

MOBILE LEARNING CENTER

Success Accelerated

Mobile Learning Center



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Executive Summary

Regardless of economic standing or personal background, every child has the right to an engaging education. Some students in the developing world still struggle for such access. The schools these students attend often lack the resources, time, and personnel required to provide the best possible education.

Students at alternate and government schools in Bangalore are often not stimulated by the existing curriculum that is memorization and test preparation oriented. Because of this, they do not pay attention and therefore lack critical thinking skills needed for continued progress in academics as well as career and life success. Their overall disinterest in learning only perpetuates their lack of motivation. All these factors result in students that have vague, unrealistic, or non-existent ideas of post-graduation options.

Our proposed solution is a mobile learning center that takes into account the complexity of this issue. The mobile learning center (MLC) will merge interactive learning and career counseling by partnering a MLC staff instructor with industry professionals to teach students hands on lessons that will motivate them and expose them to a variety of future career options.

The Problem

"A related problem [of education in India] is the impersonal examination system. To do well in it, memorisation rather than understanding is needed. Further, the system leads to a feeling that what is learnt in school has nothing to do with real life."

Arthur Mayhew, author of The education of India; a study of British educational policy in India 1835-1920, and of its bearing on national life and problems in India today

A 7th standard school girl, Aryana, sits in class. She feels disinterested in school, lacks the opportunity to practice critical thinking skills, and does not have an understanding of the many options available after passing her 10th standard exam. Sometimes she skips class, and even when she does attend, her teacher's emphasis on memorization based learning does not help her retain the material.

There are thousands of schools in Bangalore. Private schools charge high fees and thus are able to provide their students with more hands-on experiments and career counseling. However, the story of Aryana is a common profile of students across government and alternate schools in Bangalore. These schools make up roughly two thirds of all schools in the city. From speaking to professionals in education and visiting six schools, we know that students experience a lack of motivation in classes, lack critical thinking skills, and are unaware of future careers available to them. Out of students we interviewed, a vast majority said that they were bored in class. The headmaster of APSA Dream School, a bridge school we interned at for seven weeks, repeatedly stated that her students lack hands-on activities, critical thinking skills, and clear ideas of their future goals and necessary steps to achieve them.

Why this Problem Exists

The reasons for why this problem exists are systemic and multifaceted. The Indian education system puts more importance on memorization than practical knowledge. For example, the division of questions of board exams is 80% theory and 20% practical. Rote memorization, through which specific phrases can be repeated onto exams and then immediately forgotten, is the revered teaching method throughout India. Whether or not the child has an understanding of what they memorize is not important if it is recited correctly on tests. Test scores are largely indicative of a student's future, determining if and where one can enter higher education.

This teaching method has existed for thousands of years. Thus, teachers typically teach in the manner they themselves were taught. For teachers with large classes and few resources, it is easier to teach a lesson based around memorizing the material than creating new, interactive curriculum. In addition, studies have shown that parents value memorization based learning because it is time exhaustive and a child who can regurgitate facts and information appears smart and studious.

Many students do not know what path to take after graduation because they do not have the exposure needed to understand the careers available to them. Students at government schools are often from underprivileged backgrounds. Their parents see education as a path to a better life, but cannot provide career guidance.

We found that sixteen out of twenty-four of the 10th standard students interviewed at APSA Dream School wanted to pursue five well publicized careers: doctors, lawyers, computer scientists, criminal investigators, or artists. This indicates their narrow understanding of career options and what many of these careers entail. For instance, some girls interested in computer science have never even heard of coding. A lack of exposure to other careers is at the center of this problem.

Existing Solutions

Multiple solutions exist to provide students with interactive learning. Science on Wheels, based in Seattle, brings science experiments to 475 schools who do not have funding to purchase these materials. The Engineering Fellowship Program, also in the state of Washington, connects students, teachers, and industry professionals to make STEM accessible to underprivileged schools. Specific to India, an NGO called Agastya uses science to spark curiosity. According to Dilip Gowda, the Regional Director of Agastya in Bangalore, the company's "intention is not to teach science, it is to spark their [the students] curiosity in school." They have been successful in doing so. Agastya has three programs: campus creativity centers, mobile science centers and labs on bikes. These methods of outreach ensure students receive at least eight exposures a year. Appendix 8 elaborates more on these solutions.

We know that other organizations recognize lack of motivation and hands-on learning activities in schools as a problem. People are already working to address this challenge. However, no existing solutions incorporate career counseling into their business model and our solution works best to address lack of motivation in students, the deficiency of hands-on learning activities, and the students need for career guidance.

Our Solution

Our solution is the Mobile Learning Center, an all encompassing learning center that brings interactive activities and exposure to different career paths to alternate and government school students. Led by an enthusiastic instructor and facilitated by an industry professional, these interactive activities will supply students with resources necessary to enable their creativity, develop their critical thinking skills and engage them in exciting, experiential learning. Activities will reflect subjects that are relevant in current industries and are lesser known to students. The enthusiasm provided by the MLC instructor and industry professional coupled with the educational materials the van carries will provide students with a meaningful new learning experience, inspire curiosity and motivation, and encourage them to explore future career paths.

Beneficiaries

Our beneficiaries are students. The primary goal of the MLC is to impact the lives of students by sparking curiosity and creativity and thus motivating them to be more engaged in class. In our theory of change, this increased engagement will instill in the students a stronger desire to learn by helping connect their studies to the real world. In addition, the incorporation of an industry professional to the lesson will broaden the students understanding of India's workforce and what specific occupations might be available for them.

While our primary beneficiaries are students, the ripple effects of the MLC will be felt by many. The work force at large will benefit from more creative and innovative employees, teachers will experience higher levels of student participation, and school administrators will see improved test scores over the long term [1].

