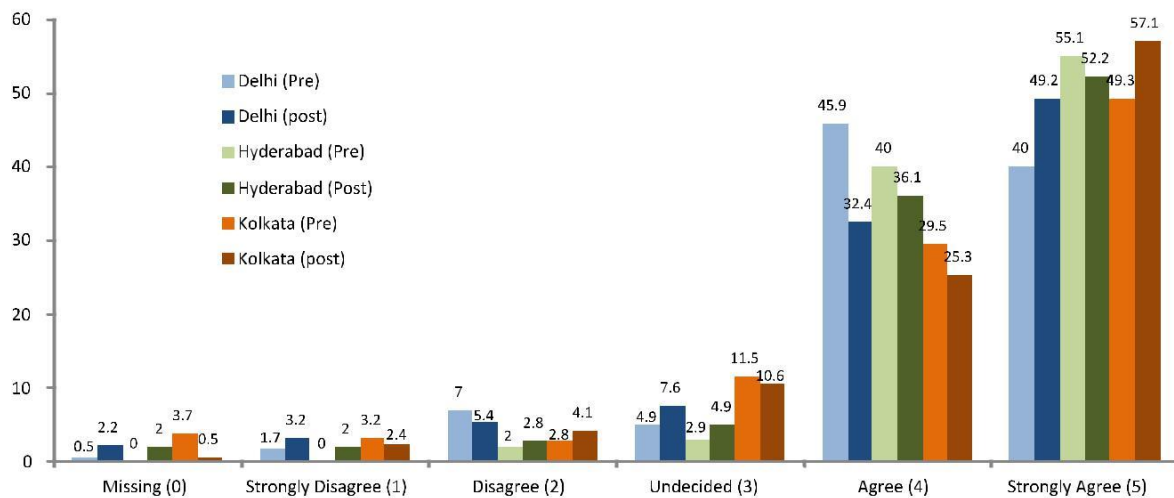
Q9. Group 2
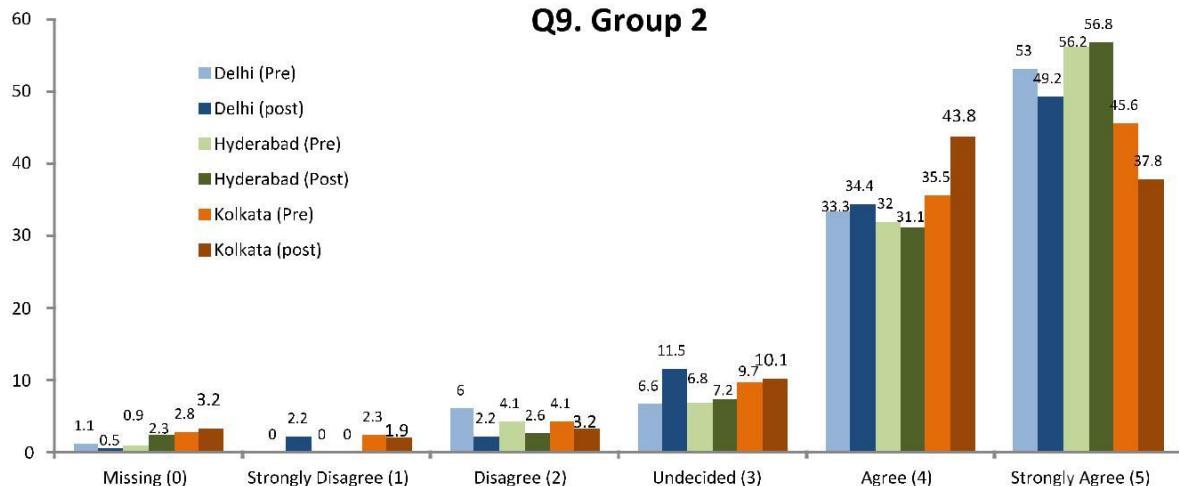
In Delhi, there are 9 percent students who have opted for the strongly agree option in group 1 while the number has reduced by 4 percent students in the post test scores of group 2. However one can observe an increase of 5 percent students in the undecided category.
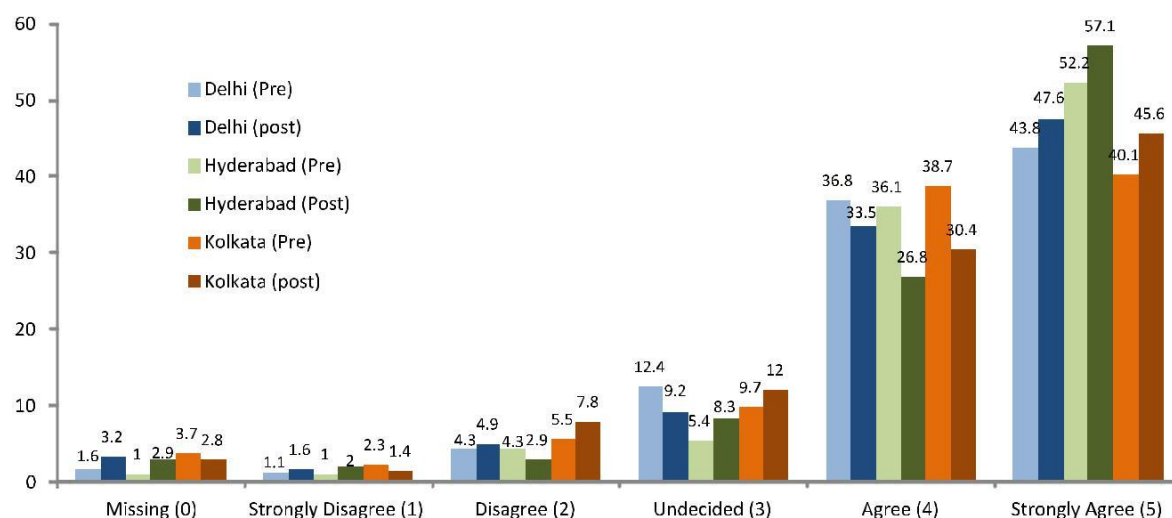
In Hyderabad, one can observe that 3 percent students have decreased when the pre and post test scores of group 1 are compared, while this number has increased just by 1 percent student in group 2. The number in the agree category has decreased by 1 percent student while it has increased by 1 percent student in the undecided category.

