Impact Assessment Report

HONEYWELL
CENTRE FOR ADVANCING GIRLS IN SCIENCE

Honeywell Hometown Solutions India Foundation (HHSIF)

Powering the world of good

Goodera

CONTENTS

1. EXECUTIVE SUMMARY

According to the survey published by Ministry of Education in 2018-19, women in India constitutes around 43% STEM enrollment[1], which is the highest in the world. The World Bank data also published that as compared to the developed countries like US (34%), UK (38%), Germany (27%)[2], India has the highest women STEM graduates. The share of women in STEM related jobs is only 14% as compared to countries like Georgia where 55.6% women or in 52.6 % women in Mongolia working in STEM fields [3]

With this backdrop, **Honeywell with Avasara started the Centre for Advancing Girls in Science** program in 2019 aimed to foster their science learning through experiential learning opportunities among students with underprivileged backgrounds from Indian government schools. Later in 2020 & 2021, due to the COVID pandemic, the program has also supported virtual interventions among the children.

The impact assessment study for the Honeywell Centre for Advancing Girls in Science Program is conducted to understand the experience of all the stakeholders in the project, and to measure the impact and outcomes it has brought to science learning of students. A Logical Framework Analysis was conducted initially against the expected theory of change, to understand the measurable parameters and indicators of output, outcome and impact. A mixed method was used in the study which involves collecting and analyzing quantitative and qualitative data. Interviews and surveys were conducted with all the stakeholders of the program as per the derived sample size for each. Descriptive statistics, comparative analysis and content analysis were done to analyze and interpret the data collected.

The program had a target of 500 underprivileged girl students and the program has supported **426 underprivileged girls**. The study found that the program has **instilled science knowledge, interest, confidence, and curiosity** among a most of the students. The virtual learning classes have provided access to many students towards their academics in a difficult situation like the covid 19 pandemic. The program had given the **underprivileged girl students a chance to develop their interest and learn science** in a unique manner. The program has **constructively used feedback mechanisms** to effectively adapt, innovate and reinvent the program activities. From the 426 students, 24 students have graduated (5.6%) and 30 students (7%). Due to COVID, there were no new intake, and the program is currently supporting **369 students** which is less than the target.

The teacher trainings were conducted virtually and all the teachers that we interviewed had attended the training. Some of the teachers shared positive feedback stating that the trainings were conducted on a monthly basis. A few teachers mentioned that due to the virtual nature of teaching-learning they could not deploy the takeaways from the training sessions into their regular classes.

The program has plenty of **opportunities for volunteering activities**, which were effectively leveraged to modify and upgrade the program itself, along with usual activities of interactions and workshops. A financial performance analysis was conducted to understand the utilization of the funds and could find a **below satisfactory level of spending** throughout during the first two years of the program. There has been **underutilization of funds** over the years since the commencement of the program. Since 2019-20 the program operations intensified which has increased the fund utilization. There also has been **overspending** for some of

[1] *All India Survey on Higher Education (AISHE)*

[2] *https://blogs.worldbank.org/opendata/there-are-fewer-female-male-stem-graduates-107-114-economies*

[3] *https://www.statista.com/statistics/1116527/share-women-stem-country/*

the line items. Despite virtual classes during the pandemic, **~ INR 1.24 Cr** has been spent towards operational costs (OPEX) and ~ INR 22 L has been spent towards Admin & other costs.

The study has further analyzed the strength, weaknesses, opportunities and threats of the program. There are a few weaknesses of this project such as **dependency on other educational NGOs for admission of students**. This can become a problem in longer run since the NGOs are not bound by any agreement to help Avasara in sourcing the students. One of the biggest threats of the program is the corpus of 100 Cr that the Avasara team is trying to create. Based on the amended CSR Rules 2021 companies are not allowed to donate towards NGO corpus. Hence Avasara's target INR 100 Cr corpus will not be getting support from CSR donations.

2. INTRODUCTION

Today, the challenges faced by women across the world range from equal pay to access to quality education. Though significant progress has been made with involvement from the government, academia, industry, and the social sector, a ground-up approach needs to be adopted to help young girls develop as strong women leaders of tomorrow. According to World Bank data India has 43% women graduates in STEM at tertiary level, more than developed nations like US (34%), UK (38%), Germany (27%).[4]

According to the survey published by Ministry of Education in 2018-19, women in India constitutes around 43% STEM enrollment[5], which is the highest in the world. But out of the 43% STEM graduates only 14% women join STEM related jobs which is considerably lower if we compare it to different countries of the world. In Sweden for instance, 35% women graduated with STEM degrees and 34 percent [6]out of these STEM graduates women join STEM related jobs.

The data published in 2017-18's National Sample Survey report on Education, only 24% Indian households have access to internet facilities, while only 15% rural households have access to internet[7]. Also it was mentioned that, only 8% households with school going students have access to both internet and a computer. There is also gender disparity in access to internet.

With this backdrop, Honeywell, one of the biggest technology-based corporations in the world, having one of its five global pillars as the promotion of STEM education, has tied up with Avasara Leadership Institute and started the Centre for **Advancing Girls in Science program** aimed to develop creative-thinking and problem-solving abilities in girls from underprivileged backgrounds of Indian schools and to foster their science learning through experiential learning opportunities. The program also tries to cultivate curiosity, nurture creativity, and instill confidence among girl students of age group 11-18 years.

The program had a target of 500 underprivileged girl students and the program has supported **426 underprivileged girls**. From the 426 students, 24 students have graduated (5.6%) and 30 students (7%). Due to COVID, there were no new intake, and the program is currently supporting **369 students** which is less than the target.

Avasara has a rigorous two-step process for the selection of candidate. This is a pen paper-based exam where students are asked Math, English and logical reasoning questions. After they clear the 1st stage of the exam, the 2nd exam is essay based. Once the students clear the exam, parents along with the students are invited for interviews and the parents are provided career counselling for the STEM program. The prerequisite to sit in the exam is that the students should have English knowledge.

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4 *https://blogs.worldbank.org/opendata/there-are-fewer-female-male-stem-graduates-107-114-economies*

5 *All India Survey on Higher Education (AISHE)*

6 *Need to reduce gender gap in STEM jobs in India https://www.thehindubusinessline.com/news/science/need-to-reduce-gender-gap-in-stem-jobs-in-india/article33324409.ece*

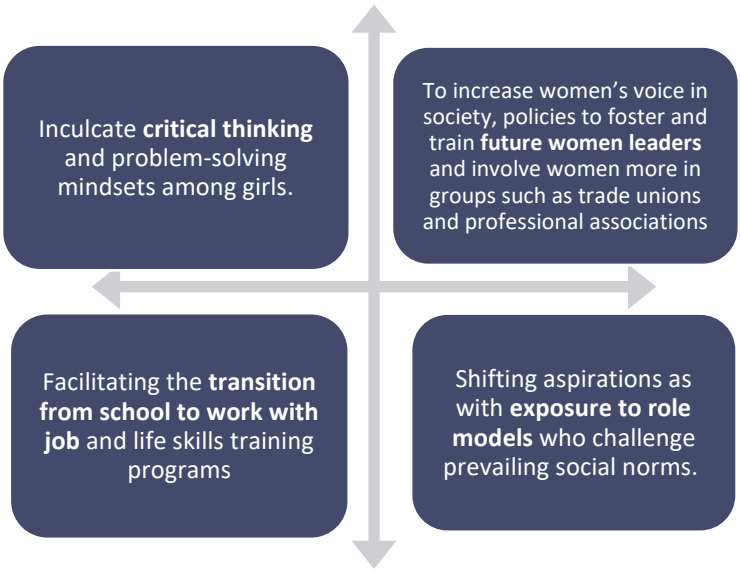
7 *National Sample survey report on education http://mospi.nic.in/sites/default/files/publication_reports/KI_Education_75th_Final.pdf*

3. PROJECT BACKGROUND

The **Honeywell Center for Advancing Girls in Science** seeks to inculcate critical thinking and problem-solving mindsets among girls in the age group of 11-18 years. Students are exposed to a thoughtfully designed education program that includes the internationally recognized and rigorous Cambridge A-Level curriculum, accompanied by specially developed courses and experiences in leadership, entrepreneurship, and Indian studies. The learning experience includes faculty advisors, mentors, independent study opportunities, small class sizes, a diverse group of talented students, and a curriculum of extraordinary depth. The school envisions girls tackling issues like globalization, economic development, urbanization, and some of the world's biggest problems. It is a one-of-its kind school where talent meets opportunity. The project was commenced in the financial/academic year of 2017-18 and has been running for the last four years.

Project Objective

The advancing girls in science program is designed with four major impact objectives as illustrated below:



- The program envisaged increasing the access to transformative science education to underprivileged girls of exceptional talent.
- The program aimed to create an impact by sparking curiosity, creativity, critical thinking and leadership skills among the underprivileged girl students.
- The program indirectly helped the non Avasara students by providing young scientist camps and STEM training to science Educators.

Project Activities

- **STEM has been a focus** at Avasara. The institute encourage students to pursue sciences and math and give them different opportunities to explore STEM-related courses.
- **STEM-related college entrance exams**- Avasara has been supporting selected high potential students in their pursuit for Engineering or Medical college degrees by enrolling and paying for coaching classes for the JEE and NEET entrance tests.

- **Avasara Professional Learning for Teachers**- This program focusses on building the capacity and capability of educators to design and deliver STEM education. With this undertaking, Avasara Academy delivered a 6-week training program.
- **Virtual Learning Platform**- With the pandemic setting in towards the end of the previous academic year, **Avasara adopted the virtual learning platform – Edmodo**. During the summer of 2020, the Director of Teaching and Learning conducted extensive train-the-trainer programs to help our staff learn about and adapt to the new platform for delivering lessons, creating assignments, and class assessments.
- **Synchronous Learning**- To enable all students to participate in synchronous classes, Avasara distributed devices and paid for data plans for students who did not have access to the same.

4. OBJECTIVES AND SCOPE OF STUDY

The study aims to understand the implementation pathways of the Honeywell Science Experience Program and its impact on the targeted beneficiaries, i.e the student community. The impact assessment study will try to capture whether each activity was conducted against the plan, how they were executed and try to quantify the outcome effects of activities among the beneficiaries and the collective impacts created by them.