Customers

Within the realm of education, our customer base does not simultaneously represent our primary beneficiaries. We tailor our product to the needs of not only the students but also the headmasters that will decide whether or not to employ our services. To best market ourselves to these headmasters, we need to emphasize our short and long term educational impacts while promoting our solution as a flexible alternative that will not harmfully disrupt standard practices and existing learning. We will work around any student or teacher commitments and seek to incorporate material that will aid in students' exam performance.

Mobile Learning Center



Success Accelerated

Assumptions

Our most risky assumptions are listed below. These assumptions are integral to the success of our service so many of them have been tested and examined in order to assure they can be confirmed.

1. Government schools will be receptive to the MLC and allow the MLC to visit their schools. Other programs, like Agastya and Star Innovators, travel to schools and employ their services with interactive education. The government of Karnataka funds Agastya's mobile science vans. We are confident government schools will be receptive to our product.

2. Schools will recognize the benefits the MLC can provide to their students. This will be difficult to overcome at first, but after visiting multiple schools, collecting data on the student's knowledge before and after our visits, and hopefully receiving positive feedback from students and teachers, we will be able to convince schools they need our service.

An example where schools have recognized the benefits of interactive learning is at B. Narayanapura Government High School. The headmaster, Sreedhar Damotharan, has developed once yearly hands-on science and math exhibitions and has seen dramatic improvement in the school's exam pass rate. Over three years, the school's 10th standard state board exam pass rate has increased from 42% to 61%. Ms. Damotharan believes the school will have above a 70% pass rate this upcoming exam season.

3. Students are willing to participate in interactive activities
This assumption was tested during our second prototype where 18 students were given the opportunity to participate in a hands-on experiment that involved testing the pH of nine substances. The students, age 10-16, excitedly completed the experiment and participated in a discussion about what happened after. See appendix 4 and 5 for a description of the prototype and feedback from the students in the form of pre-tests and post-tests.

Other assumptions are listed in the Theory of Change map located in Appendix 1.

Evidence

Through our experience prototyping at APSA Dream School (see Appendix 4 and 5) we know that interactive learning is effective and that early career exposure is beneficial. However, this confidence needs to be instilled within our partners, so we have found various case studies from professionals in the field to add proof to these assumptions.

OTJR: Occupation, Participation & Health - Sixty students were taught material using two different teaching methods (hands-on and demonstration) and those taught hands-on learning had higher recall scores compared to those watching a demonstration. [6]

PLOS One - A collaboration of scientists studying neuroscience and psychology tested how using cognitive motor skills improve memory long term memory. To do this, they "tested the idea that long-term memory and motor systems share processing resources" and found that people who learned something with a more interactive body posture, meaning that they chose to interact with objects while learning them, did better at recalling the information at a later time. [4]

Indian Journal of Positive Psychology - Researchers from S.N.D.T. Women's University Mumbai, studied teachers perspectives on rote learning compared to interactive learning teaching styles. Teachers in government aided schools are more likely to use rote learning teaching methods but when teachers are exposed to classes taught by "meaningful learning" techniques they see the positive influence this style has on students and they are more likely to adopt a hands-on teaching style. [10]

Professional School Counseling - Twenty-seven middle school students were involved in this study; some were given career counseling and some were not. Pre-tests and post-tests as well as interviews suggested that students who received career counseling had increased career maturity levels and better academic performance after this intervention. [7]

These peer-reviewed examples are a few of many sources available that add merit to our solution. Interactive learning coupled with career counseling is the next step to motivating students and helping them reach their goals.

Initial Implementation

Our pilot of the Mobile Learning Center will be three months and require approximately 5.5 lakhs of funding. Our initial upfront cost of 5.5 lakhs covers the first three months of our instructors salary, travel costs for our instructor and industry professionals, educational tools, and materials outreach and advertising costs. A breakdown of finances can be found in the Business Model section and is elaborated on in Appendix 10.

Initial personnel for the three month pilot period of the MLC will be one coordinator, one full-time instructor and three volunteer industry professionals. A detailed job description for these positions is referenced in Appendix 7.

Execution:

1. Initial outreach: The MLC instructor and coordinator will conduct outreach in the form of information sessions, flyers, videos, and meetings with government schools and alternate schools in Bangalore.
2. Local Industry Professional Volunteers: The MLC instructor and coordinator will find twelve enthusiastic industry professionals that can each volunteer with the MLC once per month. We have already discussed this with multiple industry professionals. One of these people, Kishore Raj of Star Innovators, is a trained engineer and has agreed to facilitate an activity on aerodynamics for us at APSA Dream School.
3. Catered Activity: Our staff will meet with the administration of each prospective partner school to see what areas of education could be supplemented by the MLC, and what careers the students might be interested in. Our faculty will then modify our lesson plans to fit the needs of the school.
4. Mobile Learning Center: The MLC will bring this program to the school. At the school, the instructor will facilitate an interactive lesson led by the industry professional that relates to his or her career. The students will develop critical thinking skills during the lesson and ask the professional questions about the activity and their job.

5. Feedback: Our staff will request student and local teacher feedback on the day of the visits. We will also send out follow up feedback forms to the schools to help improve and iterate our program to better their future experiences with the MLC. Over time, we will collect long term data. This involves giving students a pre-test during our first or second visit and then a post-test at the end of the year to track the progress of the child and in turn the success of the MLC.

6. Future Scheduling: After the initial trial with each school, we hope to schedule recurring monthly visits. We will ensure easy scheduling and flexibility as schools are busy and must focus on other priorities.

Long term Implementation

In the first year after our initial three month pilot, our mobile learning center will have established a network of alternate and government partner schools in Bangalore. The MLC instructor will plan curriculum and coordinate with industry professionals two days a week and visit different school sites three times per week. Our vision is that within one school year, the MLC will visit 600 students, and give them each ten different career exposures.

