Impact of 'Be! an Entrepreneur, Bihar' on children's skills outcomes, 2017-18.

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Author Note

Be! an Entrepreneur is a large scale skills education program designed and run by Going to School Fund, that runs with over 200,000 Grade 9 children in Government secondary schools in Bihar. With a Memorandum of Understanding with the Government of Bihar, Department of Education, the program in 2018 is in its 8th year, supported by national and international grants. This report is put together with support from The IKEA Foundation, HCL Foundation and MacArthur Foundation. The research has been guided under supervision of research specialists Dr. Arpana Inman and Dr. Bridget Dever from Lehigh University, Pennsylvania.

Abstract

The study aims to find out the impact of ‘Be! an Entrepreneur’ program, an annual intervention for kids in Grade 9, by comparing them with before and after skills scores for kids as well as with and without the intervention and the differences over one year. This study highlights evidence that shows how a curriculum implemented through stories, games and activities helps children to learn entrepreneurial skills, what works and what does not. Skills achievement scores have been compared to understand if their context-urban or rural and the type of school- a girls-only, a boys-only or a co-education schools play a role in skills achievement.

We find that kids who engage in a regular intervention for one year do better than kids who do not receive any intervention. In specific context of Bihar, duration and length of semester sans festive breaks play an important role in children’s skills achievement as the scores tend to increase till the midline and go for decline afterwards. However, scores for children without a program only decline from the beginning of the year till the end. Children from rural schools score higher than ones form urban context. The program has a greater impact on in girls’ schools followed by co-educational schools and lastly on boys’ schools.

Keywords: Bihar, skills, entrepreneurial skills, girls, boys, schools.

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Impact of 'Be! an Entrepreneur, Bihar' on children's skills outcomes, 2017-18.

Going to School Fund, an educational non-profit organization, conceptualized and runs a large scale school program to teach 21st century entrepreneurial skills to kids in Grade 9, government secondary schools using design driven stories. This research is to evaluate the impact of the program on children's skills achievement, what in the program has a positive or a negative impact on the skills achievement.

The current challenge

We are in the state of Bihar. Adolescents between the ages of 10-19 constitute 23 percent of Bihar's population. The 2014 National Sample Survey estimated that 20 percent of rural boys and 43 percent of rural girls were not engaged in the labor force. A 2016 state-representative survey in Bihar conducted by the Population Council indicated that, amongst adolescents in ages 15–19, 3 in 4 boys, 2 in 3 unmarried girls, and less than 1 in 7 married girls were currently in school. There is a decline in enrolment with age: 94% boys, 88% girls are enrolled in school at the age of 10 while this drops to 85% boys and 79% girls at the age of 15. Although school enrollment has improved considerably over time, retention until Grade 12 and gender gaps in completion continue to be challenges.

The Government of Bihar has indicated a clear emphasis on girls' empowerment and providing skills to youth for employment. The state continues its efforts in improving skills through a state-wide skills program led by the Bihar Skills Development Mission. While most skills development programs focus on core vocational areas with their curriculum, teaching entrepreneurial skills through stories and innovative games and activities might contribute to increased participation in the labor force, reduction in child marriage and cycles of poverty. This

research aims to highlight the impact of one year of intervention of the program on children's skills learning.

Intervention

Going to School and Be! an Entrepreneur

Going to School is creative non-profit educational organization that aims to teach 21st century problem-solving entrepreneurial skills to kids in school using hero-entrepreneur stories, games and weekly action projects. The stories feature local entrepreneurs from children's communities. 90% of all stories are stories of women: introducing women in leading roles, breaking gender stereotypes and creating local women role models. Learning 21st century skills at school is crucial for kids at grade 9 to stay in school, enjoy coming to school, and make a life plan to get a job or start an enterprise. The stories focus on using design thinking to solve the biggest local problems that kids face in their communities, using easily available sustainable resources around them. Committed to solving the big problem of climate change, the stories are inherently designed to teach sustainability while problem-solving.

How does it work?

At the beginning of the academic year, Going to School trains its own teams and the teachers (two from each school) to introduce them to the curriculum, to prepare them and make them practice how to teach the stories, games and skills challenges in the classroom. In the initial years, the program model was primarily a teacher driven model monitored by Going to School team members. But as the responsibility on teachers increases with each school intervention, leading to non-completion of program activities for the year, the program design at present is heavily dependent on field coordinators with teachers playing an important role in supporting the implementation.

In common usage of phrase, completion of one story means completion of the written story along with the corresponding game and skills challenge. After completion of one story in school every week, the field coordinators follow up with kids and collect their completed projects to be graded for sharing feedback with kids. The program this year was run as two semesters of 5 and then 6 stories respectively.

Curriculum 2017-18: Stories, skills challenges and games

Academic Year 2017-18 had an update on the reading list for kids. A combination of old and new stories were utilized with the aim to teach and reinforce key skills to run an enterprise and be an entrepreneur. New content was based on real life stories of six hero entrepreneurs, young women and men engaged in a small problem solving enterprises in their community. The curriculum with the final set of 11 stories was implemented in two semesters of 5 and 6 books respectively. A total of 11 stories reached every child along with the corresponding game and skills challenges, as detailed in order in Table 1.

The key skills taught through this curriculum are: creative problem solving, identification of problems, identification of resources, design thinking, sustainability, marketing, making a plan, decision making, conducting market research, testing your ideas, creating a blueprint and understanding entrepreneurship. The other unintended skills that the stories captured were being on time, working in a team, documentation and creating a business plan. Every story intends to dilute the gender inequality by portraying women in positive hero roles, intending to bring about a change in the perceptions of gender roles, creating exposure to new women role models.