4.1. Key objectives of the study

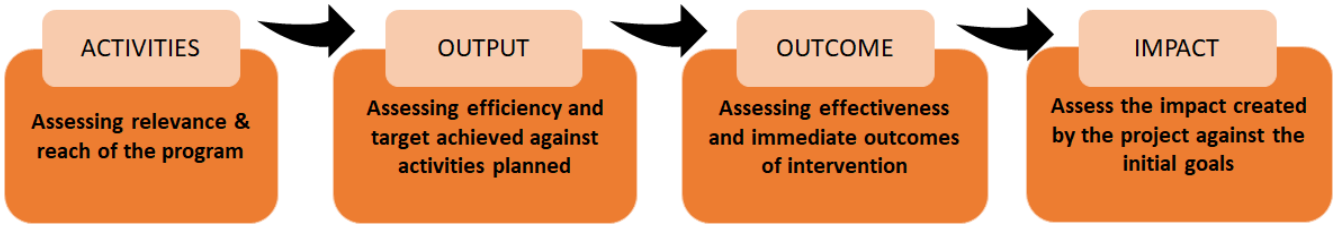
- To assess the impact of the intervention among the beneficiaries; How the program has brought curiosity, confidence, science knowledge and awareness among the students.
- To precisely assess the mechanisms by which beneficiaries are responding to each of the intervention. Here the study will try to understand the success factors of the program that helped in creating an impact among the students and the perceptions it created
- To assess the relevance and efficiency of the intervention: to review the implementation pathways - assessing process and activities
- To measure the awareness level of beneficiaries and other stakeholders about the program
- To understand the effectiveness of the intervention - How each activity has led to creating the desired outputs
- To understand the beneficiary and other stakeholder perspectives about the intervention
- To understand the major success factors and challenges in the intervention
- To find the areas of improvement across all the factors from program design to implementation and to provide effective recommendations

4.2. Limitations Of Study

- The study cannot capture the long-term impact of the program among the students, on how this program helped them in creating a digital learning space for students and how it impacted them in their further studies
- The study doesn't factor in the influence of any other interventions or happenings (exogenous factors) while analyzing the impact & outcomes of the program on beneficiaries.
- The study is conducted virtually, due to the ongoing COVID Pandemic and is not able to triangulate the findings through any physical school visit.
- Sampling is done within the available data and not with the total population

5. ASSESSMENT FRAMEWORK

The **THEORY OF CHANGE (ToC) FRAMEWORK** for the given program is illustrated below:



Activities	Input	Output	Outcome	Impact
• STEM Education	• 6 STEM labs are created	• Students have access to hands-on science experiments	• More interest among the students towards learning science Improved science knowledge	• Improved level of science learning among students - pursuing STEM education for higher classes and later science related jobs • Improved curiosity, confidence and awareness on science education
• Digital interventions	• Online classes	• Students have access to classroom sessions in lockdown	• Learning continuity Improved student engagement	
• Training to Teachers	• Training to teachers on Science & Experiments	• Teachers are competent to conduct experimental based classes. • Teachers are well versed with the STEM pedagogy and content	• Better learning experience to students as teachers adapt the learnings in their classroom • Improved interest and knowledge about science among students	
• Science Fairs	• Science Fairs are conducted	• Students have access to attend and exhibit in science fairs	• Improved confidence and exposure among student exhibitors Inspiration for attendees to pursue similar models	
• Young scientist camp	• Science camps for Non Avasara students are conducted.	• Non Avasara students have access to science camps	• Exposure to science and math are applied in real life	
• Training of science educators	• Training for science educators is conducted	• Science Educators are well versed with the STEM pedagogy and content	• Improved interest and knowledge about science among students	

A **LOGICAL FRAMEWORK MODEL** is created against the identified ToC to reflect the identifiable indicators, means of verification and assumptions, as given below:

	PARAMETERS	INDICATORS	MEANS OF VERIFICATION	ASSUMPTIONS
ACTIVITIES	• Virtual Classes • Teachers' trainings • Young Scientist Camp program • Science Fairs • Training of educators on STEM	• No of virtual classes conducted • No of training programs conducted for teachers • No od science camp conducted • No of science fairs conducted • No of cohorts for training of educators	• Monthly reports • Proposal doc • Assessment documents	• Students have access to smartphones/ laptops and internet • Assessments will help in proper evaluation
OUTPUT	• Students have access to hands-on science experiments. • Access to virtual classes. • Assessments are conducted and evaluated. • Students have access to attend and exhibit in science fairs. • Non Avasara students attend camps. • Non Avasara Educators attend STEM training.	• No of students having access to virtual classes • No of teachers trained • No of students taken assessments • No of students attended science fair • No of non Avasara students attending camps • No of educators attending STEM training	• Students' attendance lists • Assessments Reports • Monthly report • Educator feedback	• Science experiments will improve interest among students to learn science • Access to online classes and interesting contents will increase the engagement and involvement of students
OUTCOMES	• Students are interested science classes and experiments • Students are getting the best alternative learning platform through virtual classes • Students are engaging in the classes and completing their worksheets and tasks • Students are confident to attend fairs	• The level of interest for attending program and learning science • Interest level to attend online classes • Students are confidently explaining in science fairs	• Impact assessment reports • Annual reports	• Increase in interest level and engagement in classes will result in achieving better results in learning and education • Experimental learning will imbibe better curiosity and knowledge

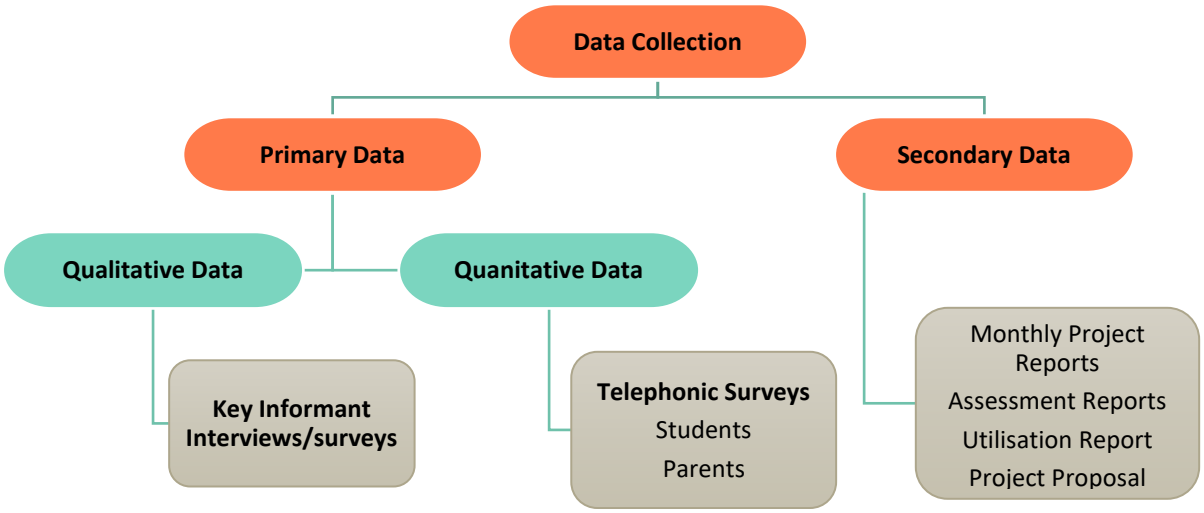
IMPACT	• Students Improved curiosity, confidence and awareness on science education • Students pursue STEM education for higher classes and later science related jobs	• Students learning level and science knowledge has improved • Continuity of education	• Impact assessment reports • Classroom assessment report	NA

6. METHODOLOGY

A 'Mixed – Method Approach' is applied in the study, which ensures that factors such as processes, outputs and outcomes are captured in the study along with the impact. The mixed method approach will include both qualitative and quantitative data capture and analysis.

The quantitative tools would provide values to key indicators related to access, awareness, perception, outputs vs targets and outcomes perceived by the beneficiary stakeholders and the overall impact. Quantitative analysis is used to extract the data from students and parents. Qualitative method and approaches will provide a better understanding and help to build a storyline for the achievements and gaps in the program from the lens of immediate stakeholders involved in the program implementation, other than students and parents. A qualitative study gives substantiated evidence for a better understanding of the processes involved in the program implementation.

The mixed approach thus helps in developing a framework for gap identification, enhancing inclusion and providing recommendations instead of mere calculation of outcome and impact parameters.



6.1. Data Collection

Secondary Data

For secondary data, the reports of the project were referred including the Monthly reports submitted by Avasara to Honeywell team. The reports have given insights about the project including the overall program structure, inception and implementation phase, processes followed and feedbacks received. The impact assessment report was also studied. Other external reports in the likes of journals, articles and newspaper reports were studied to get an understanding about the various interventions happening in science- related and online learning in India as well as around the world.

Primary Data

Primary data collection is key to collecting evidence from the beneficiaries and stakeholders on the intervention, the benefits and challenges and the analysis for recommendations to assess the impact it has created. The sample has been selected based on a quantitative and qualitative approach to ensure factors are both quantifiable (to capture and extrapolate the data to generalize the findings) and qualifiable ones.

Sample Size

The total population for the direct project beneficiary (students) is approximately 426. The sample size for conducting surveys and KIIs were calculated through the formula given below with a confidence interval of 95%, and a 5% allowable error.

$$\text{Sample size} = \frac{\frac{z^2 \times p(1-p)}{e^2}}{1 + \left(\frac{z^2 \times p(1-p)}{e^2 N}\right)}$$

- **N = Total stakeholder population**
- **z = Z score (Z-Score is the number of standard deviations a given proportion is away from the mean)**
- **e = Margin of Error**
- **p = Likely sample proportion**

Calculated Sample size ~ 202 students

Sampling Techniques

1. For students a multi-stage sampling procedure was adopted to justifiably accommodate good representation
2. For parents, a convenience sampling was done.
3. For teachers, an equal-size stratified sampling was done
4. For other stakeholders, purposive sampling was adopted

Qualitative Data Capture

Key informant Interviews: Questionnaires are designed for each stakeholder interview, although questions out of the questionnaire relevant to the subject were asked and responses are captured. Stakeholders are selected through Purposive Sampling.

	Stakeholder group	Sample size	No of Interview
1	Avasara Teachers	56	5
2	Avasara Professional Learning for Teachers-Educators	49	10
3	Program team - Avasara	2	2
4	Program team - Honeywell	1	1

Quantitative Data Capture

1. **Beneficiary Survey (Students):** A structured survey questionnaire was developed, acer considering multiple factors mentioned in the study proposal. The survey with students was designed to capture the access, interest, skills, perception, preferences, challenges and experience of students in the program. A total of 202 surveys were conducted.
2. **Parents Survey:** An objective type of survey questionnaire was developed for parents. The survey was designed to understand the awareness level of parents regarding the program, their engagement with the students in study masers, their understanding of their child's interest and their perception of the benefits of such a program. A total of 44 surveys were done.

Data Collection

The collection of data was conducted by the investigators of Goodera through Google Forms. All the stakeholders were called through phone and the responses were fed into this platform. After capturing the data, it was further downloaded in .csv/ .xlsx format and cleaned before analyzing.