In Kolkata, one can observe that 8 percent students have increased when the pre and post test scores of group 1 are compared in Strongly Agreed category, while this number has decreased by 8 percent students in Group 2.

Thus overall in Q9, due to their post test scores, one can say that students of group 1 strongly agree that Environmental problems need a solution at local level. In case of group 2 also a consistency of perception has been seen in both pre and post test. However, there has been an observation that idea of students and the exhibition communication is similar in case of the question as a result there has been no significance change in between the scores.

10. It is an individual who can through his/her actions start a process of change

Q10. Group 1

Legend: Delhi (Pre), Delhi (post), Hyderabad (Pre), Hyderabad (Post), Kolkata (Pre), Kolkata (post)

	Missing (0)	Strongly Disagree (1)	Disagree (2)	Undecided (3)	Agree (4)	Strongly Agree (5)
Delhi (Pre)	1.6	1.1	4.3	12.4	36.8	43.8
Delhi (post)	3.2	1.6	4.9	9.2	33.5	47.6
Hyderabad (Pre)	1	1	4.3	5.4	36.1	52.2
Hyderabad (Post)	2.9	2	2.9	8.3	26.8	57.1
Kolkata (Pre)	3.7	2.3	5.5	9.7	38.7	40.1
Kolkata (post)	2.8	1.4	7.8	12	30.4	45.6

Q10. Group 2

Legend: Delhi (Pre), Delhi (post), Hyderabad (Pre), Hyderabad (Post), Kolkata (Pre), Kolkata (post)

	Missing (0)	Strongly Disagree (1)	Disagree (2)	Undecided (3)	Agree (4)	Strongly Agree (5)
Delhi (Pre)	3.8	1.6	4.4	13.7	37.2	39.3
Delhi (post)	1.6	0.5	7.1	7.7	31.7	51.4
Hyderabad (Pre)	0.9	1.8	5.4	7.7	36.9	47.3
Hyderabad (Post)	3.2	0.5	2.3	5.9	32.9	55.2
Kolkata (Pre)	3.2	3.7	9.7	9.7	35.9	37.8
Kolkata (post)	4.6	3.6	6	11.1	34.6	40.1

In Delhi, 4 percent students have opted for the strongly agree option when the pre and post test scores are compared in Group 1 while in group 2 this number stands at 12 percent.
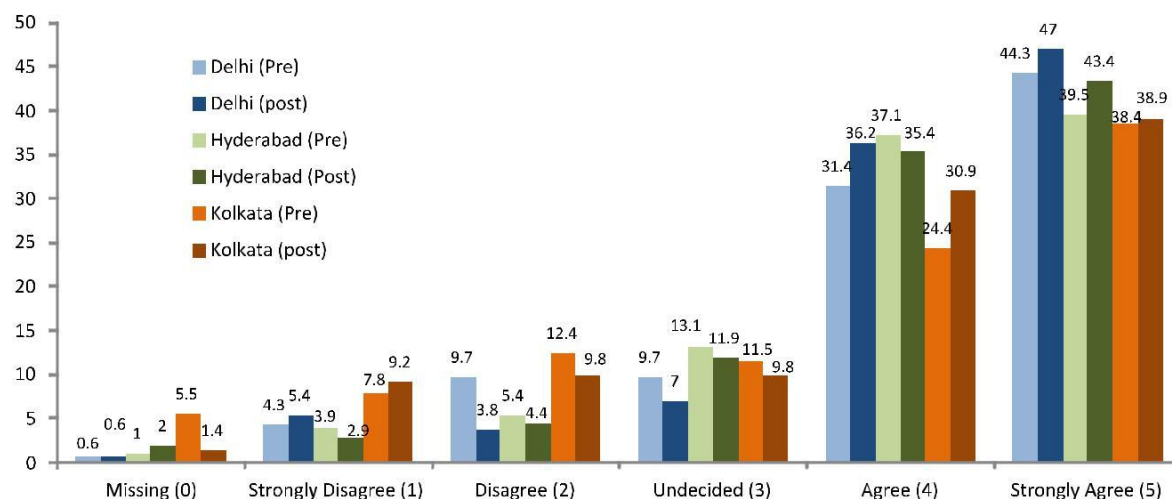
In Hyderabad, 5 percent more students have opted for the strongly agree option when the pre and post test scores are compared in group 1 while in group 2 this number stands at 8 percent.

In Kolkata, 6 percent more students have opted for the strongly agree option when the pre and the post test scores are compared in Group 1 while in group 2 this number stands at 2 percent.

Thus with respect to Q10, one can say that both the groups strongly believe that ' It is an individual who can through his/her actions start a process of change'. The increase in group 2 students is much more than compared with group 1 in all the cities except Kolkata.

11. "What difference can I make alone?" – is the most common reason for people to not take action.