Evaluation Design

Research questions

From the beginning of the launch of Be! an Entrepreneur program in Bihar, research studies and qualitative evaluations provided evidence highlighting evidence in changing children’s lives.

Children reported to have experienced increased knowledge of entrepreneurship, increased levels of confidence and strengthening of values like determination, hard work, never giving up and being open to change. However, the same could not be validated with numbers. A randomized control trial executed in 2016-17 presented evidence on how the children's creative problem solving skills went up by 6 percentage point, understanding of business skills increased by 4 percent points, networking with new or old people in their circles increased by 2 percentage points after one year of regular intervention at school. The program also showed a positive impact on changing gender roles and values amongst children. To further extend the scale and depth of the research that the RCT recommended. The following research questions guided this research in 11 districts of Bihar.

- What is the skills achievement for children who attend 'Be! an entrepreneur program?
- How do children achieve on skills score over three time periods in a given year?
- What individual skills do children learn?
- What factors contribute to have a positive or negative impact on the skills achievement scores?
- Is there an impact on skills scores in case of use of a technology driven modality to collect responses?

Research objectives

1. To evaluate the impact of Be! an entrepreneur on children's skills achievement scores.
2. To identify the factors that affect children's skills achievement scores.

Research design

A quasi-experimental research design was adapted to evaluate the impact of Be! an Entrepreneur program. In order to compare the results for children with and without this intervention and to address the research objectives, a control and a treatment group were identified to be tested at the beginning, middle and the end of the program. The baseline was planned for before the start of the intervention, then a midline at the end of one semester and an end-line assessment to take place after the implementation of the complete program.

Comparison arms

i. The treatment arm comprised of schools with Be! an Entrepreneur program where the 11 stories were taught.

ii. Schools with no Going to School intervention.

Sampling methodology and Sample

Going to School worked with 942 schools in the academic year 2017-18 across 11 districts. The total Grade 9 enrolment registered for all 942 schools summed up to 253,988 for session 2017-18. Table 2 presents the details of the number of schools in each district.

Sample for Treatment arm

Calculating average participation of the students over the last 3 years, it was decided to select 15% treatment group schools from each district with an additional two schools (to minimize the effect of attrition on the findings). The schools from the treatment group were randomly selected from each of the districts. All the kids from the 9^{th} grade of the selected schools would be a part of the evaluation. A total of 154 schools were selected to be a part of the evaluation for the treatment group. A same number of schools that matched the treatment group

from the same district were selected from the pool of schools where we are not running a program as the control group.

Sample for Control arm

The selection of control group was purposive, matching the key profile indicators from the treatment arm schools. The number of schools for the control group was equal to that of the number of schools for treatment group, and the treatment and control group were both selected from the same district. For example, from the total number of Going to School program schools in Bhagalpur, i.e. 120 schools, 20 schools were randomly selected as part of treatment group for the RCT, and an equal number of schools was selected for the control group (from the pool of schools where there was no Going to School program). The number of schools in each of the districts are presented in Table 3 at the end.

The primary criteria of selection included the following indicators: the type of school i.e., ***co-educational school, boys' schools and girls' school***. Each type was further divided based on where the school is set i.e., ***in an urban setting or a rural setting.*** This was further followed by different scores for the school on parameters like accessibility, teaching resources and infrastructure. A detailed note on the scoring and selection criteria is attached in the annex.

Data Collection

Tool for data collection: A questionnaire was created with inputs from previous years' research and the advisors that captured skills specific information to be marked by kids. The questionnaire tool was administered in pen-paper modality, with printed copies of the test questions taken to schools. To test the impact of use of technology on test results, we used an online questionnaire on tablet devices in one of the sample districts.

Data collection was executed in three phases through the year, for all 11 districts in the program. Baseline was concluded in August 2017, midline in November 2017 and the end line assessment in February 2018. The total number of children who participated in the baseline was 24,359, at the time of midline this number was reduced to 17,919 owing to 26% attrition and then further reducing to 14,676 at the time of end line leaving out 59% of the total children who were originally a part of the baseline assessment.

Analysis

For the purpose of data analysis, the kids who participated in all three evaluations were considered for comparisons. Data with incomplete details on child identification numbers or other relevant details were left out from analysis. The final number of kids that formed the part of the treatment group were 7,851 and the number of kids who formed the part of the control group were 6,825.

The total scores obtained on each of the categories were standardized and converted to mean scores and were further used for comparisons. The successive percentage change scores between baseline, midline and end-line were then calculated to find out the differences between control and treatments groups. A positive difference between percentage change for treatment and control groups indicated a positive impact of the intervention on kids.

The scores were compared for 11 questions on the test across baseline, midline and end-line, each answer weighing a maximum score of 1 and a minimum score of 0 (for an incorrect answer).

Findings

Profile of children and schools

Number of children.

Total number of children who originally participated in the study are 14,676.

Number of boys, number of girls.

The total number of boys and girls distributed across control group are 2781 boys and 4044 girls, and in the treatment group, 3063 boys and 4788 girls.

Number of schools.

The total number of schools where the study was conducted were 308. From this total sample 154 schools were in treatment and 154 in the control group. 144 co-ed schools, 8 girls-only schools and 2 boys' only schools were compared in both control and treatment groups (the numbers were dependent on the number of schools actually present in each of the districts). 17 schools in urban areas and 137 schools in rural areas represented the samples for urban and rural schools.