6.2. Challenges Faced in Data Collection

The study has faced significant challenges is collecting the data from the stakeholders especially with student beneficiaries. Given the COVID circumstances the surveys were conducted through virtual mode of phone calls. The response rate against the number dials and against number of connected calls were poor. A detailed summary of these statistics along with the reasons of not being able to conduct the survey with the connected calls are given below:

Stakeholder	Total Dials	Total Connects	Connects vs dialed	Responses	Filled Vs Connected	Filled Vs dialed
Students	870	581	66.78%	202	34.77%	23.22%
Parents	75	61	69.51%	44	72.13%	58.67%
Total	**945**	**642**	**68.15%**	**246**	**53.45%**	**40.94%**

Around 68.15% of the dialed calls were connected. Among the connected calls only around 18% of them could realize into surveys form filling. Overall, only around 40.94% of the dialed calls could successfully end in filling the survey form. The reasons for this poor ratio are summarized below:

Stakeholder	Total Connects	Responses	Not Interested	Wrong Number	Do not call	Call back
Students	581	202	87	9	293	192
Parents	61	44	1		6	6
%	100%	38.32%	13.71%	1.40%	46.57%	30.84%

As shown in the table the major reasons for not filling the survey included a call back request, where the student is not near to the parent who carries the phone. The study has tried to do up-to three calls before dropping them. There were also a good proportion of calls where the surveyor was informed that the parent or student is not interested in the survey. Many a times this include the unawareness of the students or parents about the program. These were wrong numbers provided. There were also instances where the respondent has asked the surveyor to not call without furnishing any reason for the same.

Overall, the data quality of the contact details provided by the implementation partner was satisfactory but the response from the students and parents side was one of the major reasons of such a poor success rate of survey.

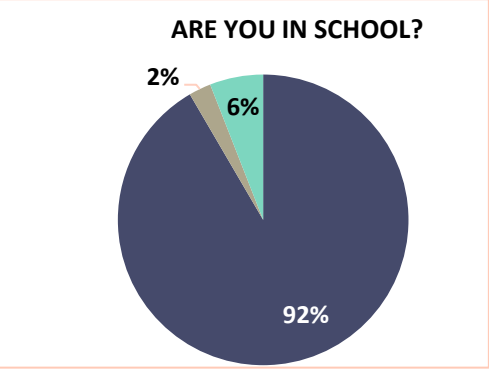
The response rates for all the other stakeholders were satisfactory.

7. ANALYSIS & FINDINGS

Descriptive statistics (basic features of the data like frequencies, counts, percentages), comparative analysis (before and after comparisons) and content analysis (for qualitative data to interpret and analyze unstructured textual content into manageable data) were done to analyze and interpret the data collected.

7.1. Students' Profile

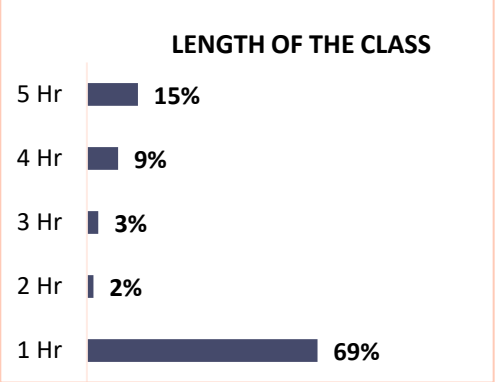
A total of 202 surveys were conducted with the students to understand their access to the programs, their perception of the progress they have achieved through the program, their interest areas, challenges they faced in the program, experience with the instructors and their overall experience.

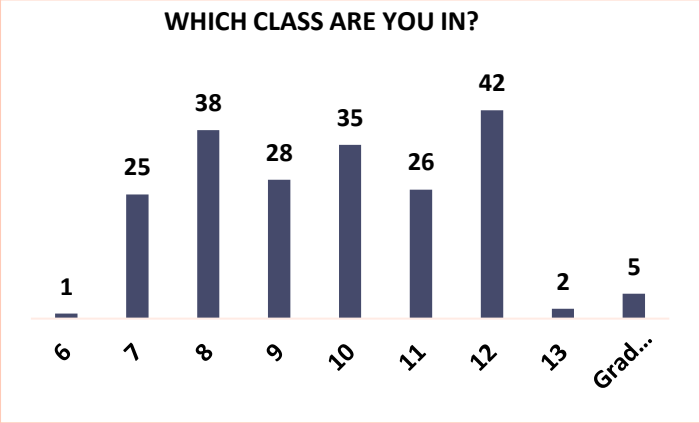


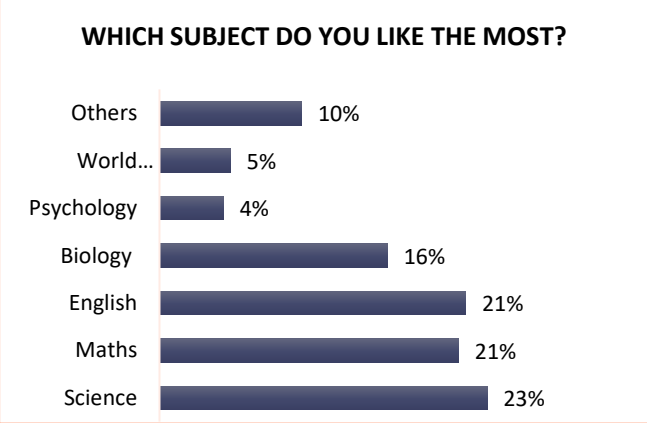
Among the 202 student respondents, 185 students are still in Avasara (92%), 12 dropped out (6%) and 5 have graduated (2%). 21% students were of 12th standard followed by 19% students of 8th standard and 17.5 % students of standard 10th.

Length of each class

The students were asked about the exposure time of each class in the sessions and a majority has replied that it lasted for one hour. 64% of the students could recollect physics being taught in the classes, while 52% said Biology. The question was to understand the children's awareness about the subjects taught during the science sessions. The answers were multiple, and **majority has recalled science subjects being taught to them**.



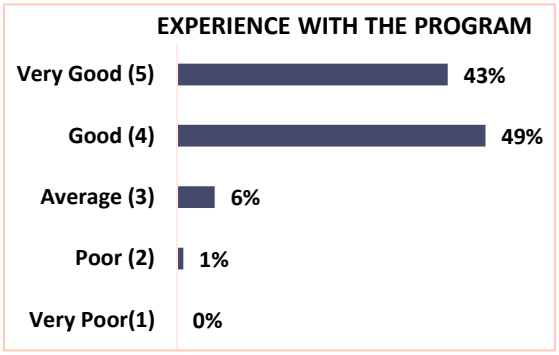


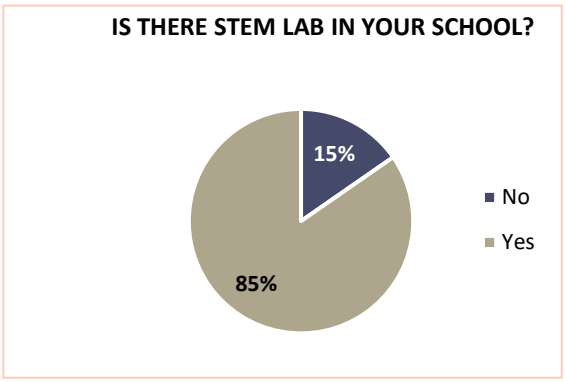


Program Perception

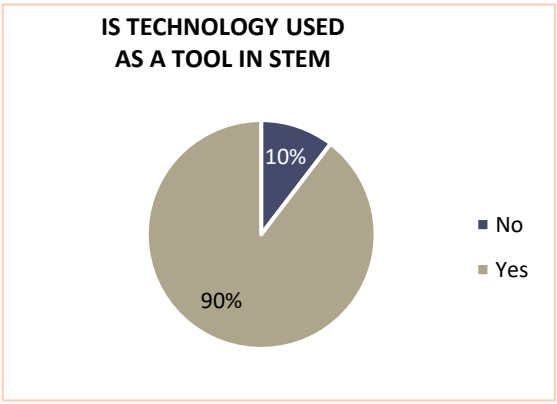
The study has tried to understand the interest and perception of the students towards the program.

The students were asked to rate their experience with the program on a scale of 1 to 5, and a majority of **43% has responded that the program was very good and gave a 5 score, while around 49% has rated it with a four**. The average score obtained from the responses was 4.37. Only a small proportion of students rated the program with a score of three or less. We asked students if they are aware of **STEM labs in the Avasara Institute, 85% replied with yes** and 15 % responded with no.





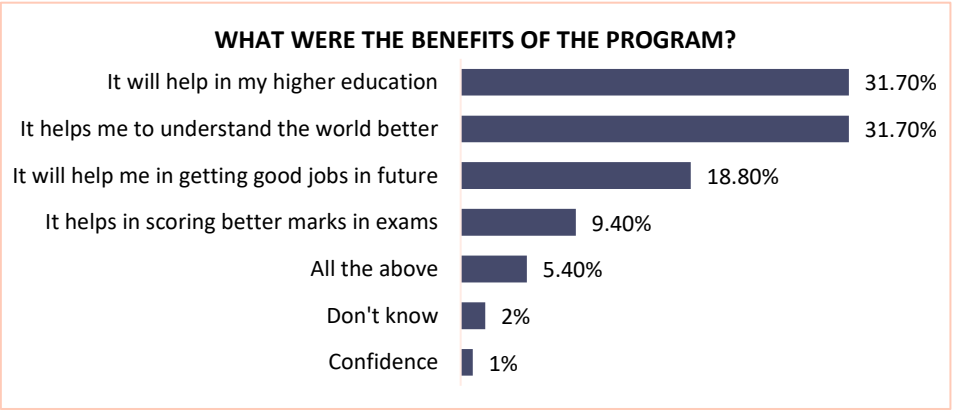
To understand if the students are aware that **technology is being used in the STEM** as a tool to facilitate research, investigation, and design, **90 % responded as yes** and 10 % as No. This shows that students are aware of the technological part of the intervention.