Q11. Group 1

Q11. Group 2
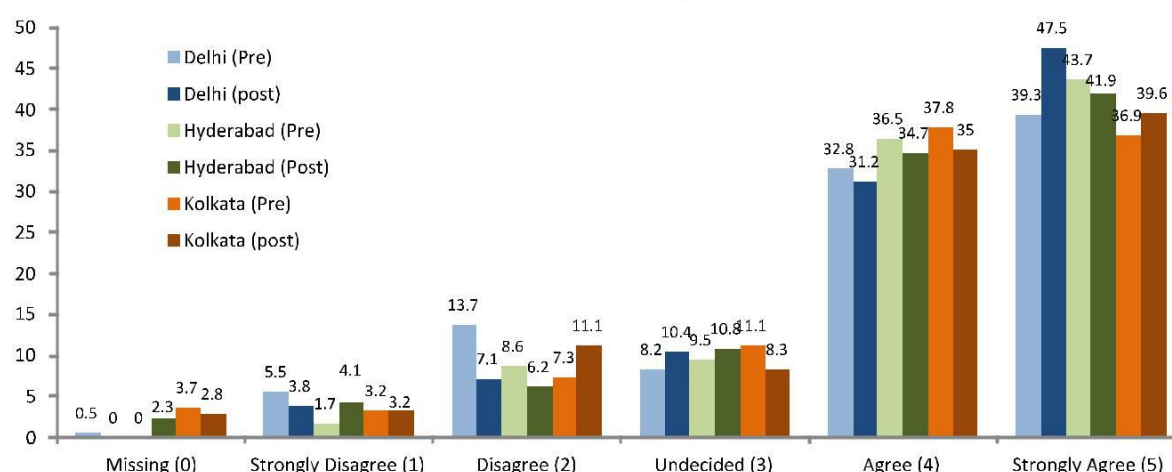
In Delhi, 3 percent more students strongly agree to the statement when the pre and post test scores are compared in group 1, while in group 2, this increase in the post test scores stands at 8 percent.
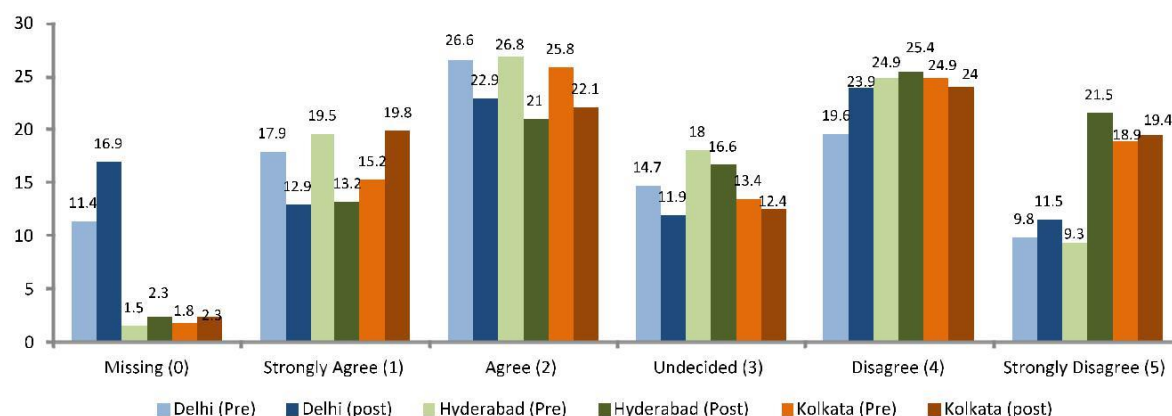
In Hyderabad, 4 percent more students in their post test opted for the strongly agree option in group 1, while this number has decreased by 2 percent students in group 2. In group 2 there were 2 percent students who were either absent or did not attempt this question.

In Kolkata, one observes an increase of a mere 0.5 percent student in the strongly agree category in group 1 while 3 percent more students opted for the strongly agree category in group 2.
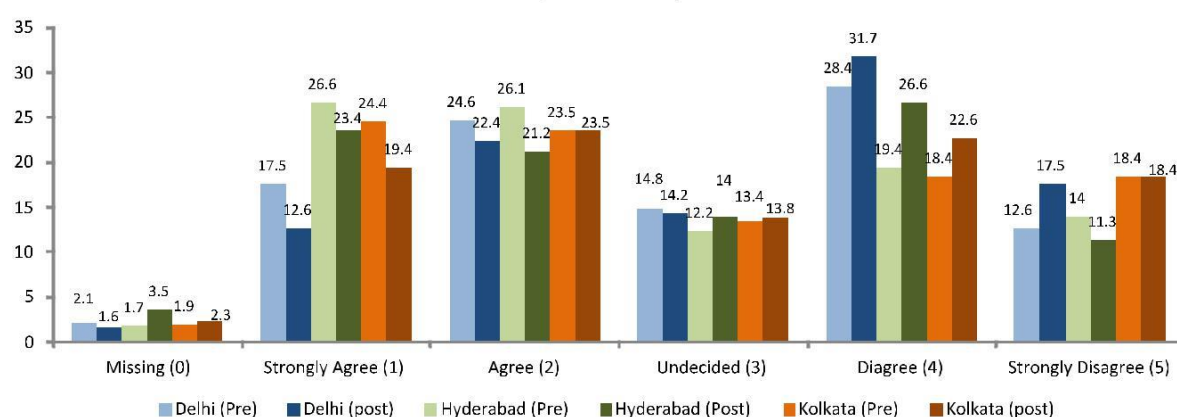
For Q11 too one can say that both the groups have progressed in the strongly agree category however the number in the group 2 are much more than that of Group 1.

12. Local action like installing solar panels to meet local electricity needs will NOT make significant impact on global warming

Q12. Group 1

Legend: Delhi (Pre), Delhi (post), Hyderabad (Pre), Hyderabad (Post), Kolkata (Pre), Kolkata (post)

Category	Delhi (Pre)	Delhi (post)	Hyderabad (Pre)	Hyderabad (Post)	Kolkata (Pre)	Kolkata (post)
Missing (0)	11.4	16.9	1.5	2.3	1.8	2.3
Strongly Agree (1)	17.9	12.9	19.5	13.2	15.2	19.8
Agree (2)	26.6	22.9	26.8	21	25.8	22.1
Undecided (3)	14.7	11.9	18	16.6	13.4	12.4
Disagree (4)	19.6	23.9	24.9	25.4	24.9	24
Strongly Disagree (5)	9.8	11.5	9.3	21.5	18.9	19.4

Q12. Group 2

Legend: Delhi (Pre), Delhi (post), Hyderabad (Pre), Hyderabad (Post), Kolkata (Pre), Kolkata (post)

Category	Delhi (Pre)	Delhi (post)	Hyderabad (Pre)	Hyderabad (Post)	Kolkata (Pre)	Kolkata (post)
Missing (0)	2.1	1.6	1.7	3.5	1.9	2.3
Strongly Agree (1)	17.5	12.6	26.6	23.4	24.4	19.4
Agree (2)	24.6	22.4	26.1	21.2	23.5	23.5
Undecided (3)	14.8	14.2	12.2	14	13.4	13.8
Diagree (4)	28.4	31.7	19.4	26.6	18.4	22.6
Strongly Disagree (5)	12.6	17.5	14	11.3	18.4	18.4