Scores

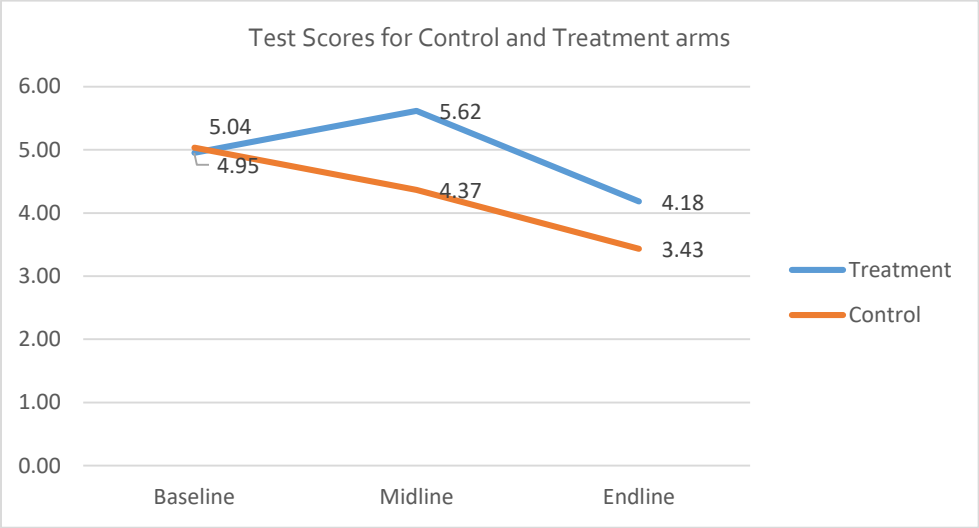
Test Scores.

Test score is the total score scored by a child against a maximum score of 11 for all questions on the test. The score is calculated out of 11 and is inclusive of skills achievement scores, scores on gender and knowledge score for understanding entrepreneurship.

The graph presents children's test scores for control and treatment groups across the three tests. While the kids in both treatment and control arms begin at the same spot at the time of baseline, soon after the intervention starts to reflect changes in performance. Scores for kids in the control group decrease from 4.95 to 4.37 and then further to 3.43 at the time of end line. The

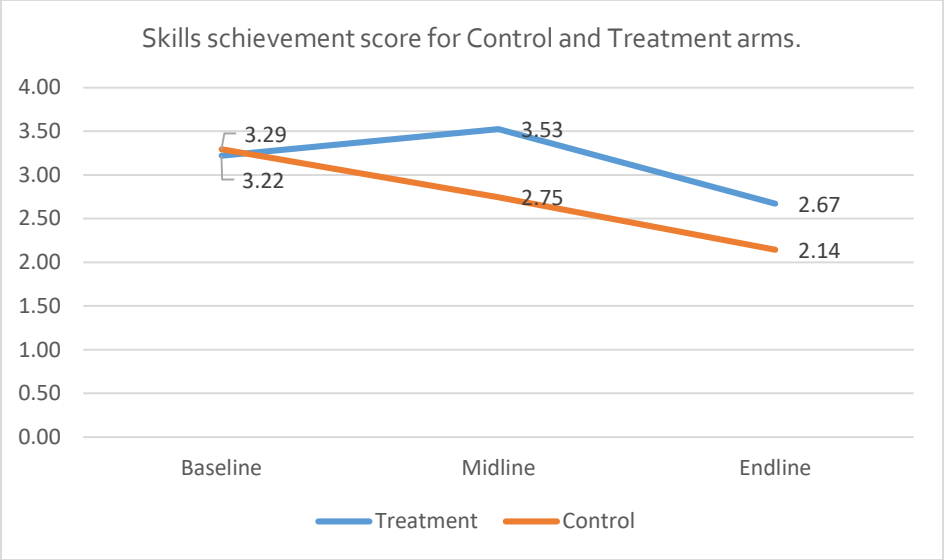
kids in the treatment group demonstrate a positive shift from 5.04 to 5.62 from baseline to midline and then a decline to 4.18 from midline to end line.

In totality, the control group goes a decrease 14.05% and while treatment arm decreases only by 7.78% showing that children in program do better than children without the program by 6.27 percentage points.



Skills achievement scores.

Of the total test scores, 73% is constituted by core entrepreneurial skills, namely, financial literacy, identification of sustainable resources, use of design to solve a problem, marketing and decision making. The skills achievement score is calculated from a total of 8.