Benefits of STEM

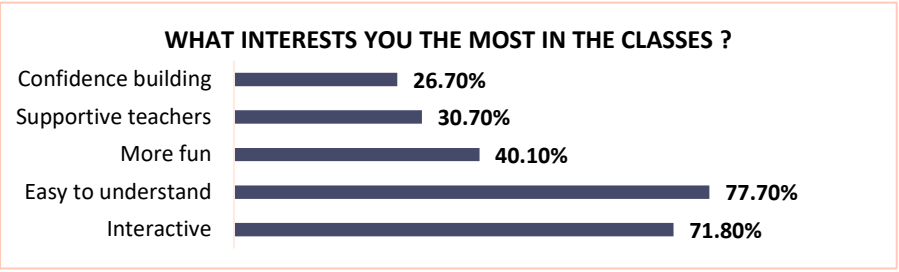
Students were asked to share their understanding and perception about STEM and how it will benefit them. **Most of the students (63.4%) said it will help them understand the world and better and it will help in their higher education**, while 18.8% said it will help them in securing better jobs in the future. 9.4% have also mentioned that this will help them in scoring higher marks. Around 2% said they don't know the benefit.

The study captured this to understand the idea of students on learning a subject, and it was clear that most of the students are seeing STEM as a medium to develop their skills and achieve greater things in life.



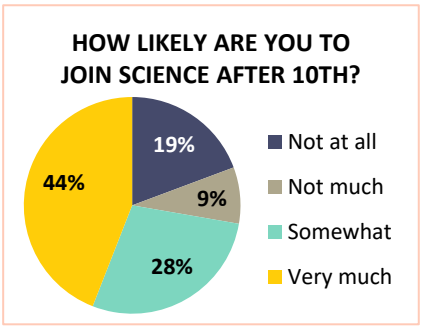
Program Effectiveness

Program effectiveness was measured using multiple indicators, one of the major one being the improvements students have perceived to be achieved through the program.



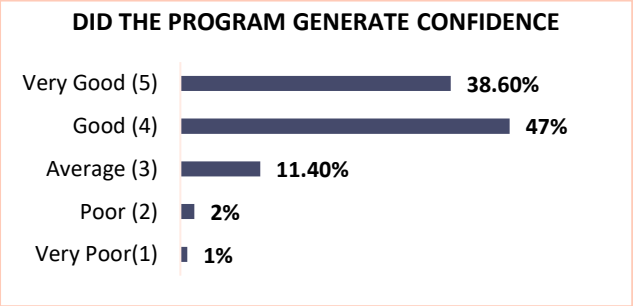
The **ease of understanding different science and math topics, (otherwise difficult to understand) was reported as the major benefit many (77.7%).**

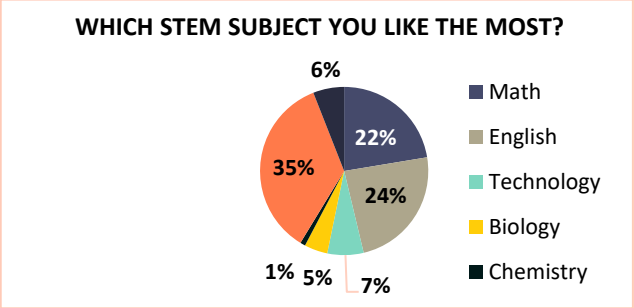
The good proportion of students said that classes are very interactive (71.8%). Other benefits students have perceived to achieve through the program are supportive teachers (30.7%), more fun classes (40.1%), confidence building (26.7%), decision making (12%) and empathy (6%). When asked if they like classes on campus more than virtual classes, a whopping majority of 91% has responded that they like campus better. When asked which STEM subject they like the most, 35% said they like science followed by 24% English and 22% Math.

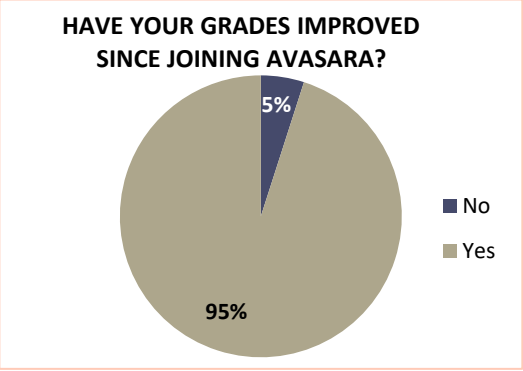


Students were asked if they will want to **pursue science after class 10th, 44% responded with yes,** 28% responded with somewhat, 28% responded with not at all. The main reason for not choosing to pursue science after 10th was the lack of interest in the subject. Avasara is providing NEET and JEE coaching support to 35 students.

Students were asked a few more similar questions and the results are:



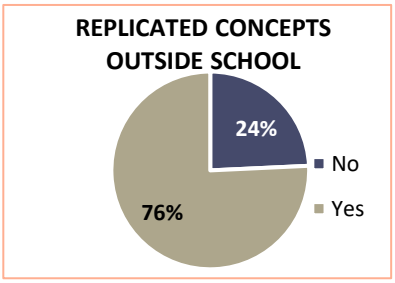


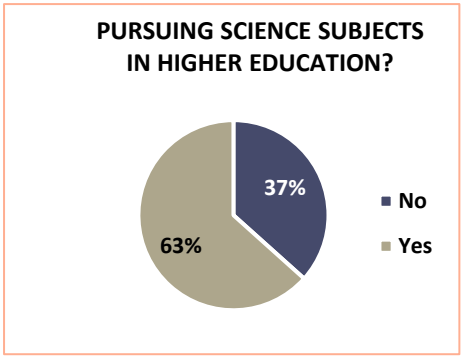


Program Outcomes

The study has limitation on capturing the long-term outcomes and impacts that could've been achieved through the program. To mimic such outcome indicators, the study has tried to ask students several questions regarding the changes they have brought in acer the programs and the plans that they have for the future, which we can correlate as an outcome of the program. A few before-after questions were also asked to quantify the change that happens before and acer the program.

The students were asked if they have **replicated any concept learned from the sessions. Around 76% responded yes**. This implies that a good majority of students have developed the trait of creativity and curiosity, to apply the concepts they have learned through the session in the real world. Around 24% responded that they have not replicated any concept learned from the program in the real world. Major proportion of students said they were able to **deploy and leverage mathematical and communication skills in real life**.

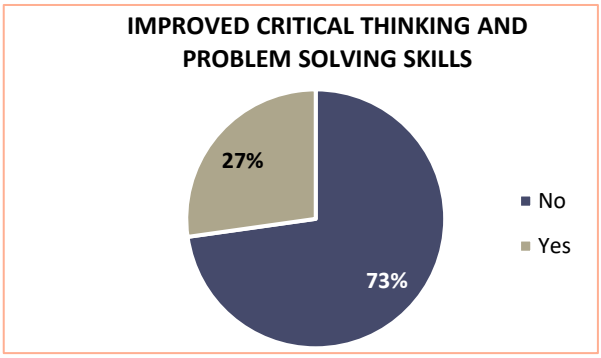




To understand the level of interest instilled among the students about science it was asked if they will **pursue science for higher education** and if they will go for a **job in a field related to science**. For both the questions around **63% students have responded with a yes**, saying that they will pursue education and profession on the lines of science. Around 37% said that they will not be keen to pursue science - neither in their higher education nor career.

One of the expected outcomes of this program is to **create problem solving and critical thinking skills in the students**. The students were asked if the program has helped improve their problem-solving and critical thinking skills. **73% students responded with yes** and 27 % responded.

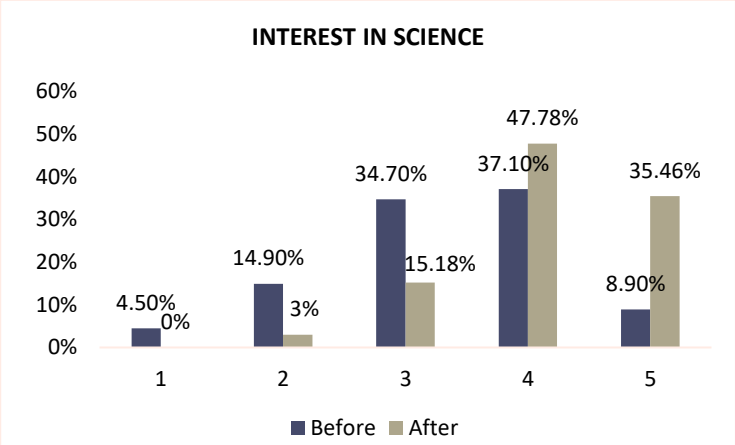
The study also found that majority of students prefer to attend classes at the campus rather than online classes.



Before-After

Interest in Science

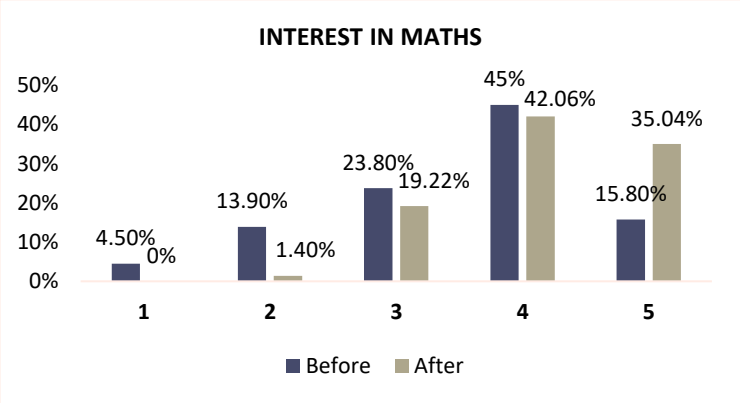
Students were asked how much they like to learn science now and before the program. They were asked to rate their interest in a scale of 1 to 5, 1 being very poor interest and 5 being very much interest.



It is evident from the graph that **interest of students in science subjects has spiked to rating 4 and 5** since joining Avasara. None of the students have rated the interest in science as very bad, the rating 4 increased to 47.78% and rating 5 has increased to 35.46%.

Interest in Math

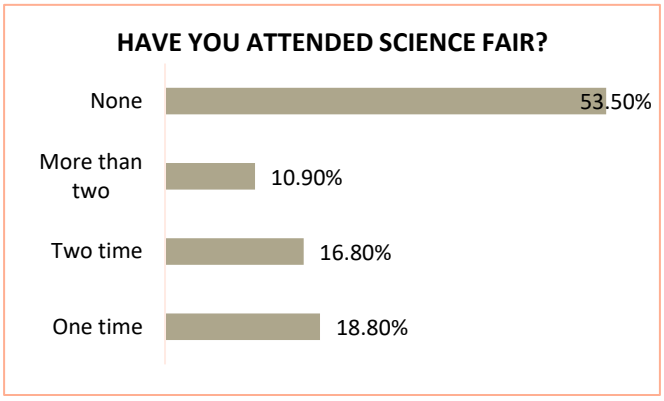
Students were asked how much they like to learn science now and before the program. They were asked to rate their interest in a scale of 1 to 5, 1 being very poor interest and 5 being very much interest.