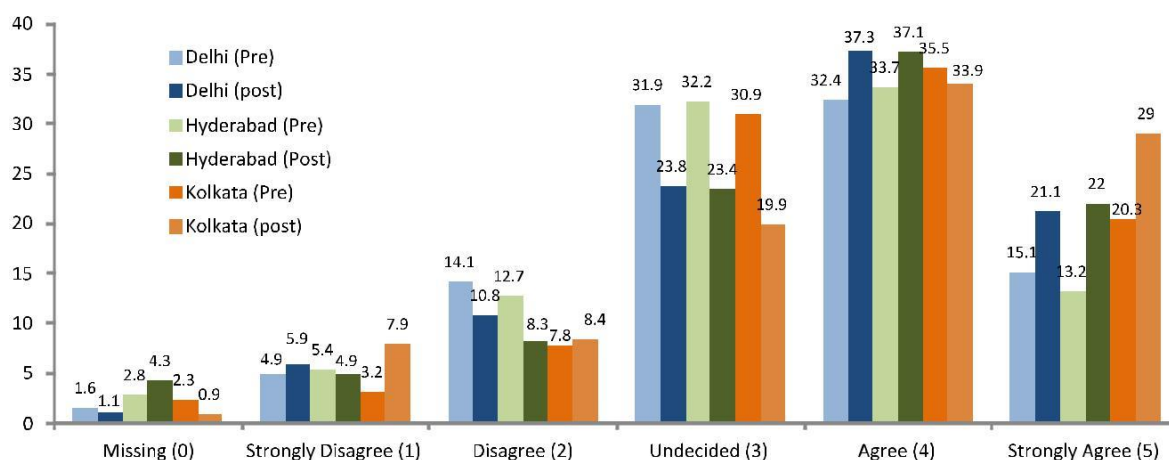This question is reverse coded i.e. those who opt for the strongly disagree option is better

In Delhi, 2 percent students opted for the strongly disagree category in group 1, while in group 2 this number stands at 5 percent.

In Hyderabad, 12 percent more students opted for the strongly disagree category in group 1 while in group 2 this number has reduced by 3 percent students. However one can observe that students have moved in categories of strongly agreed i.e. 20 percent in pre test and 13 percent in post test and agreed i.e. 27 percent in pre test and 21 percent in post test.
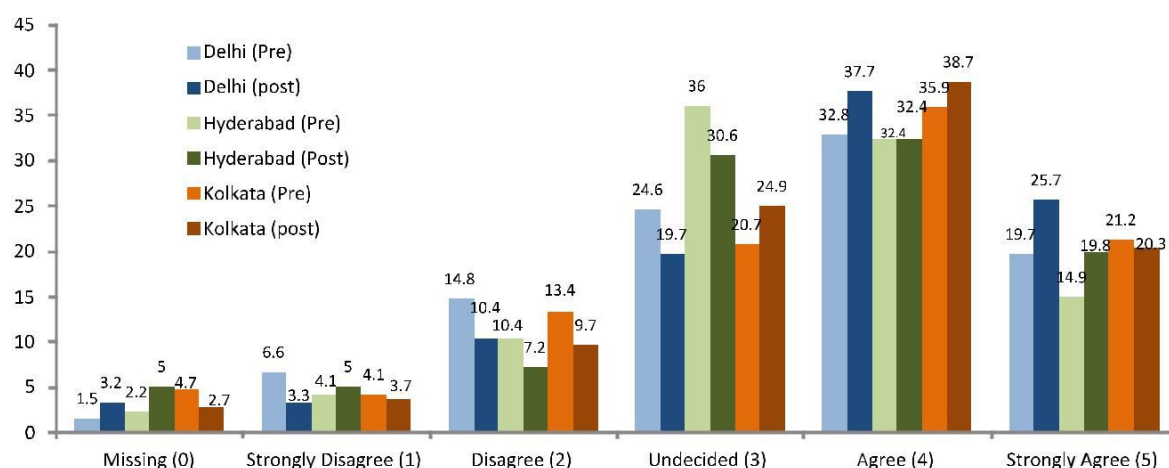
In Kolkata, a mere increase of 0.5 percent student is observed in the strongly disagree category of gorup1 while in group 2 this number stands unchanged. However in group 2, one can see that students have moved strongly agree to disagree option.

13. Environmental and social problems can be resolved in the years to come

Q13. Group 1

Legend: Delhi (Pre), Delhi (post), Hyderabad (Pre), Hyderabad (Post), Kolkata (Pre), Kolkata (post)

Category	Delhi (Pre)	Delhi (post)	Hyderabad (Pre)	Hyderabad (Post)	Kolkata (Pre)	Kolkata (post)
Missing (0)	1.6	1.1	2.8	4.3	2.3	0.9
Strongly Disagree (1)	4.9	5.9	5.4	4.9	3.2	7.9
Disagree (2)	14.1	10.8	12.7	8.3	7.8	8.4
Undecided (3)	31.9	23.8	32.2	23.4	30.9	19.9
Agree (4)	32.4	37.3	33.7	37.1	35.5	33.9
Strongly Agree (5)	15.1	21.1	13.2	22	20.3	29

Q13. Group 2

Legend: Delhi (Pre), Delhi (post), Hyderabad (Pre), Hyderabad (Post), Kolkata (Pre), Kolkata (post)

Category	Delhi (Pre)	Delhi (post)	Hyderabad (Pre)	Hyderabad (Post)	Kolkata (Pre)	Kolkata (post)
Missing (0)	1.5	3.2	2.2	5	4.7	2.7
Strongly Disagree (1)	6.6	3.3	4.1	5	4.1	3.7
Disagree (2)	14.8	10.4	10.4	7.2	13.4	9.7
Undecided (3)	24.6	19.7	36	30.6	20.7	24.9
Agree (4)	32.8	37.7	32.4	32.4	35.9	38.7
Strongly Agree (5)	19.7	25.7	14.9	19.8	21.2	20.3

In Delhi, 6 percent more students opted for the strongly agree category in group 1, while, in group 2 the scenario was same.

In Hyderabad, 9 percent more students opted for the strongly agree category in group 1, while in group 2, this number stands at 5 percent.