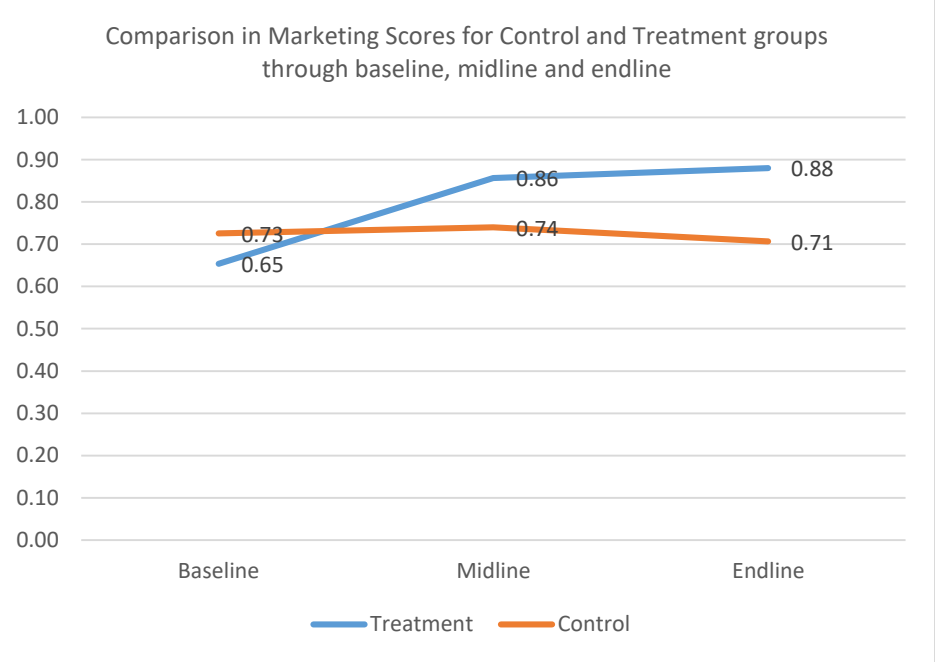


The trends for scores between baseline, midline and end line for control and treatment group look similar to that for test scores. Kids in the program score higher from baseline to midline (3.22 to 3.53, 3.8%), with a decline at end line (2.67). On the contrary, the skills achievement scores for control group decline consistently through baseline, midline and end line, with a total decrease of 13.84% from baseline to end line test. The comparisons indicate that children with Be! an Entrepreneur intervention do better on skills score by 6.57 percentage points than the children without any intervention.

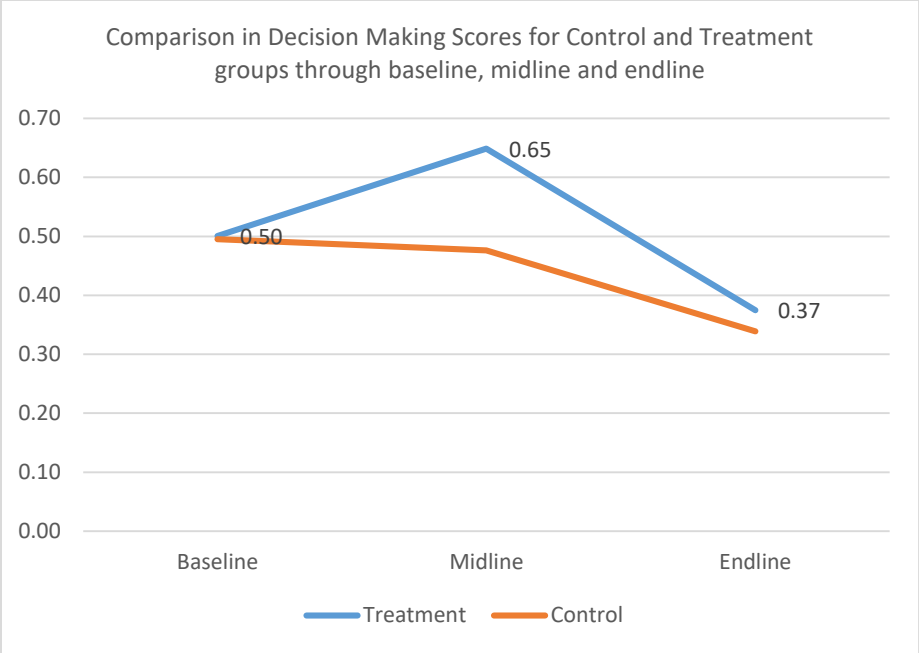
Further, teasing out the individual skills from the total scores shows us the key skills that children learnt as a result of the program intervention.

1. Marketing: The score on marketing increased for the treatment group from 0.65 in the baseline to 0.86 in the midline to 0.88 at the time of end line. However, for the control group, the score marginally increased from 0.73 to 0.74 from baseline to midline and then decline to .71 at the time of end line. Children in the program show a 12.38 percentage point increase in their marketing skills after one year of intervention.

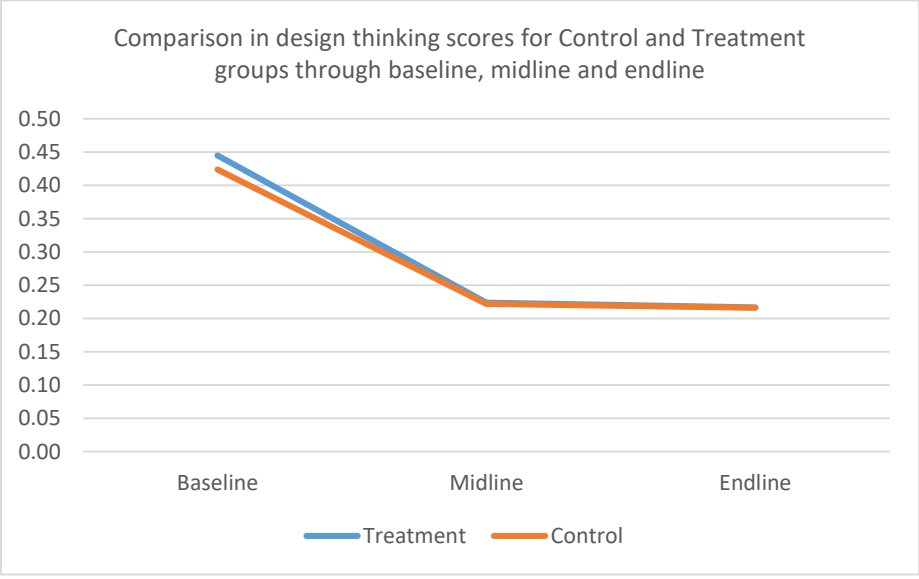
The two stories that aimed to teach the skill of marketing were evenly distributed in the first half of the program and in the second half of the program. For both the stories, children practice the skill of making a marketing aid for a product or a service, indicating the factor of practice and application of a skill repeatedly helps in gaining a higher score.



2. Decision Making: From baseline to midline, children in the treatment group go from 0.50 to 0.65, declining to 0.37 at end-line. The percentage increase from baseline to midline was 14.8%, however, the total change is a negative 16.67%. at the end. For control group, the score decreases from 0.49 at baseline, to 0.48 at midline and to 0.34 at the time of end line. The percentage decrease from baseline to end line was 15.35%. The children not in the program do better than the treatment kids by 1.32% indicating a lesser impact of the program on teaching children decision making skills.