Business Model

Cost Structure:

The MLC cost structure relies on a high proportion of initial fixed costs and relatively low recurring costs. For our first three months of existence, our costs consist of an investment in educational tools and materials, travel costs for the instructor and industry professional, the instructor's salary, and outreach and advertising support for our service. After our three month pilot, the next year of costs are the continuation of our instructor's salary, the upkeep of student resources, a reduced amount of outreach and advertising, and the purchase or donation of a tempo van. Each industry professional will volunteer their time once monthly for free. Assuming our cost of upkeep to be relatively low, the marginal cost of visiting one additional school will be extremely low. As we add more schools, our company will be able to expand, hire more instructors, and reach more students.

Funding and Revenue Streams:

Funding for our initial three months pilot will come from corporate social responsibility (CSR). We conservatively project that an initial investment of approximately 5.5 lakh rupees over the first three months will be enough to get the MLC up and running. A list of potential educational materials is found in Appendix 9. A breakdown of our cost structure and finances is found in Appendix 10. Our hope is that during the first three months of existence and teaching, the beneficiaries of the MLC will further realize its value and after this three month pilot period, begin to pay a small fee for our service. After this initial pilot period, we estimate that our total costs for the next year will be between 6 and 12 lakhs depending on whether or not our tempo van is donated or purchased.

Since our customer segment is primarily lower income schools, we aim to maintain a reduced level of CSR sponsorship after our pilot period to subsidize the amount our customers pay. Long term, we want enough CSR funding to keep our price to 20 Rs. per student per visit of the MLC. If we assume the cost of purchasing a tempo van rather than its donorship, the necessary CSR funding we need in our first post pilot year to achieve this price is 10.8 Lakh Rs.-- double the initial three month investment but over a time period four times as long. A further breakdown of expenses can be found in Appendix 10.

Getting Started

As we have outlined, to fund our three month pilot period, we conservatively estimate that we need about 5.5 Lakh rupees. We are also seeking connections. We are actively searching for corporations that may be interested in funding us, potential customers, and passionate people who can help us move our business forward. We have developed a job description for an MLC coordinator (see Appendix 7) who can help lead the way in moving our business forward on the ground in Bangalore while we work remotely from Seattle. We already have established 17 potential candidates for this position. All are Masters in Social Work students at Saint Joseph's College in Bangalore. Those who are available are attending our informative business pitch on March 16th.

We believe that with initial funding and the right connections, we can bring interactive learning and career exposure to 600 different students three different times in our first three months of existence. Just imagine what 600 excited young minds can do. The Mobile Learning Center: Success Accelerated.



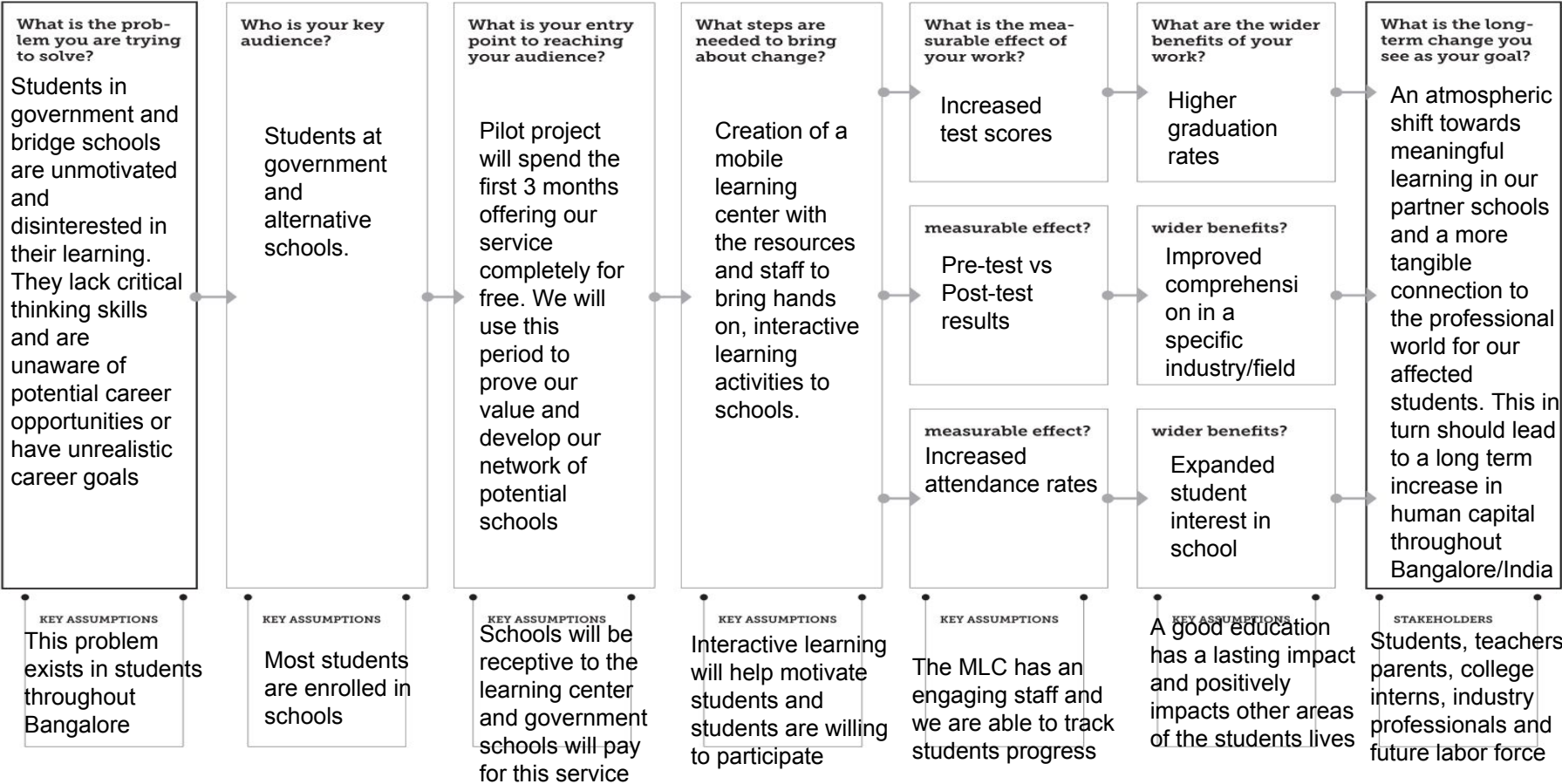
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Theory of Change