In Kolkata, 9 percent more students opted for the strongly agree category in group 1, while in group 2, the number has reduced by 1 percent. However 3 percent more students have shifted to the agree category in group 2.
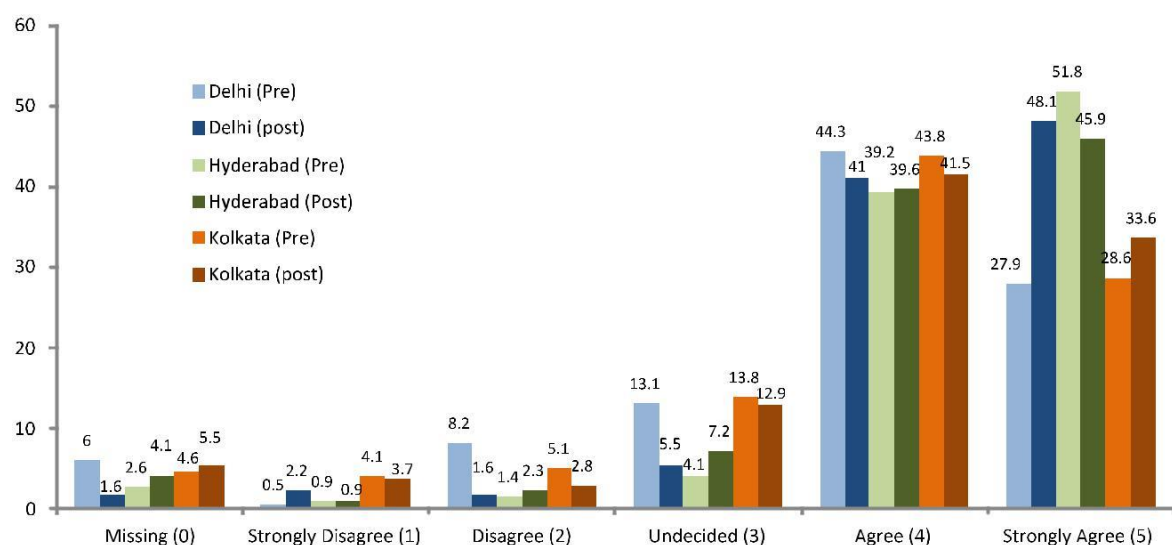
With respect to Q13, one can say, other than Kolkata Group 2 scores, the other cities have shown progress in the strongly agree category. Thus a majority of students either strongly agree or agree that Environmental and social problems can be resolved in the years to come