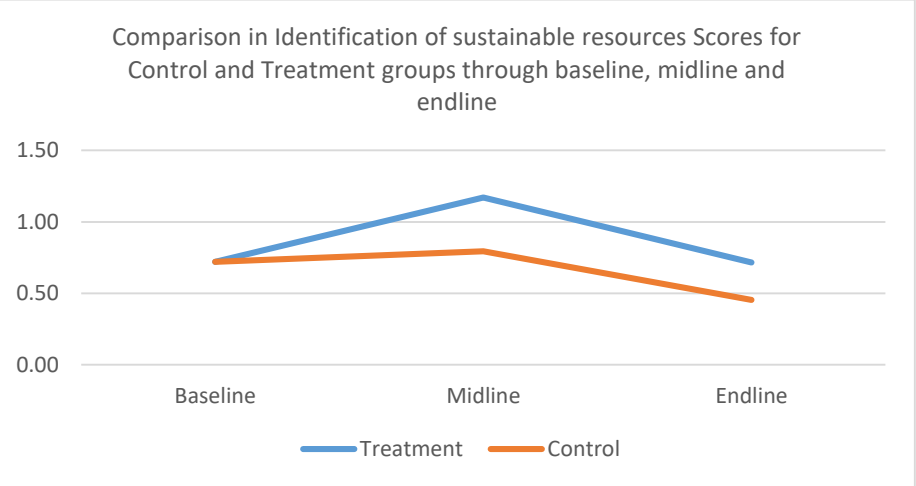


3. Using design to solve problems: For the treatment group, the score decreased from 0.44 in baseline to 0.22 in midline which remained constant at 0.22 at end-line. For the control group, the score decreased from 0.42 in baseline to 0.22 in midline, which remained constant at 0.22 in the end line. The results do not indicate a positive impact of the Be! an entrepreneur program on use of design to solve problems with children.



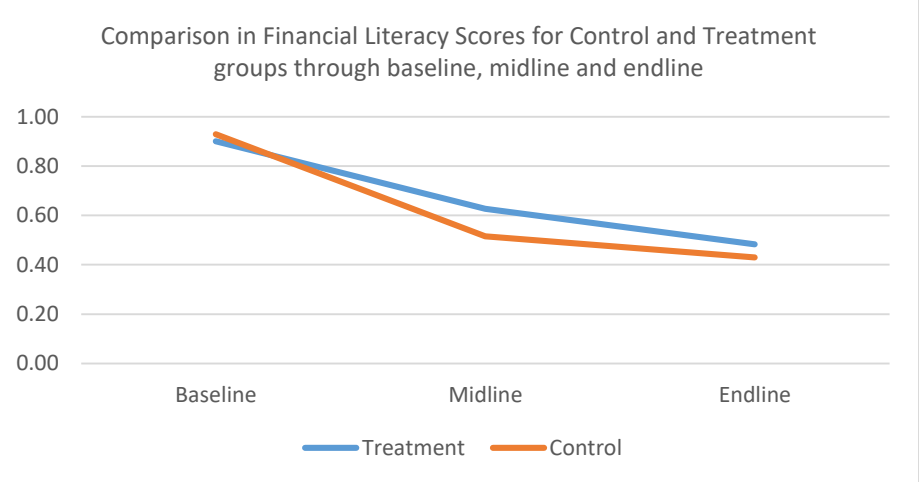
Owing to how the word ‘design’ refers decorative art or craft, putting henna on hands, using bright colors or frilly materials when used in Hindi, it contradicts with the construct of design thinking that refers to problem solving, creating a prototype, testing, re-adjusting the design and planning, the content is unable to make a difference in how the word is understood. The teams delivering the content are also from the same context, facing the same contradiction against two languages and therefore are not able to explain the construct of design thinking effectively.

4. Identification of sustainable resources: For the treatment group, the score increased from 0.72 in baseline to 1.17 in midline, which decreased to 0.72 in the end-line, owing to a total decrease of 5.26% change through baseline, midline and end line. For the control group, the score increased from 0.72 in baseline to 0.79 in midline which again reduced to 0.45 in the end-line. The scores for this skills decrease by a total of 13.87%, indicating that children in the program increase their skills of identifying sustainable resources by 8.61 percentage points over a period of one year.



5. Financial Literacy: Both control and treatment arms show a decline in the trend of scores for this skill. For the treatment group, the score decreased from 0.90 at baseline to 0.63 at midline to 0.48 at end-line. For the control group, the score decreased from 0.93 in baseline to 0.52 in midline to 0.43 in end-line. The percentage decrease from baseline to midline was 13.7% and from midline to end-line was 7.2%, the decrease is further lower for control group first 20.7% to another 4.3% at end line. This positively indicates a total increase of 4.26 percentage points in learning the skill of financial literacy for children in the program for one year.