I want to clarify my priorities
by defining my goals and the path to reach them

THEORY OF CHANGE



Randomized Control Trial Design

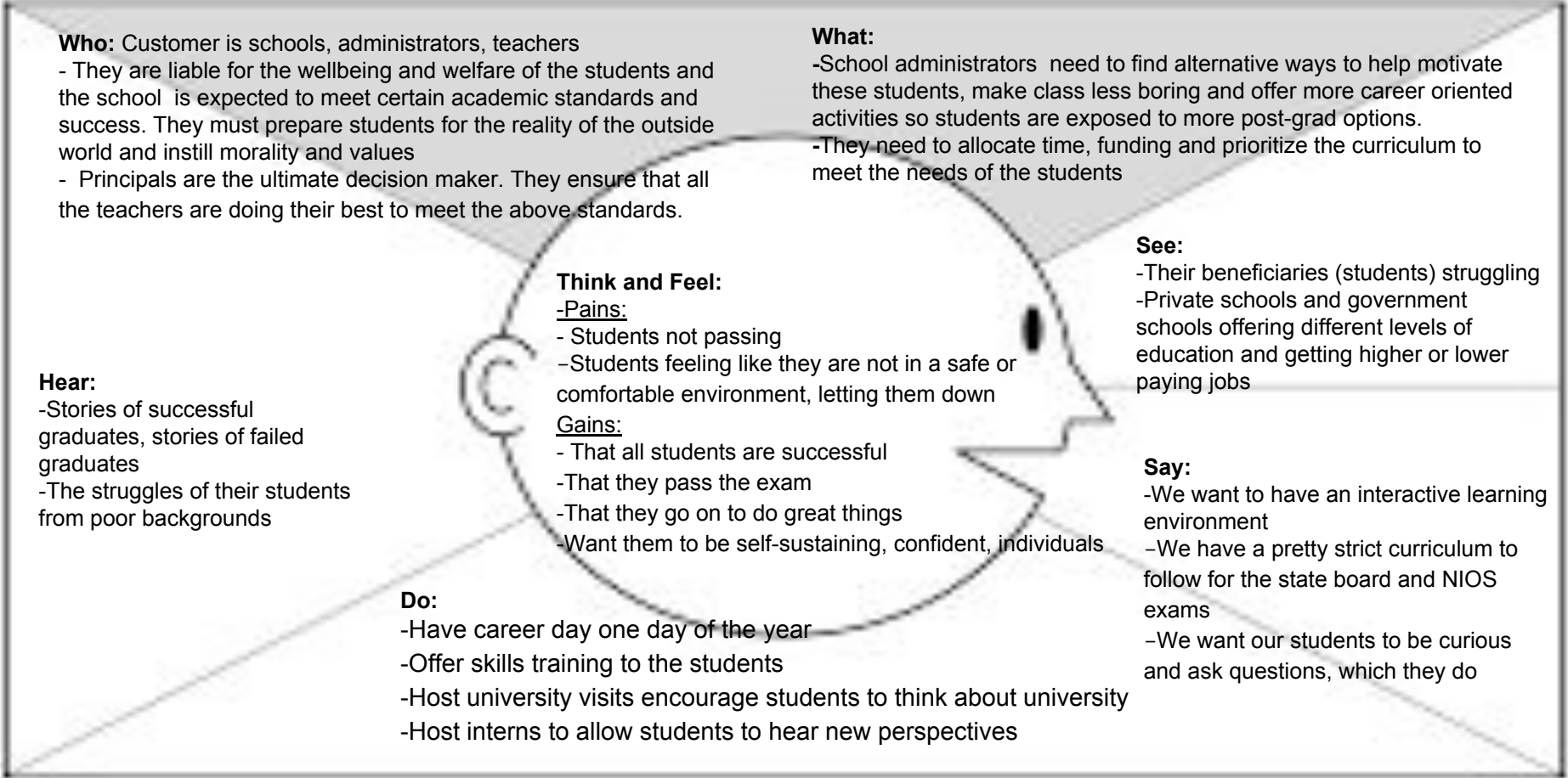
The theory of change (Appendix 1) of the Mobile Learning Center states that children will go from being disinterested in class and lacking critical thinking skills to students that are engaged in class and having connections between what they are learning and future careers. However, as shown in the theory of change, the impact of the MLC relies on some assumptions. Thus it is important that the impact of MLC is fairly evaluated using a randomized control trial.