14. One can take up a cause and work towards it by not giving it up

Q14. Group 1
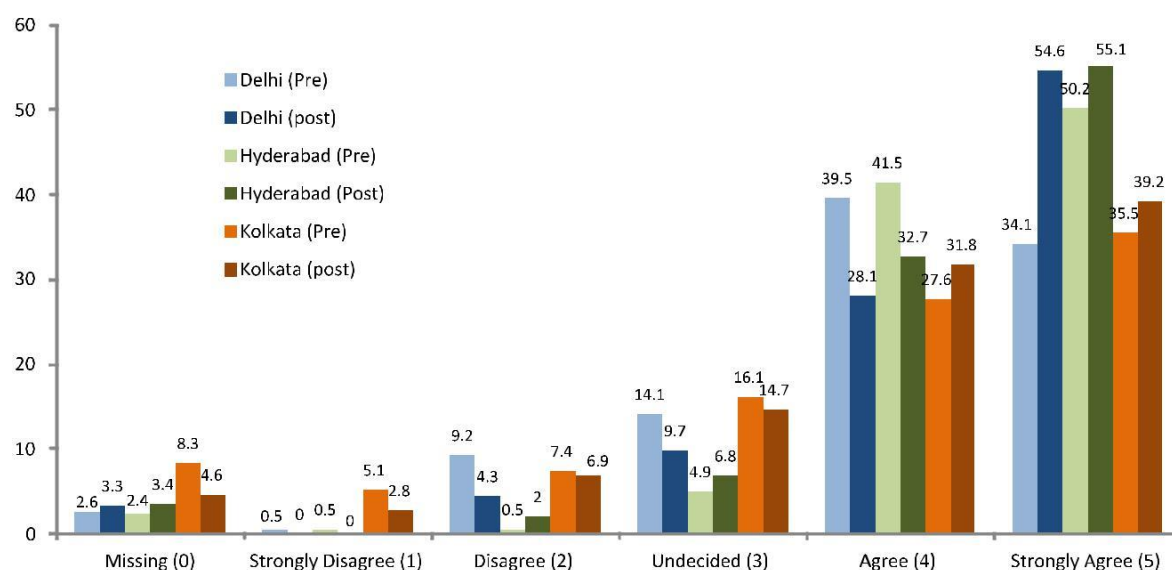
Q14. Group 2

In Delhi, 21 percent more students have opted for the strongly agree category in group 1, while in group 2 this number stands at 20 percent.
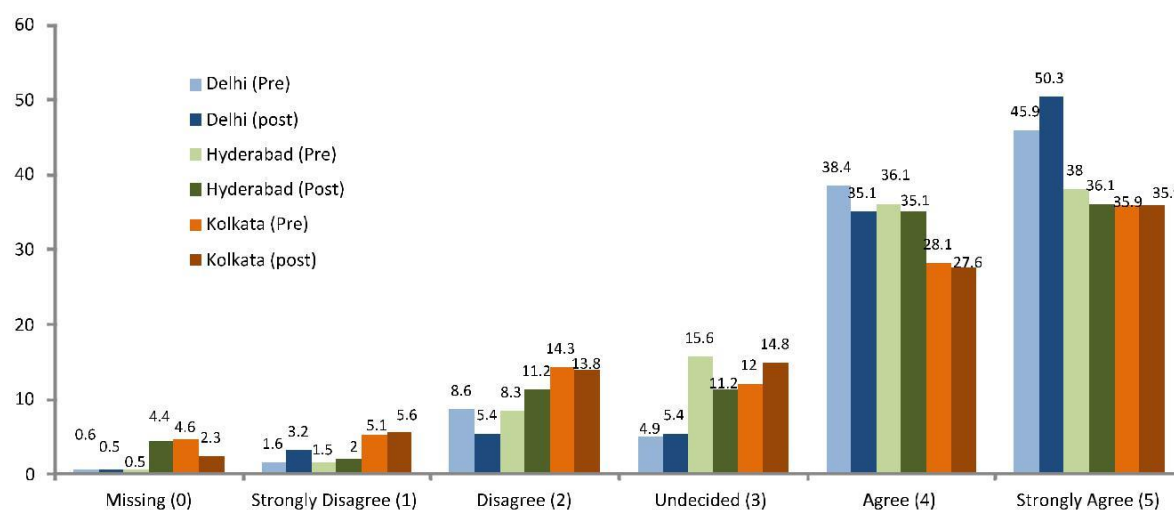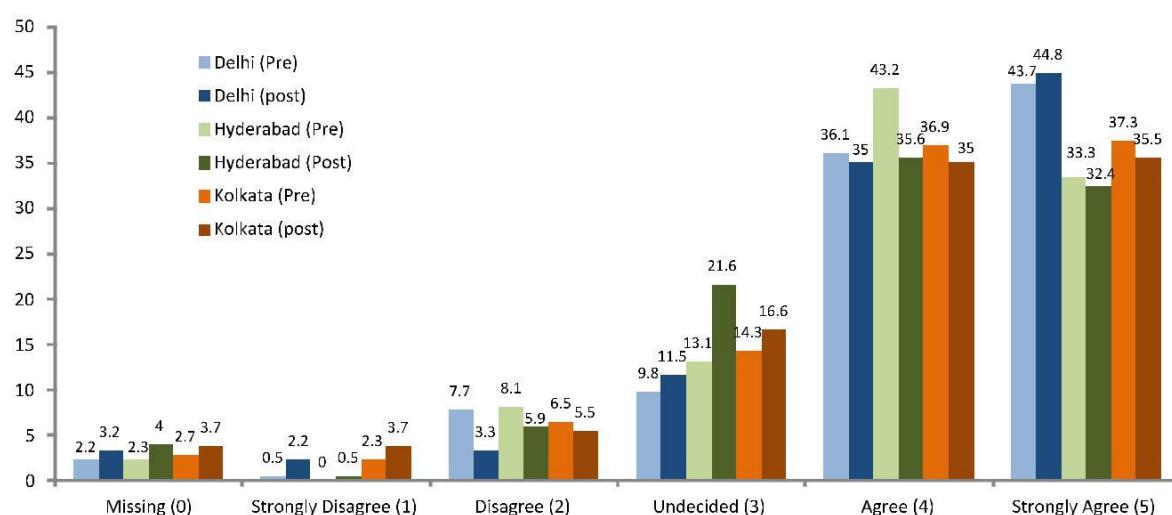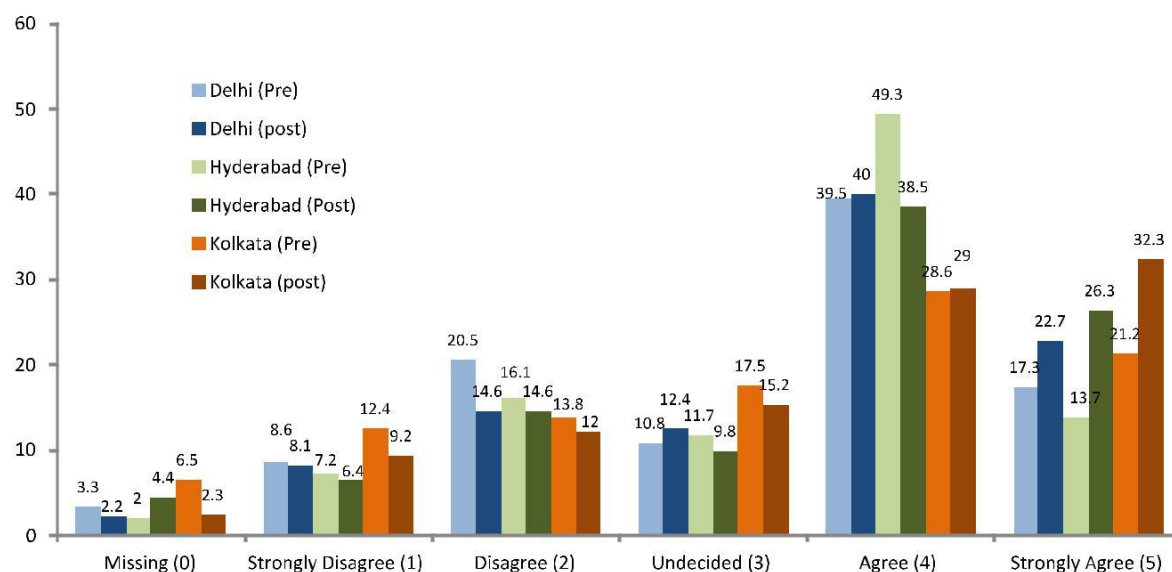
In Hyderabad, 5 percent more students opted for the strongly agree category in group 1, while in group 2, this number has reduced by 6 percent students. However 2 percent students have opted for the undecided category

In Kolkata, 4 percent more students opted for the strongly agree category in group 1, while in group 2, this number stands at 5 percent.

Thus with respect to Q14, one can say that students have shown progress however except Kolkata in the rest of the two cities the number of students who have opted for the strongly agree category are more in group 2 than in group 1.

15. We care more about something if it is borrowed

Q15. Group 1

Q15. Group 2

In Delhi, 4 percent more students opted for the strongly agree category in group 1, while in group 2 this number stands at 1 percent.

In Hyderabad, in group 1 not much difference has been observed in the pre and post test scores in the strongly agree category (2 percent). However in group 2, one see a drop by 1 percent in the strongly agree category, by 8 percent in the agree category, by 2 percent in the disagree category. An increase is observed in the undecided category and this number stands at 9 percent.

In Kolkata, when the pre and post test scores for group 1 are compared, one finds that the scores are the same at 36 percent. A minor increase of 3 percent students is observed in the undecided category. While in group 2 this number has reduced by 2 percent in the strongly agree category and by 2 percent in the agree category. A minor increase of 2 percent students is observed in the undecided category.