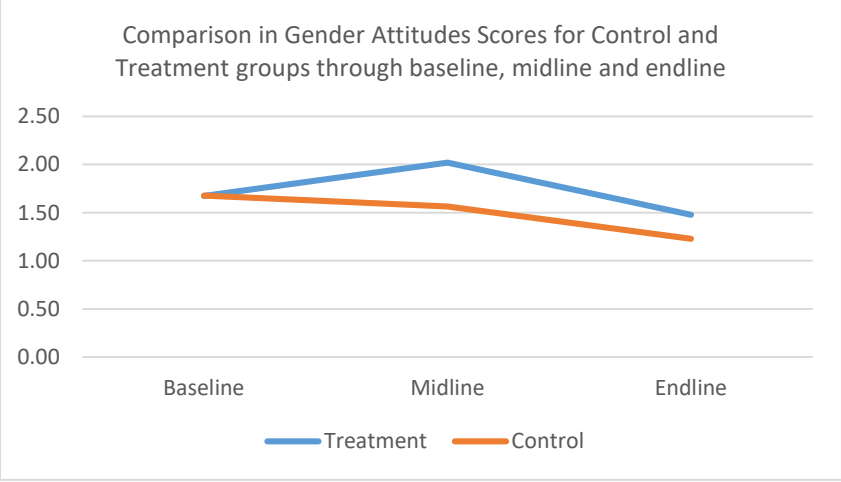
   It is important to note that the two items that were added to present scores for this group included one required children to practice the math for calculation of profit and the other explored the understanding of importance of having an insurance, and both of these were introduced in the curriculum only during the first half of the program, that too briefly.



Changing gender roles and norms.

The items that require children to identify an equitable response for the already existing gender norms, showed a surge in the children's scores in treatment group from baseline to midline but it goes down at the time of end line. The score increased from 1.67 at baseline to 2.02 at midline which decreased to 1.48 at end-line. The percentage increase from baseline to midline goes up by 11.6%, and then decreases by 18.1% at end line. While for the control group, the score constantly kept on decreasing from baseline where the score was 1.68 to midline where the score was 1.56. This further decreased to 1.23 in the end line. The percentage decrease from baseline to midline was 3.8% and from midline to end line was another 11.6%. The difference in percentage change for treatment and control groups indicate that children in the program understand changing gender roles and norms better by 5.94%.

This positive result however is in contradiction to the RCT findings from 2017, as this method of data collection induces bias from the respondent to answer in a socially desirable way. According to the RCT report, there has been a shift in gender norms, slowly and gradually but the percentage change is small.



Understanding entrepreneurship.

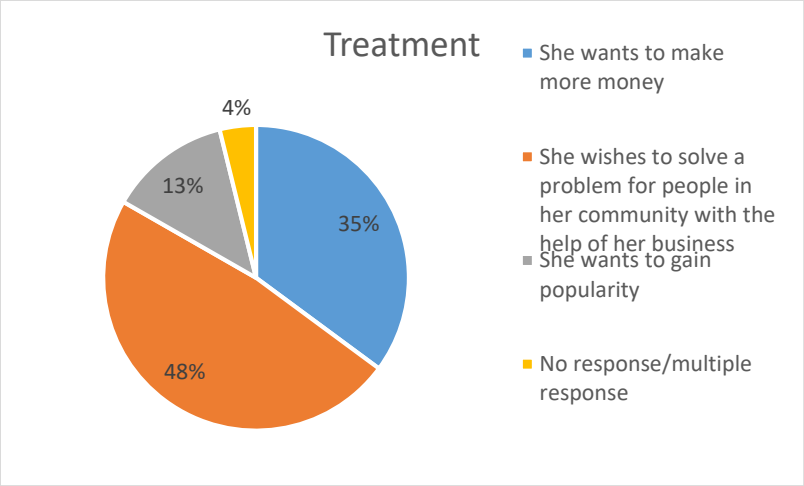
As defined in the purview of the program, an entrepreneur is any individual who identifies and solves a problem using the skills and local sustainable resources around her. To test the knowledge of children's understanding on who is an entrepreneur, the test included questions and the findings on children scored are as follows:

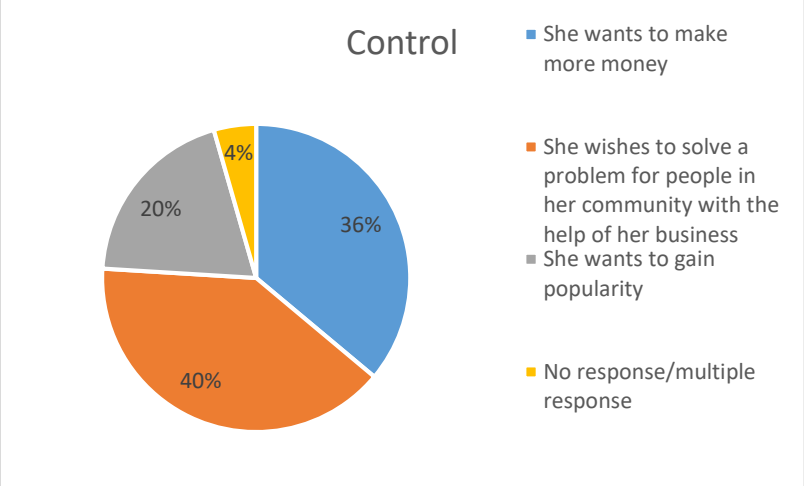
For the treatment group, the score increased from 0.56 in baseline to 0.72 in midline which decreased to 0.41 in the end-line. The percentage increase from baseline to midline was 15.7%, however, at the end of the program there is a percentage decrease of 31%. For the control group, the score declined from baseline where the score was 0.56 to midline where the score was 0.53. This further decreased to 0.40 in the end line. Comparing the difference between total change from baseline to end line for both control and treatment groups show that the children in the program drift further away in building their knowledge about entrepreneurship as compared to the children not in the program.

We asked kids, Farah is an entrepreneur because (select one of your choice), and gave them three options.

a. She wants to make more money
b. She wishes to solve a problem for people in her community with the help of her business
c. She wants to gain popularity

For both control and treatment groups, highest percentage of responses (40% and 48% respectively) were option b, that is to solve a problem for people in her community with the help of her business.