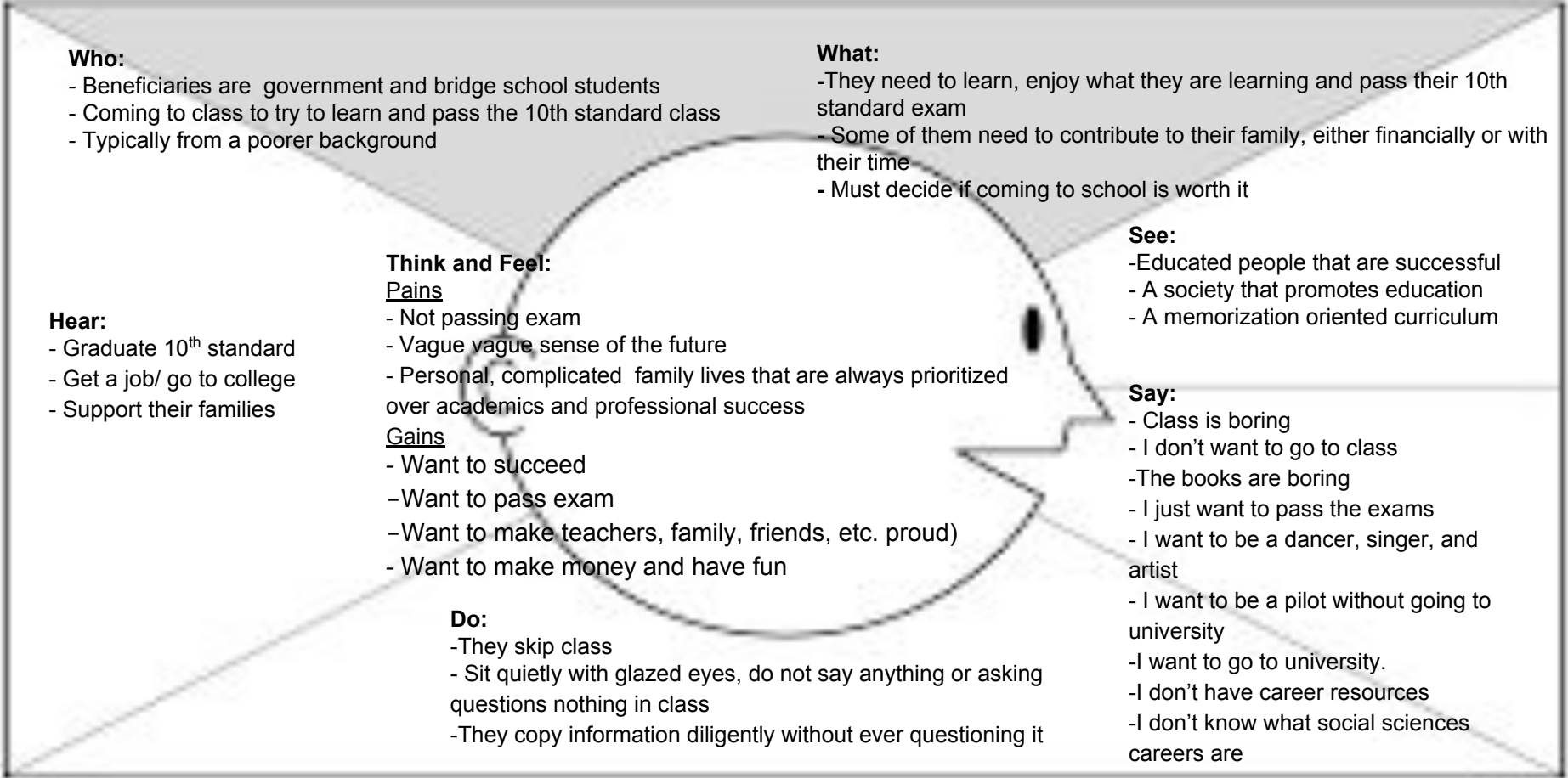
There will be 20 schools included in the randomized control trial (RCT). 10 schools will have the Mobile Learning Center visit the school and conducted a hands-on, interactive activity. The other 10 schools will not be visited by the MLC. The schools in each of the groups will be selected randomly from the 20 involved schools. There should be an even mix of type of school and approximately socio-economic class of the school and the funding the schools receive.

At the start of the study, the students will be given a survey to collect qualitative and quantitative data about their education experience. Students will be asked about what they want to do after graduation, their favorite and least favorite classes, and overall how interested they are in class. The survey also will ask about skipping or sleeping in class, how connected students think what they are learning in class is to future career prospects, and their evaluation of the teaching methods of their school. Additionally, attendance records for students at the school will be gathered. Then the MLC will visit the experimental schools 3 times during a three month period, and the control schools will not be visited. After 3 months, the same surveys will be conducted and the attendance records will be gathered. The differences in the answers and attendance between the two groups of schools will be analyzed.

If the MLC proves to be successful, then there should be a significant difference in answers between the control group and the experimental group. The control group should have answers that are similar between the start of the program and the end of the three months because nothing changed for them. Any changes in the answers in this group can thus be assumed to be made in the experimental group too. The control group accounts for variation in answers due to external factors, like curriculum, pressure from parents/teachers, etc. The experimental group should show a change between before and after the three months as a result of the MLC visits. Ideally the experimental group has students with new ideas for careers to pursue after graduation, more interest in school and how classes connect to their future, fewer instances of skipping or sleeping in class, and an overall higher level of happiness in regard to their education. Although a lot of factors affect attendance, a positive sign of impact of the MLC would be if there was an improvement in attendance of the experimental schools in comparison to the control group schools. This would suggest that the MLC is motivating students to come to class and engage in their studies. If at the end of the three months, there are no differences between the control group and the experimental group, then the randomized control trial shows the MLC is not making an impact on the schools. The MLC will then pivot to change its teaching style, curriculum, and other factors dictating its impact on the students.

Empathy Map Customer: Government and Bridge Schools





Prototype



#1 - Civil Engineering Activity led by University of Washington Students

Our initial prototype was a class taught by the APSA - mobile learning center team, comprised of three civil engineering undergraduates from the University of Washington and one international relations undergraduate. This hands-on activity consisted of clay and dry spaghetti noodles. The class was told that this activity is something that civil engineering students in college also have done in class, which aided in grounding the activity academically. The students were told about trusses- or how strong structures are made up of triangles. The engineering students explained a little about what civil engineering was, in an effort to meet the career guidance part of the MLC goals. The students then had approximately 30 minutes to build the tallest free-standing tower they could.

#2 - pH Data Collection and Analysis Activity led by Industry Professional

Our second prototype was taught by an industry professional, Adithi Upadhyaya. Adithi works for ILK Consultancy and specializes in data collection and analysis of air pollution. She is passionate about her career, enthusiastic, and connects well with children; all of these qualities being traits we would look for in potential industry professionals who would volunteer with the MLC. 18 students were taught in a mix of Kannada and English, with the lesson plan transcribed below.