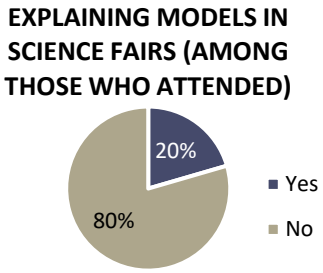


It is evident from the graph that **interest of students in math have spiked to rating 5 since joining Avasara**. None of the students have rated the interest in science as very bad, the rating 4 decreed to 47.78% but rating 5 has increased to 35%.

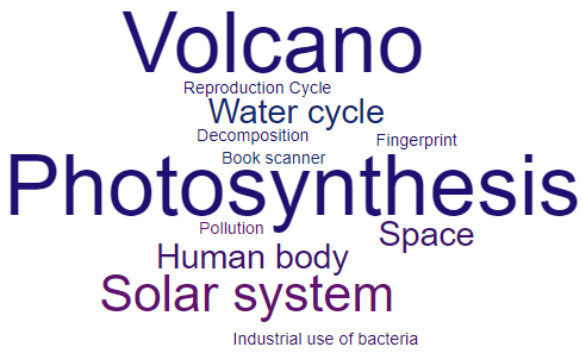
Science Fairs

Science fairs were part of the program where students got chance to showcase and explain the science models, they developed acer going through the program. **Around 46.50% of the students have attended the science fairs at least one time out of which around 80% have explained their models in front of others.**



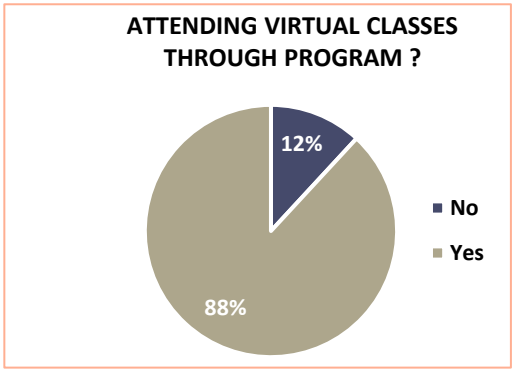


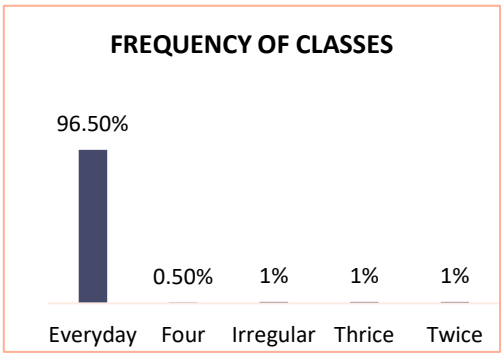
To understand the kind of models and experiments they have made and explained students were asked to explain their models and a word-cloud is generated from the various answers captured as given below:



Virtual Classes

In 2020 the world started facing an unprecedented challenge in the form of COVID -19, which forced the nations to go lockdown and schools to shut down its operation. The study has tried to understand how the program has adapted to the new challenges and the impact of the new modes of teaching among the students. The program was shifted to a digital academic year where students had to learn from their homes virtually.



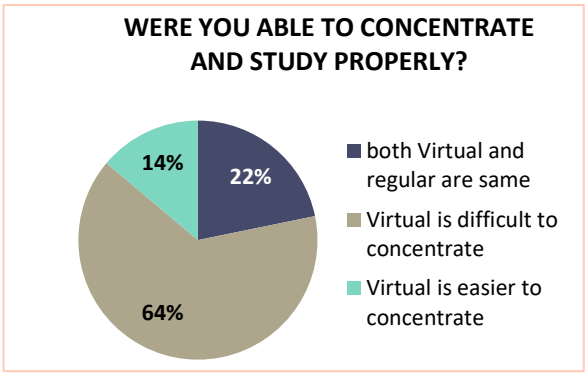


Among the 202 student respondents, **88% said that they are receiving the virtual sessions from the program**, while around 12% are not receiving the sessions anymore since they have left Avasara.

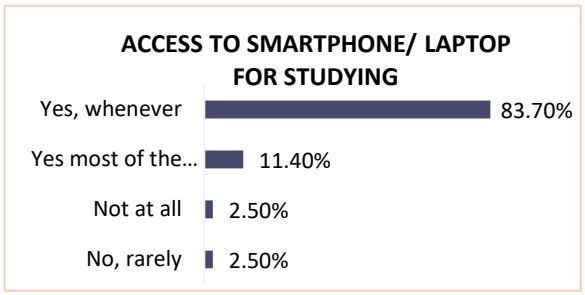
The frequency of the online classes is six days a week. **Majority of students said that they are attending classes six days a week (96.5%)**. Around 4.5% said they are attending classes twice, thrice and four times a week. The average number of days of attendance in virtual classes is calculated as 3.75 days. Further, the study also tried to understand the time spent by the students for virtual classes.

The result obtained is given as a scatter plot. The **average time was noted as 1.96 hours a day**.

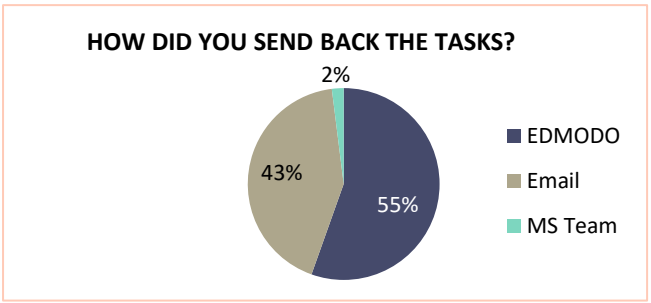
The study also tried to understand if the students find the virtual classes easier to concentrate than the campus classes. **Majority of students said they that they find virtual classes difficult to concentrate (64%).** Around 22% said both virtual and normal classes are same and 14% said that virtual classes are easier to concentrate.



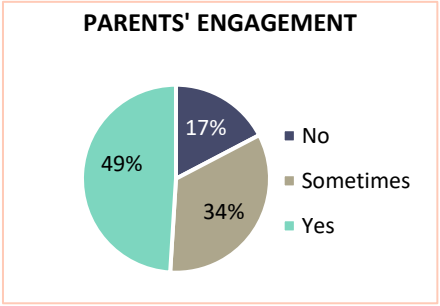
The study has found that among the children interviewed there is **good access to devices to attend the virtual classes**. Although, the figures obtained here are **not in line with the national status of access** or the responses from other stakeholders. This must be attributed to the **selection bias**, given that the study was conducted online through mobile phones and the sample size of the study in smaller.



Majority of students said that the teachers helped them in any kind of technical difficulties they faced, and the students also found it easier to engage with the teachers on different topics.

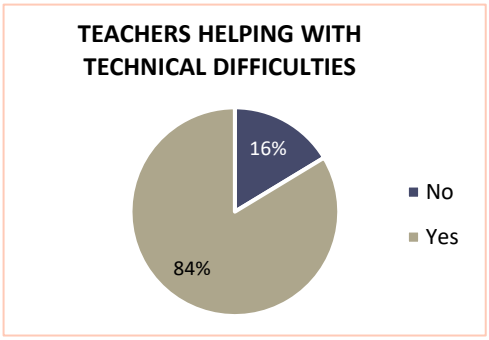


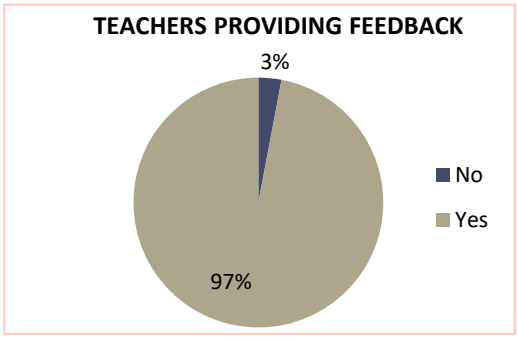
The most **common method of submitting assignment was through Edmodo (55%),** followed by email (43%). The frequency of assessment is weekly and monthly. Majority of students said that the assessment is done on weekly basis. Students also said that they found assessment okay (77%) and found assessments difficult (6%).



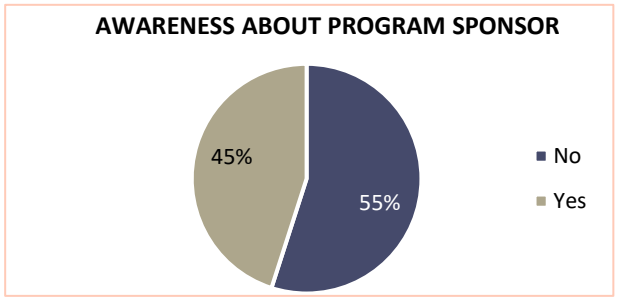
The study also tried to understand the learning aid and material that are used by the teachers to make the classes interesting and engaging. 98% said the teachers uses materials such as google slides, videos and animation.

A good proportion of the students said that their **parents engage with them in their studies and motivate them** to attend the virtual classes.





Only 45% of the students interviewed knew about the corporate who is supporting the program (Honeywell).



7.2. Teachers' Responses

Five Key Informant Interviews were conducted with the Avasara teachers regarding the program. The teachers said that they attended training sessions conducted by Avasara and have an overall positive outlook towards the program. The other **major insights** from the responses are tabulated below.

Improvement in learning level

- There is a visible improvement in terms of **interest in science, critical thinking and the confidence levels** among the students.
- **Synchronous classes** have provided a way to make the sessions more interactive. It allows interaction between the teachers and students and have led to increase in student attendance
- **One on one session with the students**- 2 sessions per week is conducted, which could also include the parents based on the nature of conversation.

Content creation

- Audio and video learning aids are created in **English**.
- **Learning aids** like videos, podcasts, screen share lessons, interactive worksheets, guest lectures were created.
- During the content creation, teachers ensured that the **vocabulary was age appropriate**.

Teachers' Training

- Teachers have attended trainings provided by Avasara. **Professional Learning** workshop is conducted once a month.
- Teachers were provided training on different topics that help them **improve their teaching strategies** and to make the sessions more **interactive**.

Outcomes

- **Student thoroughly enjoy** the interventions undertaken by the teachers. It is evident through students' attendance and progress in educational outcomes which is mapped on a weekly basis.
- Student responses have shown variation and they are dependent on their motivation and how learning is structured. Some students are able to deliver better outcomes, and some are able to work better in collaboration depending on factors of time, resources and support.
- Students get **hands-on exposure in laboratories** to the topics they are studying via books. The unfolding of the concept becomes very visual, and they experience what they learn. This helps the students to reinforce the concepts in their minds.
- A combination of **sync and async classes** was deployed to curate sessions attuned to students' level of understanding and their requirements.