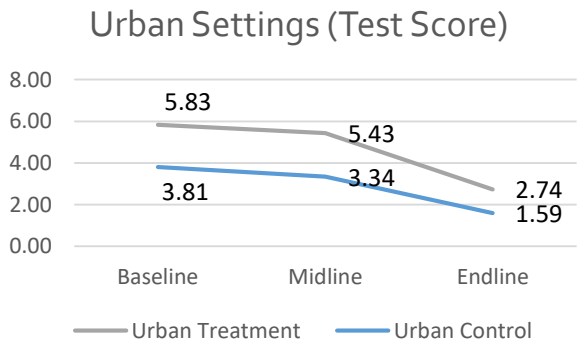


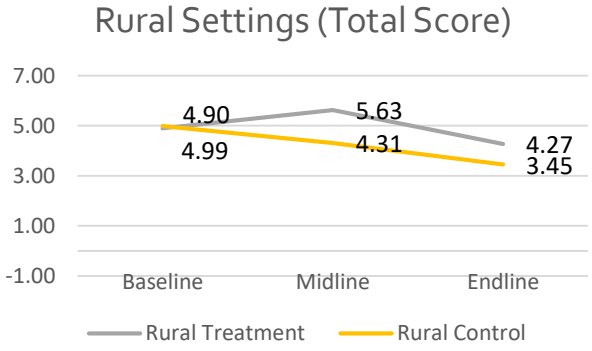


The scores for the correct answers as presented in the pie charts above are higher for the treatment group, it also is important to note that the curriculum in the first half focused much more on the concepts of entrepreneurship, skills, sustainability and design, the focus shifted to hard core business skills and practical application of the skills to create a product, a prototype, a marketing strategy, run a survey and run a product testing for the later stories which could have led to a distortion in understanding being an entrepreneur as the one who solves problems for all in the community versus earning profits and gaining popularity.

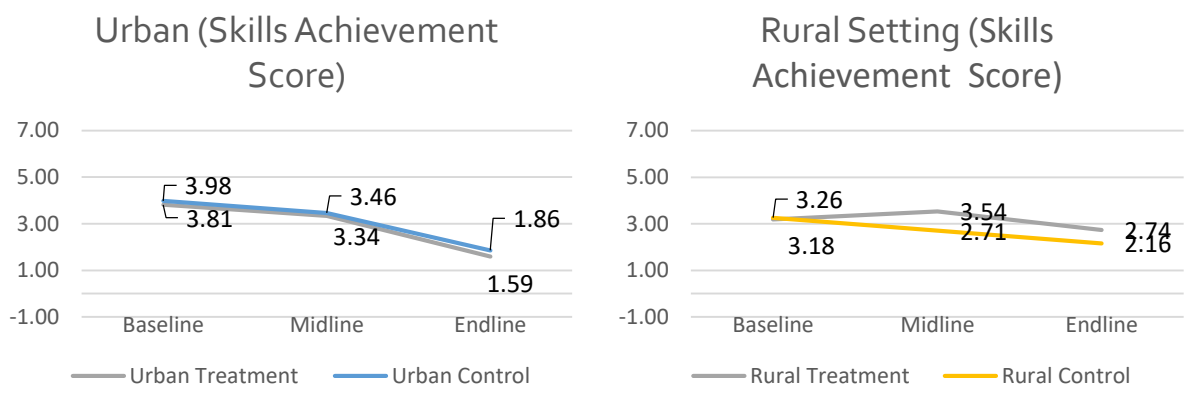
Effect of context on test score and skills achievement score.

As presented in the graphs below, we see a positive surge in the test scores for children in the treatment schools of rural areas while the total test scores decline for children not in the program in rural areas. This compared to the treatment and control groups in urban setting shows a very different picture. From the very outset, the level of skills scores for urban schools in treatment and control groups is very different indicating a non-uniformity of sample and accordingly the almost parallel blue and grey lines for control and treatment show a similar trend.





In urban schools, children in the treatment group perform better on test scores by 7.73 percent points. In the rural schools, a positive impact of 7.01 percent points is observed for children who are in the program.



The comparison of only skills achievement scores between urban and rural setting present to a similar trend on the graphs. Compared to the comparison between test scores, the children from both control and treatment arms start at similar levels at the time of baseline, and then further declining by similar percentages all the way to the end line test. Yet, only in the urban setting, it is found that the control schools leave behind the treatment schools by 1.26 percent points on their skills achievement.