Thus overall with respect to Q15, in both group 1 and group 2, there isn't a clear trend nor there a major movement that has been observed. However in the group 2, all the three cities report a minor decrease in the number of students opting for the strongly agree option.

16. We care more about something if it is borrowed

Q16. Group 1

Q16. Group 2
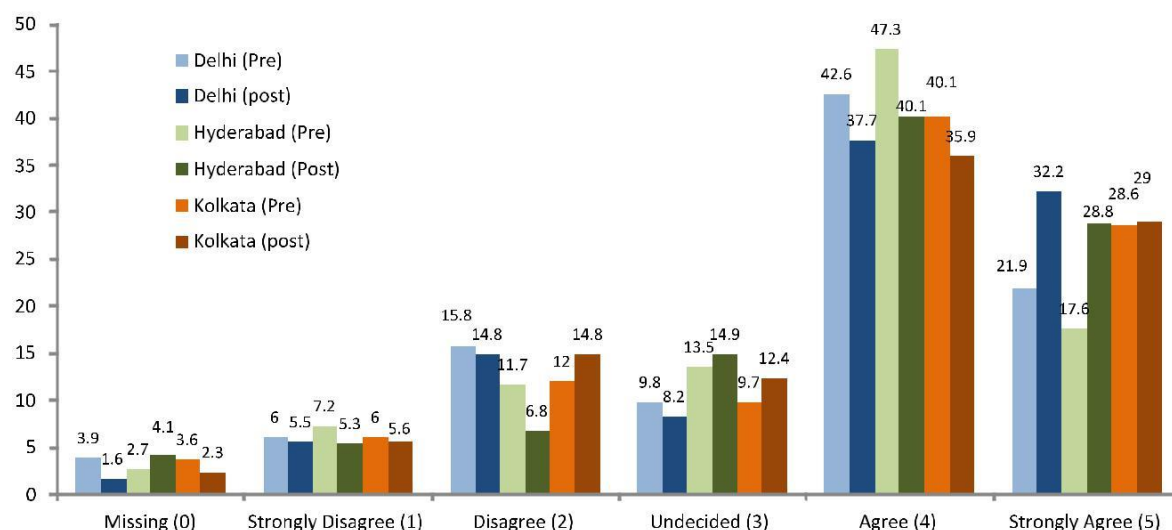
In Delhi, when the pre and the post test scores are compared in group 1, 5 percent more students have opted for the strongly agree option in the post test, whereas in group 2, this number stands at 10 percent.

In Hyderabad, the 13 percent more students have opted for the strongly agree option in group 1, while the number stands at 11 percent in group 2.

In Kolkata, 11 percent more students opted for the strongly agree option in group 1 while this number stands at 0.4 percent in group 2

Thus, overall with respect to Q16, a majority of students either agree or strongly agree that 'You and I would often buy things that we really may not need'

Major Findings:

Group	Pre-Test	Post Test
1	62.2	64.6
2	62.8	64.3

The overall finding shows a positive trend in terms of test results of individual groups. At P=0.019, < 0.05, there is a statistical significance between the levels of awareness of the group 2. Hence, we accept that facilitated and guided tour along with activities increases awareness level among students.

"I Can..." Feedback from students:

I can... is a blank panel in the exhibition where every individual can express their aspiration of becoming a change maker in the society. There were overwhelming responses received from the participants, where they have expressed their thoughts after going through the activities and exhibition. This activity was carried out with only the experimental group 2.

From the comments made by the students, it was observed that they know that Biodiversity refers to the interconnectedness of a wide variety of plants and animals that live in the world or in a specific habitat. And they also know the importance to maintain this natural treasure in order to balance the environmental harmony on our planet. They know the importance and role of trees in environment and have mentioned not to cut trees and plant more trees for the betterment of the ecosystem and the earth. They are also concerned about the lack of natural resources we have and they have mentioned in their feedback to use solar equipments and energy efficient equipments. Students have mentioned to save water it means, they recognise that the fresh water resources are degrading from the earth. They also know the importance of cleanliness in their daily routine life and they are willing to clean their streets by promoting swachh Bharat Abhiyan (an initiative of the Government of India to promote cleanliness by providing water and sanitation facilities). According to their views spreading awareness is one of the important tools for conservation of

nature and its resources. They know the importance of community work, that they have mentioned that 'I can…We can…'work together for better environment and a better human future.

Glimpses of the Responses are as follows:

I can….

Grow plants in a low-lying area or open land

Throw Garbage in the dustbins and litter less

Use the resources carefully which we have

Drink water as per my requirement

Try my best to conserve environment and Biodiversity

Spread awareness

Use public transportation and solar equipments

Save the electricity by switching off the light when not required

Plant a sapling on my birthday

Stop using plastic products and bags

Use CNG vehicle transportation

Promote Swachh Bharat Abhiyan by initiating from cleaning my society

Reduce Air pollution

Segregate waste

Reduce use of Chemical fertilizer to prevent land pollution.

Conclusion:

Based on the analysis it has been observed that a facilitated tour and relevant activities increases level of awareness among students. The impact of the interventions has led the students think and there has been a remarkable change seen in terms of their responses in post test. The analysis has invariably shown increased number of responses trending from agree to strongly agree. In many cases the reverse trend has been observed after the post test, which is significant. The interventions have led the students to think and respond properly after having gone through the activities among students of group 2. While preparing the questionnaire, two things were kept in mind, one being the content of the exhibition and the second one was to link the questionnaire with the curriculum. The idea behind is to create an environment for students, so that they can connect to the concepts described in the exhibition. It has been observed that many of the students could not make out concept of some questions in the survey format; therefore, they decided not to respond to it. It is also evident that the group 1 and group 2 shows very small differences in post test. However, facilitation has shown an increasing trend in terms of rationalizing their responses.