Ratings (Average Rating)

Honeywell Teachers were asked to rate the program on the scale of 1 to 5, 1 being very poor and 5 being excellent. Below are the rating given:

Program Ratings given by Honeywell Team	
Problem-solving skills of the students	★★★½
Critical thinking skills of the students	★★★
Communication skills of the students	★★★★
Confidence level of the students	★★★½

Success Factors of the program

- Students display a **growth mindset**.
- Avasara has a **strong feedback system**, it helps the students to learn from their mistakes and further develop their learning.
- Students have developed a rational approach and are most likely to only accept information that is backed with reasoning, evidence and data.

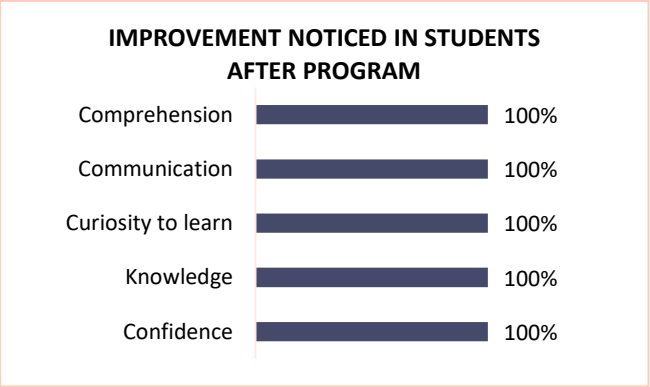
Teacher Testimonials:

"Students at Avasara have the intrinsic motivation to learn that is rare to see in other schools. They take ownership of their education and have been receptive to all efforts made by the school. The async classes were a struggle for all students because the pandemic impacted all of us in different ways and motivation was hard to muster. But this year, all the girls have turned their stories upside down and improved so much! "

"Students form our first and second year besides doing well in the A level Cambridge examination batch are perusing their higher studies in various pure sciences and applied sciences courses with international universities."

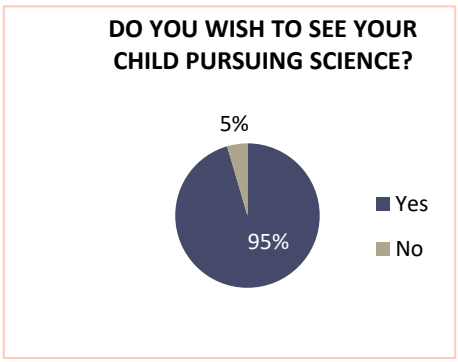
7.3. Parent Responses

Science Experience Parents have a crucial role to play in their daughter's education. In recent times where most of the classes are happening virtually where students attend them from their home space, this role has only increased. The study has tried to understand the perception of the parents regarding the Science experience program and the subsequent virtual mode of learning students are conducting at home. A total of 44 parents were interviewed in the process to understand their awareness, perceptions and suggestions regarding the program.



All the 44 parents surveyed responded that they are aware of the science experience program happening in their child's school. **Almost 100% of the parents responded that their children talk about the science experience program and the experiments they learned in the school**. It was asked to the parents if they have noticed any improvement in their child after the program and all of them responded that they have observed better confidence among their children. All the parents responded that they have noticed improved knowledge in science and better communication. Parents have also noticed an increased level of curiosity to learn among the children.

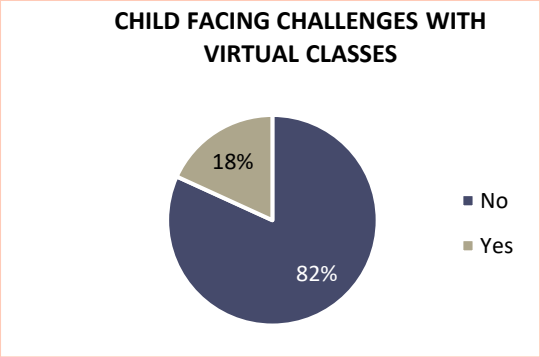
All the parents interviewed has said that they have observed an increased interest among their daughters to learn science. 95% parents responded that they would like to see their child pursuing in the science in future.



Average rating for the outcome of program: 5

Virtual Classes

Among the parents interviewed, all the parents said that their daughters are attending the virtual classes conducted by the school. All the parents found these virtual classes beneficial to their daughters.



To understand the access to the smartphone/laptop parents were asked about it, and a majority has responded that their daughter has access to these devices to conduct virtual learning whenever they want. **18% parents responded that their daughters faced internet connectivity issues**. Most of the parents said that they encourage their children to study although not every parent accompanies the child while studying.

7.4. Other Stakeholders' Responses

The study has hitherto tried to understand the impacts, outcomes, outputs and perspectives from the side of students, teachers and parents. Now, it will analyze the responses received from other stakeholders including Science educators who attended the STEM training, program implementation team, program sponsoring team.

7.5. SCIENCE EDUCATORS

Ten key informant interviews from a sample of 49 science educators from the 3 cohorts and 25 B.Ed students who have attended the 6 week training program, focused on building the capacity and capability of educators to design and deliver STEM education. The analysis of the specific questions addressed to them is given here.

All the educators said that the program was well structured and helped them in clearing the concepts.

Ratings: Interviewees were asked to rate on the scale of 1 to 5, 1 being very poor and 5 being excellent. Below are the rating given:

Ratings given by Science Educators	
Engagement of the program	★★★★★
Usefulness of the course content	★★★★★

7.6. AVASARA PROGRAM TEAM

Two Avasara program implementation team members were interviewed as part of the survey to understand the challenges and experiences in the implementation pathway of the program.

- **Identification of students -** Avasara follows a nominate a student policy. Every year, organizations like Teach for India, Akansha etc. nominate the bright girls' students from their cohorts to Avasara.
- **Selection process -** Avasara has a rigorous two-step process for the selection of candidate. This is a pen paper-based exam where students are asked Math, English and logical reasoning questions. After they clear the 1st stage of the exam, the 2nd exam is essay based. Once the students clear the exam, parents along with the students are invited for interviews and the parents are provided career counselling for the STEM program. The prerequisite to sit in the exam is that the students should have English knowledge.
- **Sustainability plan -** Avasara has created a sustainability plan by creating a corpus. Until today they have raised INR 60 Cr against the target of INR 100 Cr.

The program team were asked to share the success factors of the program and the challenges they faced, which are tabulated below:

Success Factors	Challenges
• The students are very bright and easily adopt the curriculum.	• Challenges of virtual classes- in COVID induced digital academic year
• Innovative methods of teaching which is very well adapted by the students.	• Cambridge curriculum is challenging for the students in classes 11th-12th. Therefore, the outcomes are not as strong as was in class 10th.
• They have a strong sustainability plan for future.	• Admissions is done through 2-3 partner organization network, but minimum proficiency in English is missing.

Ratings

Avasara program team was asked to rate on the scale of 1 to 5, 1 being very poor and 5 being excellent. Below is the rating given:

Ratings given by Avasara team	
Effectiveness of intervention	★★★★★
Interactions and support provided by Honeywell team in the implementation of program	★★★★★

Interventions in the Covid Times

Multiple interventions were tried and practiced in the field by the program during the COVID lockdown and the subsequent times were school closed. A few of the interventions are listed below:

- Ration kits were provided to the parents of the girls. The parents were satisfied with the ration kit provided by Avasara.
- Virtual classes- synchronized classes were started.
- Laptop and tablets were provided to the students. Laptops were provided to all the girls of classes 11th & 12th to facilitate virtual classes.

7.7. Honeywell Program Team

One member from the Honeywell program team was interviewed to understand the challenges and experiences in the implementation pathway of the program. The major points are as given below:

- The program was created from scratch and the main reason for taking up this program was its **focus on STEM** (which is one of the five pillars of focus for HHSIF). Additionally, the program was also trying to **provide education to the bright girls** from underprivileged society. Honeywell is carrying out this program as part of its overall strategy to promote STEM education.
- Long term vision of this program is to ensure that the **girls graduate and becomes change maker** and leaders in the society.
- The program conducts **spot audits and third-party audits** to ensure transparency.

- Honeywell team and **employee volunteers have interacted** with students frequently.
- Honeywell has also helped Avasara create a **sustainability plan** where the Avasara program team is trying to **raise INR 100 Cr for corpus**.

> *"While we visited the school, we were given tour by two girls. I asked them where they are from and what do their parents do. One of them said that her father is an autorickshaw driver. They sound like any kid from a big school, these girls are very confident, articulate and very focused. We are trying to create leaders and change makers at Avasara, so that they just don't raise their parents up from poverty but also create change in the society."*
>
> Ms. Sangeeta who was the senior manager working in Honeywell with the project.

Ratings

Honeywell program team member was asked to rate the Avasara on the scale of 1 to 5, 1 being very poor and 5 being excellent. Below are the ratings given:

Program Ratings given by Honeywell Team	
Progress Reporting	★★★★★
Financial Utilisation	★★★★★
Implementation	★★★★★
Overall Effectiveness	★★★★★

8. BENCHMARKING

No.	Benchmarking Indicator	Honeywell Centre for Advancing Girls in Science	STEM for Girls- IBM[8]	Aqriti Program - Qualcomm[9]
1	Impact and outreach	426 Girls, 49 Science educators	140,000 girl students in 1200 schools	56000 girl students in 278 schools
2	Teacher training outreach	Supporting a single school effecting in lower outreach for the project	High outreach across 1200 schools	High outreach across 278 schools
3	Sustainability through partnerships	High dependency on corporate donor agencies and no government partnerships explored	Government partnership	Government partnership
4	Accessibility to disadvantaged students	Intervention doesn't address the real need of the marginalized	Government school children	Government school children
5	Science camps	✓	✓	✓
6	Awareness building and promotion of STEM learning	No direct interventions on awareness generation	✓	✓

To understand Avasara's impact creation and effectiveness, we conducted a comparative analysis of the project with respect to other interventions for girls in the STEM education sector. To shortlist, we looked at diversity in economic and operating models incorporated by these organization.

- The Avasara program, is making a difference in the lives of underprivileged girls, who under normal circumstances would not have received a quality education. However, the program is **restricted to a single location**, while all the other programs mentioned in the table are working **pan-India** and collaborating with government schools to create a larger impact. The pan-India model of introducing STEM education in government schools will help in creating a wider impact on the community as well as providing better facilities to the underprivileged girls in government schools as well as provide training to the teachers.