These students ranged from ages 10 to 16, and all had varying education levels. We first gave the students a pre-test to test their knowledge about acids and bases, and their confidence and interest regarding science. Adithi then taught them about the pH scale and conducted a sample experiment using litmus paper to test the pH of a substances. The students then paired up and were able to test a variety of substances and plot each one on the board. After the hands-on portion of the lesson, Adithi taught them about her job which involves data collection and analysis, and spoke to them about the importance of data. The lesson ended with a post-test to track what the students had learned. The lesson lasted 1 hour and 45 minutes.

At the end, many students were able to differentiate the difference between acids and bases, which showed improvement. Several of them ranked science higher on a list of subjects after doing the activity with Adithi. Additionally, students were able to plot points on a graph unassisted. After the lesson, they were able to explain that data analysis had to do with plotting and looking at data sources.

Prototype (continued)

#2 Lesson Plan

Materials:

pH strips

Cups

Food coloring

Testing:

Laundry detergent → 9

Toothpaste → 10

Baking soda (weak base) → 8.5

Tap water → 7

Saliva- slightly acidic → 7.5

Milk- slightly acidic → 6.5

7Up Soda → 3

Lime juice → 2

Soil and water mixture → 6

Vinegar → 3

Almond oil → 5.5



Setup: Spread out labeled substances and pH strips around the classroom.

Plan:

1. Conduct pre-test
2. Adithi reads out question in English and then in Kannada
3. Adithi introduces herself as a guest teacher and explain about what pH is and what the pH strips accomplish
4. Do not go into explanation of chemistry, instead just say what the colors mean corresponding to the pH scale, throw in word acidity and basic (alkalinity)
5. Adithi draws a pH scale on the board and does a demonstration on one substance. She then marks where the substance falls on the pH scale and labels it.
6. Kids get in partners. The sets of partners will have time to roam around classroom and visit the different material stations (labeled). Before they use the litmus strips, they will share with their partner what properties they can identify about the substance. Emphasize that they cannot taste the substance. They will then use the litmus strips to test the substance, read the pH strip, and go on to the board and mark where the substance fell on the scale and label the point with what substance it is.
7. We give the students a known substance (saliva) and have them guess the pH and have them test it
8. Give the students a mystery substance (lemon juice dyed blue) and have them test the pH and guess what the substance is by comparing it to other things they have tested.
9. Explanation of pH, have a glass of water and add an acid and see it go acidic and then go back and add a base and test it and see it become basic
10. Adithi brings class together for conclusion. How does this data collection, and data analysis activity relate to what she does on a daily basis?
 - Plotting by hand: what patterns can the class recognize with the pH, substance, and distribution of points?
 - Plotting by computer: digital process is faster, more efficient, and the computer can recognize patterns more easily than a human can.
11. Statistical Techniques: what outliers do we see, what does the spread look like, how do the points vary
12. Tie in the lesson with profession: how Adithi also collects data, and analyzes it on a daily basis, but with the topic of air quality. What tools she uses to find patterns in data, and a little bit about her journey to higher education.
13. Answer any questions the students may have. Q/A session with Adithi
14. Conduct post-test

Prototype Feedback

#1 - Civil Engineering Activity

At initial instruction, only 20% of the students were engaged in the activity. To combat this, we helped them get started in the activity, played music and encouraged them in a fun, enthusiastic way. The activity lasted a total of 40 minutes and by the end, 100% of the students were engaged in the activity and were successful in creating a free-standing spaghetti tower. 80% of the students remarked to us after that they enjoyed the activity and hoped to see similar activities in the future at school.

The APSA team hopes to improve the quality of the career guidance part of the prototype in the future. Only 50% of the students after the activity could give examples of what civil engineers did outside of building towers. In this prototype, there was more focus on classroom engagement and hands on learning than on career aspirations. Future prototypes will shift the emphasis to both aspects.

Additionally, the Director of APSA Dream School, Padmaja also exhibited a positive reaction towards the Spaghetti tower activity. When we discussed with her the activity and showed her photos, she was incredibly enthusiastic and said she wished her students could do more of this in class. In general, Padmaja is very supported of the MLC and wants it to come to Dream School to involve her children in career-oriented hands on learning and critical thinking skill development.

#2 - pH Data Collection Activity

Padmaja, the headmaster of the dream school, said the class is interesting but the “problem is the testing and organization of thoughts. The activity itself is good... [but the students need to] streamline creativity with organized thoughts.” She enjoyed watching the activity and seeing the excitement within her students, but was concerned about the reliability of the pre and post tests because many students understand what they have learned and can speak it, but have difficulties writing it down.

The APSA team believed this activity to be productive and show how interactive learning can motivate children to listen and excite them about certain subjects. However, in the future we would have more training with our teachers to make the lessons shorter and to include more hands-on activities within the lesson.

Story in Seven Sentences

Story One: Long Term Outcome

Once upon a time...

A tenth grade schoolgirl named Aranya who came from a lower caste family that struggled to make ends meet felt disinterested in school, lacked critical thinking skills, and had a very shallow understanding of viable professional careers.

And everyday...

She sat in class struggling to retain information that the teacher presented in a generic, lecture style without any additional teaching tools.

Until one day...

The mobile learning center came to her school and exposed Aranya to a practical, hands-on chemistry experiment designed and supervised by an empowered female pharmacist named Gayathri who cared a lot about community outreach.

And because of that...

Aranya developed a new interest in physical sciences that manifested itself in her studying harder, exploring new topics on her own outside of class, asking more questions of her teachers and eventually and scoring exceptionally well in the science portion of the board exam. She and Gayathri kept in contact and Gayathri served as a resource and mentor for Aranya.

And because of that...

She was offered admission into the Indian Institute of Science where, because of her interests in chemistry and positive influence from Gayathri, she pursued a degree in Pharmaceutical Science.

Until finally...

She landed a position as a Pharmaceutical Chemist making enough money to provide for her family and herself.

And then ever since that day...

Aranya began to volunteer for the mobile learning center, and utilized her skills to inspire other young girls to explore the different engaging fields that are out there.

Story in Seven Sentences

Story Two: Short Term Outcome

Once upon a time...