Acknowledgement:

List of Schools with address

Sl.No.	Name of School	Address
Kolkata Schools		
1	Shri Shikshayatan School	11, Lord Sinha Road, Elgin, Kolkata, West Bengal
2	Delhi Public School	Edudigm - DPS Megacity, Kamarbari Road, Newtown, Kalikapur, West Bengal
3	Jadavpur N K Pal Adarsha Sikshayatan	43/5H, Jheel Road, Kolkata, West Bengal
4	Sakhawat Memorial Govt. Girls High School	17 Lord Sinha Road, Kolkata, West Bengal
5	Akshar School	35, Diamond Harbour Road, Kolkata, West Bengal
6	Taki House Govt. Spon. Multipurpose School for Boys	Maharani Sarnamoyee Road, Raja Bazar, Kolkata, West Bengal
Hyderabad Schools		
1	Little flower high school	Chirag Ali Lane, Abids, Hyderabad, Telangana 500001
2	Little flower high school	Opp. Survey of India, BeerppaNagar Rd, Uppal, Hyderabad, Telangana
3	Delhi Public School	Nacharam, Plot No.44,42A Nacharam Mallapur Road, Behind Nacharam Telephone Exchange, Nacharam, Hyderabad, Telangana
4	Bharathi Vidya Bhavan Vidyashram	Road No.71, Film Nagar, Jubilee Hills, Near Apollo Hospital, Hyderabad, Telangana
5	Meridian School	No. 8-2-541, Road No. 7, Banjara Hils, Hyderabad, Telangana
6	Bharathi Vidya Bhavan Atmakuri Rama Rao School (ARRS)	Survey No.62, GuttalaBegumpet, Road No. 45 (End), Jubilee Hills, Hyderabad, Telangana
Delhi Schools		
1	Ryan International School	Sector 40, Gurgaon, Delhi NCR
2	Ryan International School	Sector 31, Gurgaon, Delhi NCR
3	Manav Rachana International School	Sector 14, Faridabad, Delhi NCR
4	Jaypee International School	Sector Omega 1, GB Nagar, Greater Noida, Delhi NCR
5	GD Goenka Public School	J Block, Sarita Vihar, New Delhi
6	Colonel Satsangis Kiran Memorial Public School	Ansal Villas, Satbari, New Delhi

City wise Sample size

City	Group 1		Group 2	
	Pre	Post	Pre	Post
Delhi	185	185	185	185
Hyderabad	205	205	222	222
Kolkata	217	217	217	217

Pre-test Questionnarie

Name: Class:

School: Date:

There are no right or wrong answer. Please put a ☑ to indicate your response.

No.	Statement	Response				
		Strongly agree	Agree	Undecided	Disagree	Strongly disagree
1.	Ancient **culture** had the vision of sustainability..					
2.	Science and Technology have caused a rapid degradation in our natural environment.					
3.	Humans and Nature cannot exist together because of human selfishness.					
4.	Tribal communities have rights to protest if the places they live in are diverted for other developmental activities.					
5.	Everything we do as humans has an impact on Earth					
6.	Should one be thankful that human existence is supported by natural services that are free.					
7.	Sustainable development has the aspect of consuming in a way such that the needs of future generations are met.					
8.	Do we need to consider the effects of our actions on the environment?					
9.	Environmental problems need a solution at local level. For example, waste segregation at home to manage waste efficiently.					
10.	It is an individual who can through his/her actions start a process of change.					
11.	"What difference can I make alone?" – is the most common reason for people to not take action.					
12.	Local action like installing solar panels to meet local electricity needs will **NOT** make significant impact on global warming.					
13.	Environmental and social problems can be resolved in the years to come.					
14.	One can take up a cause and work towards it by not giving it up.					
15.	We care more about something if it is borrowed.					
16.	You and I would often buy things that we really may not need.					
171.	You are likely to take the following actions in next three months: a. Visit a forest/park.					
	b. Plant a sapling					
	c. Get to know who cleans your school.					
	d. Build a space for nesting for sparrows/other birds					
18.	You are likely to : a. Help someone in need					
	b. Listen to a friend in distress					
	c. Resolve a fight between two people					
	d. Participate in discussions concerning local problems					
	e. Reach out and inform people about Climate Change					
19.	Name one inspiring change maker person from your city					
20.	Name one person who has inspired you the most. why?					
21.	Have you heard about Principles of Earth Charter?					

Post-test Questionnarie

Name: Class:

School: Date:

There are no right or wrong answer. Please put a ☑ to indicate your response.

No.	Statement	Response				
		Strongly agree	Agree	Undecided	Disagree	Strongly disagree
1.	Ancient culture had the vision of sustainability..					
2.	Science and Technology have caused a rapid degradation in our natural environment.					
3.	Humans and Nature cannot exist together because of human selfishness.					
4.	Tribal communities have rights to protest if the places they live in are diverted for other developmental activities.					
5.	Everything we do as humans has an impact on Earth					
6.	Should one be thankful that human existence is supported by natural services that are free.					
7.	Sustainable development has the aspect of consuming in a way such that the needs of future generations are met.					
8.	Do we need to consider the effects of our actions on the environment?					
9.	Environmental problems need a solution at local level. For example, waste segregation at home to manage waste efficiently.					
10.	It is an individual who can through his/her actions start a process of change.					
11.	"What difference can I make alone?" – is the most common reason for people to not take action.					
12.	Local action like installing solar panels to meet local electricity needs will not make significant impact on global warming.					
13.	Environmental and social problems can be resolved in the years to come.					
14.	One can take up a cause and work towards it by not giving it up.					
15.	We care more about something if it is borrowed.					
16.	You and I would often buy things that we really may not need.					
17.	You are likely to take the following actions in next three months: a. Visit a forest/park.					
	b. Plant a sapling					
	c. Get to know who cleans your school.					
	d. Build a space for nesting for sparrows/other birds					
18.	You are likely to : a. Help someone in need					
	b. Listen to a friend in distress					
	c. Resolve a fight between two people					
	d. Participate in discussions concerning local problems					
	e. Reach out and inform people about Climate Change					
19.	Name one inspiring change maker person from your city					
20.	Name one person who has inspired you the most. why?					
21.	Have you heard about Principles of Earth Charter?					
22.	Which panel did you like the most?					
23.	Which quote/message from the exhibition has motivated you?					
24.	Whose work do you admire from the exhibition? (People Taking Action)					
25.	We should take action for the sake of					

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Notes

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Notes

Notes