[8] *STEM for Girls- IBM* https://www.ibm.org/initiatives/stemforgirls

[9] *Qualcomm CSR report 2020* https://www.qualcomm.com/media/documents/files/2020-qualcomm-corporate-responsibility-report.pdf

- **Partnership with Government:** Partnership with the Government (state / district / block / city level) will help replicate the Avasara model in a more economically viable manner. This will further promote more girls following science as their choice for higher education as well as career. The government school students – especially girls, pursue humanities more than science stream[10]. This situation and stereotypes like science stream is meant for boys can be broken and more girls can be encouraged to pursue science.
- **Planning workshops to engage wider student cohort:** All the above-mentioned programs have introduced workshops and events to encourage students' engagement at wider level and hone their interest in science. Such kind of workshops will not only deepen the impact but will also create brand value for the company in the community.

[10] *https://government.economictimes.indiatimes.com/news/education/delhi-government-to-launch-stem-education-for-girls-in-schools/71561801*

9. SWOT ANALYSIS

A SWOT analysis is done to understand the strengths, weaknesses, opportunities, and threats to the program. SWOT was conducted largely from the responses received from the program team and other implementation-level stakeholders, same time considering the beneficiary feedback.

Strengths	Weaknesses
• Promoting science education for underprivileged girls • **Robust (2-step) beneficiary selection and onboarding** process which also includes **counselling for parents** • Strong and **dedicated implementation** and **program team** • Guidance and **support from Honeywell program team and volunteers** • Good **rapport with organization** like Teach for India	• Despite very high cost per beneficiary (compared to similar projects), the **~50% of the sampled beneficiaries** are not interested in pursuing science after 10th- which is the desired impact of the program. • Alignment with **Cambridge pedagogy**[11], limits the linkage for the students for pursuing higher education locally, while being expensive. • **Dependency on other educational NGOs** for admissions. • No well-defined **method to measure the impact** created by educators training. • **HHSIF is supporting only 20%** of the program cost and the NGO has many other donors. **HHSIF doesn't have project exclusivity**.
Opportunities	**Threats**
• The program can start **Alumni networks** and other similar groups to bring in more resources and knowledge • **Certain number of seats** can be allocated to fee paying students. • Identify students who **don't have access to devices and proper setup to participate in virtual learning**, and provide them alternative options for the same • Organize **more STEM cohorts** for science educators to leverage the impact.	• In virtual learning mode a considerable number of students do not have **proper access to smartphones/devices** • **Lack of a conducive environment for studies in home** can be troublesome in digital academic years. • Based on the **amended CSR Rules 2021 companies are not allowed to donate towards NGO corpus**. Hence Avasara's target INR 100 Cr corpus will not be getting support from CSR donations.

[11] *Cambridge Pedagogy- Cambridge curriculum is accepted by schools and colleges across the world. Cambridge curriculum is a part of the world-renowned University of Cambridge, UK and is one of the most sought-after and recognized qualifications in the world. It has a balanced curriculum and a highly flexible course of study. It gives students the freedom to choose subjects that are right for them and, hence provides them with an opportunity to score good grades. The subjects also offer a choice between core curriculum and extended curriculum. The extended curriculum is a type of specialization in that subject and provides more detailed insight into the subject. https://www.cambridgeinternational.org/why-choose-us/benefits-of-a-cambridge-education/international-curriculum/*

10. CONCLUSION

The study has attempted to assess the impact and outcomes of the Centre for Advancing Girls in Science Program through various analysis approaches. It has also observed the various factors that have helped and hindered the program to achieve the desired outcomes.

The study has tried to understand a long-term impact of the program on how the student beneficiaries have fared in their higher education or professional life by trying to understand their perception and plans going forward.

Regarding the **virtual classes, it may be still early to say how students and teachers will cope with online learning as they figure out the constraints, reorient to address them but the perception and readiness of students is an important consideration** that the study has tried to address.

Based on these analyses and findings, the following conclusions were drawn:

- The Centre for Advancing Girls in Science Program had given the girl students **a chance to develop their interest and learn science**, which otherwise they would not have got from any other places/ resources. In that sense, the program has successfully **addressed a vital need** of the students in an appropriate manner.
- The program has successfully **installed confidence and curiosity** among a proportion of students, although the study cannot confidently say what proportion, given the selection bias and limitation of virtual conduct of the study.
- From the 426 students, 24 students have graduated (5.6%) and 30 students (7%) have left the school due to personal reasons. Due to COVID, there **were no new intake**, and the program is currently supporting **369 students** which is less than the target.
- The program team at HHSIF has provided **constructive feedback to Avasara team** to effectively adapt, innovate and reinvent the program activities.
- The program had created **good rapport with education organizations like Teach For India**, Aga Khan for trainings and admission for new students.
- Avasara had a aim to create a corpus of 100 Cr and have successfully accumulated 60 Cr but based on the **amended CSR Rules 2021 companies are not allowed to donate towards NGO corpus**. Hence Avasara's target INR 100 Cr corpus will not be getting support from CSR donations.
- Before the pandemic, the program conducted **Avasara young scientist camps**, so that the non-Avasara students can also benefit through the program, around **454 students** had participated in 20 camps. The program conducted 3 cohorts of Avasara **professional training for the Educators** in lieu of Avasara young scientist camp where **49 educators** participated.
- **HHSIF is supporting only 20%** of the program cost and the NGO has many other donors. **HHSIF doesn't have project exclusivity**.
- The overall **financial utilization in the program is below satisfactory.** There has been underutilization of budget and the budget had been **carried forward**. During the initial years the budget was only utilized for construction of the center, and it was underutilized. The **OPEX cost started increasing from FY 2019-20** onwards, when the admissions started, the teachers and other staff were hired.

11. RECOMMENDATIONS BASED ON CHALLENGES

CHALLENGES	RECOMMENDATIONS
• Dependency on educational NGOs for admission of students. • There was no new admission during this school year as the exams are conducted offline.	• **Partnership with NGOs:** The program needs to create a partnership model with NGOs like Teach for India, Aga Khan Foundation, Akanksha etc. that already help the institute by nominating the students, to have consistent number of admissions done every year. This partnership model will also allow the program team to measure the impact created through Avasara young Scientist camps and Avasara professional training for the Educators. • **Online Admissions:** The program can try to conduct online exams for the admission of students. The program already has an assessment system for their current students this system can also be used for conducting admission tests. That will allow the program to have a considerable number of admissions even if the schools are closed.
• Uncertainty among students to pursue science stream after class 10th.	• **Career counseling for students:** Even though the program has successfully instilled curiosity among students regarding science, there are still students who are uncertain about pursuing science-related subjects for higher education. For such students, the program can have a career counseling session where these students, can be provided information regarding different career opportunities, they can pursue through science subjects other than the traditional engineering and medical courses.
• Dependency on CSR donations for supporting student fees	• **Allowing a limited number of fee-paying students** in the institute, so that the fee paid by these students can be used to support the underprivileged students. The institute already has good rapport with big corporates, and few students are already paying fees. Hence if the institute can reserve 25% for such fee-paying students, it will help in supporting the bright underprivileged girl students as well as providing an inclusive environment to the fee-paying students.
• Lack of a conducive environment for studies in home can be troublesome in digital academic years.	• **Ensuring a conducive learning environment:** A parallel and focused intervention to ensure that students are having a conducive learning environment in their homes can be a part of the program. This includes ensuring that children are not used for any form of child labor or are not abused in their homes in any form. This is in the light of the widely reported news of such incidences happening in the country, especially acer the pandemic and lockdowns started. • Awareness generation among parents, continuous follow up and monitoring must be conducted to curb these issues which in turn can complement the program with better results.

OVERALL RECOMMENDATION

HHSIF not getting exclusivity and the fund can be leveraged more optimally on **higher outreach education or skilling projects that have clear outcomes** and in areas of greater need such as semi-urban and rural locations where there is large scale unemployment.

12. ANNEXURE

Stakeholder Questionnaires

1. Students Beneficiaries

General Information	
Name of the Student	
Class	
Gender	Female/Other
Age	

Project Effectiveness	
How often are the classes conducted in a week?	a) Once b) Twice c) Thrice d) Everyday e) Irregular
How much do you like attending the class?	1-Below average, 2-average, 3-good, 4-excellent
Which subject do you like the most?	
What do you want to be when you grow up?	
STEM Classes	
How likely are you joining the science course? (after 10th)	Not at all, b) Not much, c) Somewhat d) Very much
Which STEM topics are most interesting to you?	
Is there a dedicated STEM lab in your school?	Yes/No
On a scale of 1 to 5, How much did you like science, before joining AVASARA?	1-Not confident at all, 2-not confident, 3-somewhat confident, 4-confident, 5-very confident
On a scale of 1 to 5, How much did you like math, before joining AVASARA?	1-Not confident at all, 2-not confident, 3-somewhat confident, 4-confident, 5-very confident
On a scale of 1 to 5, How much did you like english, before joining AVASARA?	1-Not confident at all, 2-not confident, 3-somewhat confident, 4-confident, 5-very confident
Can you tell me your top 3 favourite things about the class?	a) More fun b) Interactive c) Easy to understand d) Supportive teacher e) Confidence building f) Others
How clearly did you understood the concepts before joining the program?	a) Couldn't Understand anything b) understood some words only c) was able to understand More than 50% d)

	Understood most of the thing's d) understood completely
What were the challenges you faced in the Avsara classes?	a) hard to understand classes b) teacher not supportive c) Classes not happening regularly d)Others
What else do you want to learn that is not covered in these classes now?	
How many science exhibitions have you attended?	
Did you present any project during the exhibition? If yes, what?	Yes/No
Have you visited other schools to attend the exhibition?	Yes/No
Virtual Classes (Only for students attending the program)	
Did you attend the virtual classes conducted by the school?	Yes/No
frequency of classes?	Daily/ Weekly twice/ Weekly once/ irregular/ other
How long does each session lasts?	
Were you able to concentrate and study properly compared to regular classes?	a) Virtual is easier to concentrate b) Virtual is difficult to concentrate c) both are same
Which subjects did you find learning virtually more interesting than any other subject?	
Do you have access to smartphone/ laptop whenever you want to study?	Yes, whenever/ Yes most of the time/ No, rarely/ Not at all
How did you receive the notes and worksheet from the teacher?	a) through whatsapp, b) didn't receive any notes c) Email d) others
How did you send back the tasks you completed to the teacher?	a) through whatsapp, b) didn't sent any notes c) Email d) others
How many hours a day did you spend for completing the assignments/worksheets to be submitted to the teacher?	
Did you submit all the worksheets?	Yes/No
Did you face any challenges with the virtual classes?	
Experience with Teacher	
How would you rate your teacher?	1-Very poor, 2-poor, 3-average, 4-good, 5-excellent
Do you face any difficulties in understanding what your teacher says?	Yes/No
Do you ask questions to your teacher?	Yes/No
Does your teacher encourage you to ask questions?	Yes/No
Did your teacher helped you with any technical difficulty you faced during the virtual classes? If yes, please tell me how?	Yes/No