A 7th standard schoolgirl named Aranya felt disinterested in school, lacked critical thinking skills, and had a very shallow understanding of viable professional careers.

And everyday...

She sat in class struggling to retain information that the teacher presented in a generic, lecture style without additional teaching tools.

Until one day...

The mobile learning center came to her school and exposed Aranya to a fun, competitive, hands-on activity: the spaghetti-tower challenge. This challenge, facilitated by an enthusiastic structural engineer, forced students to think creatively by working in teams to design the tallest spaghetti tower, and critically, by allowing students to think about what makes a tower strong.

And because of that...

Aranya developed a new interest in exercising the creative part of her mind. She started to become more curious about the 80 story skyscrapers in Bangalore, how computers function, and how planes fly.

And because of that...

She found connections in what she was learning in school to her curiosities, so she started to study harder, and think more seriously about what professions are out there that could satiate her curiosity.

Until finally...

She studied so diligently and learned so much that she did much better on her next exam. This morale-booster became a motivator to keep learning and studying for her other exams.

And then ever since that day...

Her curiosity about the world has spread to all subjects, and she now sits in class and is excited about learning. She has a better idea of what professions are out there, after researching careers in the subjects she is more passionate about. She is enthusiastic about the future.

Mobile Learning Center Instructor

Employer: Mobile Learning Center

Hours of Work: Full-Time, 35-40 hrs/ week

Position Description:

Most essential to the success of the MLC is an enthusiastic, and flexible instructor. The MLC instructor will:

- Network with professionals from outside industries and coach them on guest facilitating activities related to their profession
- Help design a hands-on and interactive activities with expertise from industry professionals, and teach multiple different subjects (science, history, engineering, law, math etc...) for a diverse group of students of different ages, education levels and learning styles
- Communicate and coordinate with headmasters and teachers at partner schools
- Self evaluate and critically analyze feedback from students and partner school faculty to modify lesson plans to better fit the needs of the schools

Qualifications:

The following are qualifications necessary for the instructor:

- Female: As she will be working with many girls from sensitive backgrounds such as sexual assault, it is necessary that the MLC instructor be female
- Bachelor's degree: Preferred to be in Education, Social Work, or Communications. However, personality traits as well as teaching style and philosophy will be valued equally as high as education
- 1 year of experience in the education sector, preferably government schools or similar
- Fluency in Kannada, Hindi and English
- Traits: Friendly, patient, and empathetic: a strong and concise written and oral communicator who believes profoundly in the effectiveness of hands-on learning
- Compassionate with children

Application Materials: Resume, Cover Letter, and One Reference

Salary: 35,000 Rs/Month

Please email your application to cyardley@uw.edu

Mobile Learning Center Industry Professional Volunteer

Employer: Mobile Learning Center

Time Commitment: Once monthly orientation sessions (two hours) and monthly school visits (4-5 hours)

****Exact dates/times for professionals TBD based on their work schedule*

Position Description:

Essential to the success of the MLC are enthusiastic and passionate industry professionals that are eager to help influence the next generation of leaders. The MLC volunteer will:

- Assist lesson plans with the MLC instructor to modify interactive activities to better fit their respective industry and the needs of the schools.
- To help teach a relevant and interactive activity in the classroom, inspired by the work of the industry professional. They then will share the applicability of their lesson to their profession, and help expand students' understanding of career opportunities available.
- Work with students of different ages, backgrounds, and learning styles. The MLC volunteer will also be open to mentor students who need career advice.
- Attend monthly orientation sessions with the other MLC volunteers, to prepare for school visits, reflect upon experiences with other volunteers, and receive and discuss feedback with each other.
- Self evaluate and critically analyze feedback from students and partner schools

Qualifications:

The following are qualifications necessary for the instructor:

- Bachelor's degree in any field
- Experience working, volunteering, or teaching , and compassionate about children
- Fluency in Kannada or Hindi and English
- Traits: Friendly, patient, and empathetic: a strong and concise written and oral communicator who believes profoundly in the effectiveness of hands-on learning.

How to Apply: Please email your resume and answer the following questions to cyardley@uw.edu

1. Why do you want to volunteer with the Mobile Learning Center?
2. What do you hope students can get out of your school visit?
3. Besides exposure to your career, what could you help bring to students, especially from disadvantaged backgrounds?

Mobile Learning Center Coordinator

Employer: Mobile Learning Center (MLC)

Job Title: Mobile Learning Center Coordinator

Work Hours: flexible, ideally at least 5 hrs/week and more during free periods

Compensation: This will begin as a volunteer position but depending on the success of the business, it will likely turn into a paid position. We will work with your University to ensure you receive internship credit.

Position Description:

We are actively seeking a Mobile Learning Center Coordinator in Bangalore to continue building upon our startup. We need someone who is deeply passionate about our business who can:

- Communicate and report to the Seattle leadership team via Skype, email, and WhatsApp
- Develop outreach materials to establish and broaden our client base of schools and bring awareness to our business
- Network and find connections to industry professionals across a variety of professions
- Connect to corporate social responsibility funders
- Help develop CSR pitches and pitch the MLC to potential funding sources, collaborators and clients
- Help hire a qualified and enthusiastic full-time instructor

Qualifications:

The following are necessary qualifications for the coordinator:

- Fluency in Hindi or Kannada and English
- Passion for education and educational reform
- Entrepreneurial spirit, Self-starter
- Bachelor's degree: Completed or in progress. Preference will be given to those with degrees in Education, Social - Work and Communications but we encourage people of all backgrounds to apply
- Strong organizational and time management skills
- Concise written and oral communicator
- Willing to work with a diverse team

If you are interested in this position, please come to a formal business pitch on Saturday, March 16th at 2pm at the Indian Social Institute Benson Town. Make sure to network with us after the pitch and give us your feedback!

After this event, please email Clara Yardley at cyardley@uw.edu with your resume and a paragraph explaining your interest in the position. Clara will be in touch with more information.