Assessment	
Were the assessments - Easy, Ok, difficult?	
Frequency of assessments?	Weekly/monthly/half yearly/pre-boards (class 10th students)
Did anybody help you submitting the monthly assessments? If yes, who?	Yes/No
How much time did it take for you to complete the assessments?	
Teacher and parent engagement	
Did your teacher provide any feedback?	Yes/No
Does your parents engage with you in studies?	Yes/No/ Sometimes
Do your parents encourage to attend virtual classes and study?	Yes/No/ Sometimes
Project Impact	
Do the teacher use learning aid/material during the classes?	
What are the benefits of learning STEM?	a) It helps me to understand the world better b) It helps in scoring better marks in exams c) It will help in my higher education d) It will help me in getting good jobs in future e) others
On a scale of 1-5, How Confident are you in English speaking now?	1-Not confident at all, 2-not confident, 3-somewhat confident, 4-confident, 5-very confident
On a scale of 1-5, How Confident are you in math now?	1-Not confident at all, 2-not confident, 3-somewhat confident, 4-confident, 5-very confident
On a scale of 1-5, How Confident are you in science now?	1-Not confident at all, 2-not confident, 3-somewhat confident, 4-confident, 5-very confident
On a scale of 1-5, How confident are you with your communication skills since joining Avasara?	1-Not confident at all, 2-not confident, 3-somewhat confident, 4-confident, 5-very confident
Have your marks improved since joining the Avasara?	Yes/No
Will you take up science after class 10th? If yes, reason and if no, why not?	Yes/No
Were you able to apply the concepts learnt in the class at home or outside school hours? If yes, give an example of that?	Yes/No

Do you think Avasara has helped in improving your problem solving and critical thinking skills?	Yes/No
Please share one situation where you had a problem and was able to solve it quickly?	
What do you think we should do to create equality among boys and girls?	
Did you enjoy studying in the campus or do you like to virtual classes? Why do they like virtual classes	
Is technology used throughout your STEM program as a tool to facilitate research, investigation, and design?	Yes/No
Is this program providing the knowledge and skills needed for pursuing a college degree (For students of class 11 & 12)? If yes give an example and if no/not sure why?	Yes/No/Not Sure
Have you received support from Avarasa in terms of coaching classes for pursuing medical or engineering degree?	
Have you seen any changes in yourself/your behavior towards society since joining the program? Tell me few examples?	
Do you know who is the sponsor of the program?	Yes/No

2. PARENT BENEFICIARIES

General information	
Name	
Location	
Mother/Father/ some other member	
Which class is your child studying?	
Do you think your child is interested in science, maths, English?	Yes/No
Are you proud that you child goes to Avasara school?	
Have you noticed any improvement the confidence level of your child since attending the school?	Yes/No
Is your child showing interest towards education now that they have joined Avasara school?	Yes/No
Is your child able to grasp the concepts better now that they have joined Avasara school?	Yes/No
Has the Knowledge of child increased since joining the Avarsara school?	Yes/No
Have you noticed any improvement the communication skills of your child since attending the Avasara school?	Yes/No
Do you believe these experiment-based classes will help your child better in learning?	Yes/No/ Don't know

if yes, how?	a) Ease of understanding concepts b) Help in understanding school curriculum c) Helped in exams d) increased interest in science e) imbibe better confidence f) improve communication skills g) peer to peer learning h) others
Do you wish to see your child pursuing science?	Yes/No
Did your child attend the virtual classes conducted by the school?	Yes/No
Did your child face any challenges/issues with virtual classes? If yes, What kind of issues/challenges?	Yes/No
Do you encourage your child to study?	Yes/ no/Sometimes
Does the school admin actively involve parents in the activities and the sessions?	Yes/No
What kind of support do you think you will need from the Avasara program?	
Do you know who the sponsor of the program is?	Yes /No
Do you have any other comments / remarks about the program?	
What challenges have you faced?	

3. TEACHERS

General information	
Name	
Department	
How many years of experience do you have? Can you tell us a little about your past experience?	
Training for Teachers	
Have you attended any workshops or training sessions?	Yes/No
How many workshops or training have you attended?	
What are key points covered in the session?	
On a scale of 1-5, what would you rate the training provided to you?	1-Very poor, 2-poor, 3-average, 4-good, 5-excellent
Did this program help you improve your concepts & understanding?	Yes/No
What type of professional development resources are available for teachers to build skills in STEM?	
In Class Teaching	
Do you think experiment-based learning is better that classroom sessions for students?	Yes/ No/ both are necessary

Are STEM students regularly challenged by complex problems related to real world scenarios?	Yes/No
What interactive ways have you tried to engage the students with?	
How has the students' response to these interventions been?	
Which of these interventions have been the most interesting to the students? Can you share any instance that you have noticed?	
How helpful do you think the counselling sessions were for the students during COVID?	
Do you think synchronous classes were better than asynchronous classes? If yes, how and if no, why?	Yes/No
How many students have completed 80% or more sessions?	
On a scale of 1-5, please rate the problem-solving skills of the students?	1-Very poor, 2-poor, 3-average, 4-good, 5-excellent
On a scale of 1-5, please rate the critical thinking skills of the students?	1-Very poor, 2-poor, 3-average, 4-good, 5-excellent
On a scale of 1-5, please rate the communication skills of the students?	1-Very poor, 2-poor, 3-average, 4-good, 5-excellent
On a scale of 1-5, please rate the confidence level of the students?	1-Very poor, 2-poor, 3-average, 4-good, 5-excellent
Content Creation	
Were you a part of the content development team?	Yes/No
What are the different types of learning aids created- Audio/Video/Animation? In which all languages?	
How many hours do you spend on creating the materials?	
What were the top points you kept in mind while creating the content to ensure that the learning experience was smooth? (Prompt if required - Well Paced, Animation, clear audio, using pictures/symbols etc) Did you test the content/show it to anybody else before releasing it?	
Assessments	
On what topics did you plan the monthly assessments for? In which all languages?	
Did you face any challenges while creating the monthly assessments? How did you resolve any challenges in case you faced any? How much time did you spend on developing the monthly assessments?	
Student and Parent Engagement	
How many one-on-one conversations did you have with the students over the phone? And how many conversations did you have with the parents?	
How many students you couldn't speak to? What were the reasons?	
Did you address any technical difficulties of the students or parents?	
How was the parents' involvement and participation in the exercise? Did they share any challenges or concerns with you?	

Did they support their children in learning?	
Overall Program	
Is technology used throughout your STEM program as a tool to facilitate research, investigation and design?	Yes/No
Can you give any three success factors of the program?	
Do you have any success story to share, on how the program has impacted either any individual student or a group of students? If yes, please explain	
How receptive do you think are the students to these classes?	
What are major challenges students faced with the virtual classes?	
According to you what are the top 3 challenges students faced with STEM learning?	
Do you know who the sponsor of the program is?	
Any feedback/Suggestions.	

4. AVASARA PROFESSIONAL LEARNING FOR TEACHERS-EDUCATORS AND B. ED STUDENTS

General information	
Name	
Designation	
School	
Are you aware of the Avasara professional learning for teachers' program?	Yes/No
If yes, when did you attend the program?	Date
On a scale of 1-5, How useful was the content (readings, sessions, tasks, and practices) in relation to your work?	1-Very poor, 2-poor, 3-average, 4-good, 5-excellent
On a scale of 1-5, How engaging was the content (sessions and tasks) in relation to your work?	1-Very poor, 2-poor, 3-average, 4-good, 5-excellent
List any two learnings from this program that you found useful.	
Mention any three things which would have helped you in engaging with the program more effectively.	
Mention any three things which did help you in improving/ sustaining your engagement with the program.	
Do you know who the sponsor of the program is?	
Any feedback/suggestion for the AVASARA team?	

5. VOLUNTEERS

General Questions	
Name	
Location	

How many hours did you volunteer for the Honeywell center for advancing school program?	
Volunteering Medium	Virtual/physical
Project Effectiveness	
How did you hear about our organization?	Newspaper, Email, Ad, Online, Coworker, Family or Friend, social media, Other (Please specify)
Do you think the program helped in creating awareness about disaster management?	Yes/No/Maybe
How many hours of training did you receive for your assigned volunteer role?	None, 1-3 hours, 4-6 hours, 7+ hours
What do you think is the main focus of the program?	
Project Impact	
How satisfied did you feel after volunteering?	Very Satisfied, Satisfied, Neutral, Unsatisfied, Very Unsatisfied
Please rate the training you received	Very Helpful, Helpful, Neutral, Unhelpful, Very Unhelpful
What would you say is the main reason you volunteered?	
Do you feel your volunteer work is significant or impactful? If you answered no, please explain the factors that may make your volunteer work more meaningful.	
Mention the activities you were a part of	List 3
What do you think about the program	1.Very Effective, 2.Effective 3.Neutral, 4.Effective 5.Very Effective
If you received assistance from staff, how would you rate your experience?	Very helpful, Helpful, Neutral, Unhelpful, Very Unhelpful
Have you noticed any impact or success stories you would like to share about the program?	
Any other observations/ suggestions	

6. PROGRAM IMPLEMENTATION TEAM: AVASARA

What is your role in the Program Team (Program Associate etc.)?	

How many years of experience do you have? Can you tell us a little about your experience?	
Does this curriculum align with the existing school syllabus or is completely different?	
What process is followed to select the students for the program?	
Program Implementation	
Have you faced any challenges in ensuring smooth implementation of the program? How did you overcome it?	
Do you think there are ways in which the scope of the project could be widened?	
What are the key improvements that you have observed of the program?	
On a scale of 1-5 rate the impact this program has created.	1-Very poor, 2-poor, 3-average, 4-good, 5-excellent
On a scale of 1-5 the ease of working with teachers and headmasters in this program	(1-Very poor, 2-poor, 3-average, 4-good, 5-excellent)
On a scale of 1-5 the ease of working with students and parents in this program	(1-Very poor, 2-poor, 3-average, 4-good, 5-excellent)
Data Collection and Analysis	
What is the data collection mechanism? Do you use any tech-based tools for data collection?	
How has data helped you take any course corrections to make any improvements in the program?	
What is the reporting process followed? How frequently do you report? To which all stakeholders?	
Are the findings from the reports discussed with the key stakeholders and is the relevant action taken?	
Overall feedback	
Overall, on a scale of 1-5 can you rate the effectiveness of the intervention? Can you share any success stories?	1-Very poor, 2-poor, 3-average, 4-good, 5-excellent)
What in your opinion are the 3 success factors of the program?	
What in your opinion are the 3 areas of improvement of the program? Any suggestions?	