Existing Solutions

Pacific Scientific Center: Science on Wheels

The Pacific Science Center created Science on Wheels, a mobile learning program that has traveled around the Pacific Northwest for the last 30 years. They started by visiting schools and teaching students that that lacked computer science curriculums in the 1970's, and now have expanded their program to focus on science, technology, engineering and math (STEM). They have multiple full-time teachers that travel with the van and coordinate with schools. This van engages students in interactive activities, educates students in STEM fields and encourages them to develop their interests and explore career options relating to STEM. Successes of this program are measured by the comparing the number of interactive learning materials purchased by the school before and after the science on wheels activity and the feedback collected through surveys. Science on Wheels have been successful around Seattle, WA, and receives government and industry funding to continue their services at a subsidized cost.

Agastya International Foundation: Mobile Science Labs

Agastya's Mobile Science Labs is a science outreach program that reaches out to school students in rural villages that do not have resources or access to extensive science materials, experiments, and activities. The van's mobility enables these science experiments to reach an array of different rural schools across India. The teachers aboard the van help spark curiosity and inquiry by helping explain the science behind the experiment. The hands-on aspect of this program allows the students to use their senses as they form their questions and try to transform abstract concepts into tangible ones. When Agastya first started, incorporating the new technology and mobile vans into rural communities proved to be difficult as villagers were cautious of outsiders implementing a new program. After much perseverance, the Mobile Science Labs have become a community gathering space, attracting families to participate as well, and help parents be more supportive of their children's education. In a single year, Agastya Mobile Science Labs have reached 9,000 - 10,000 children.

MESA/Washington STEM: Engineering Fellowship Program

The Engineering Fellowship Program (EFP) brings together five university students, five industry mentors, and about fifteen teachers in a year long program that helps implement engineering design challenges in underprivileged schools around the Puget Sound area in Washington state. The aim is to increase accessibility and awareness of STEM in classrooms with limited resources. The industry mentor helps develop connections between the design challenge and real world engineering, and the university fellow helps explain how the design challenge relates to their studies. EFP has reached 200 students around the Puget Sound,

How are we different?

While certain similarities exist between our solution and a number of existing solutions, we aimed to tackle lack of student engagement and career misconceptions side by side. By pairing an industry professional with our teacher we provide our students an experience that will both cater to the gaps in their education and expose them to career options and stepping stones that were previously out of reach.

Materials

MLC sample materials include , but are not limited to:

Educational Tools

- Small, inexpensive laptops to facilitate the use of a variety of computer programs among students
- Non-disposable science supplies including beakers, scales, pipette, shakers, microscopes, litmus paper, circuit-building materials, and various other general science materials
- Language games, particularly to facilitate learning of the English language
- Paper, pens, pencils, markers, stationary, tool books, and activity books
- Building materials like wood blocks, legos, dowels, clay and adhesives
- Various models describing biology, mathematics, space and the environment

Long Term Implementation Tools

- Tempo van
- Office space
- Faculty computers
- Faculty supplies

Cost Structure and Finances

	Description	Breakdown	Initial Cost (First 3 months)	Future Cost (Year after the first 3 months)
Outreach and Advertising	Promotional video using low cost software Distribution of Flyers Potential Clients Visits	Printing costs	2000Rs	12,000 Rs
Travel Costs	Uber, Ola, Auto rides, public transport or personal vehicle to customer schools	500 Rs. per day for 3 months OR 200 rupees/day per 3 months using 10 Rs./Km reimbursements for personal vehicles	30,000 Rs OR 12,000 Rs	0 Rs
Educational Materials	The purchase and upkeep of interactive learning materials: non-disposable science experiment supplies, building and creative materials, books and language games	Laptop Computers: 25x 10,000= 2.5 lakh Rs Materials= 1.5 lakh Rs	4 Lakh Rs	10,000 rupees per month = 1.2 lakh Rs
Instructor Salary	Payment of a full time instructor	35,000 Rs/month	1.05 Lakh Rs	35,000x12 = 4.2 Lakh Rs
Tempo Van	Purchase or donation of a tempo van	Approx. 5 lakhs (or 0 lakhs)	0 Rs	5 lakh Rs + Gas prices
Overhead	Instructor benefits, van maintenance	Approx 5,000 Rs/month	15,000 Rs	60,000 Rs
We Need			Between 5.4 and 5.6 Lakh Rs	Between 6 and 12 lakh Rs

Cost Structure and Finances

Pricing Scheme:

In our 3-month pilot period, reaching 600 students with about 5.5 lakhs of funding means the cost per student is about 900 Rs. This is equivalent to about 300 Rs. per student per visit.

$550,000/600 = \text{Approx. } 900$

$900/3 \text{ visits (3 months)} = 300$

If we can maintain the initial minimum level of funding (5.4 lakhs) from CSR over the course of our first post-pilot year that we have in the first three months, our necessary revenue stream will be 6.6 Lakhs. When we consider that we aim to reach 600 total students 10 times during the first year, this means that schools would have to pay a total of 1,100 Rs. per student reached in one year. This is the equivalent to 110 Rs. per child per session.

$660,000 \text{ (necessary revenue)} / 600 \text{ (total students)} = 1,100 \text{ per student per year}$

$1,100/10 \text{ (total visits per year)} = 110 \text{ Rs. per student per session}$

If we can double the initial minimum level of funding (10.8 lakhs) from CSR over the course of our first post-pilot year that we have in the first three months, our necessary revenue stream will be only 1.2 lakh. We think this is a very realistic ask. It is far, far less than most middle to large size corporations give to CSR. This means that schools would only have to pay 200 Rs. per student reached per year. This is equivalent to 20 Rs. per child per session. This is our goal, and we believe we can achieve it.

$120,000 \text{ (necessary revenue)} / 600 \text{ (total students)} = 200 \text{ per student per year}$

$200/10 \text{ (total visits per year)} = 20 \text{ Rs. per student per session}$