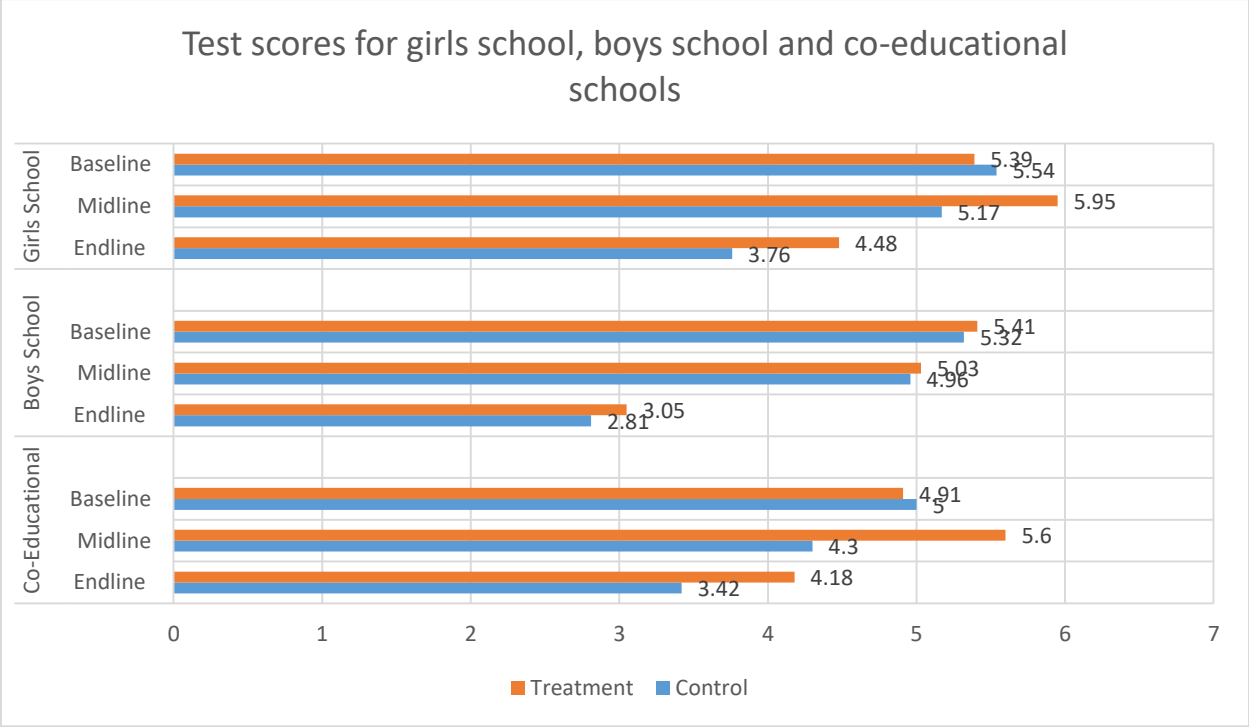
Teasing out the components that are different in test scores and skills scores, the urban children with or without the program seem to do better on their understanding of who is an entrepreneur and changing gender roles and norms at the time of the baseline.

Treatment group children in rural schools perform better than the control group children and the difference is as much as 7.28 percentage points. They start at the same scores, further declining yet, the treatment group experiencing less of a decline that is 6.02% than the control group that is 13.29%.

Effect of type of school or the peers on test and skills achievement scores.

To understand if the type of school- that is if the school is a girls' school or a boys' school or a co-educational school, then what is the role of same sex peers or different sex peers on the

impact of entrepreneurial skills curriculum. The following graph presents the baseline, midline and end line scores for both control and treatment groups for all three type of schools.



In girls' schools, the treatment group goes up in their test scores from baseline to midline (5.39 to 5.95) that declines at the end line showing a total percentage decrease from baseline to end line of 8.95%. The decrease for the control group is higher and sums up to 15.75%, showing that girls in the program do 6.8 percent points better at the end of one year of Be! an Entrepreneur program, if they are in a girls-only environment.

The same scores when looked at for boys in a boys' school, the test scores decline for both treatment and control groups with a greater decline for boys who were not a part of the program. Boys in boys' school increase their test scores by 1.35 percentage points in one year.

The third type of schools are where boys and girls both study together. Children in co-ed schools who got the intervention scored 4.91 at the time of baseline, going to a hike at 5.60 at

midline and then reducing to 4.18 at end line, delta change for the year to be a decrease of 7.45%. Test scores in control group decline from 5.00 to 4.30 to 3.42 from baseline to midline to end line, causing a percentage decrease of 13.85%. The results show that children in co-ed schools (both and boys and girls) show an increase in their test scores by 6.41 percentage points.

Following a similar trend, the comparison of skills achievement scores for the three type of schools show that girls and boys in co-educational environment have a 6.57 percentage point higher skills achievement than children who are not given an intervention. For boys in boys' schools and girls in girls' schools the skills achievement is 3.35 and 7.77 percentage points respectively.

Conclusion

The internal research impact evaluation shows the skills children learned through the program, the differences between girls and boys, urban and rural, with insights into changes in values and perceptions for gender roles, what girls/women can do, Climate Change and sustainability. In one academic year, based on rigorous assessment, grading of children's skills projects, as outcomes for skills assessment/learning:

1. 6.27 percentage points improvement in children's test scores
2. 6.57 percentage points improvement in children's skills achievement scores.
3. 12.38 percentage points improvement in marketing skills
4. 8.61 percentage points improvement in skills of identifying sustainable resources
5. 4.26 percentage points improvement in financial literacy skills
6. The difference in percentage change for treatment and control groups indicate that children in the program understand changing, improved and new gender roles and norms better by 5.94 percentage points
7. Scores for use of design to solve problems and decision making do not show a significant change over one year, identifying design or design-thinking as a

separate skill/value requires new tools for evaluation in Hindi and rural communities, where the concept of design is still often reduced to color, signs or marketing, rather than understanding design-thinking as a problem-solving process, the complexity of the applied skill makes it harder to evaluate.

8. A difference of 15 percentage points between rural and urban test scores, rural being higher indicates Be! an Entrepreneur program's significant impact in rural areas as compared to urban settings. The reasons for this are school-based, rural schools have little new interventions, unlike urban schools that have the excitement of the city, nearby government administration even traffic. Rural Government Secondary Schools have less 'traffic', fewer 'visitors' and as they are still offline, fewer new things happening. It is shown that the new skills stories, games, projects and visitors from outside of the school system i.e. Going to School team members, create excitement, newness and therefore more dedicated participation and a higher response rate from children, teachers and schools in rural Bihar. In rural schools, children show a 7.28 percentage points improvement in their skills scores.
9. While schools are supposed to be co-ed, they are still largely separated into girls' and boys' schools, and from this research the best setting for girls learning skills at school is a girls-only school following by a co-educational setting, boys-only school had lower results. The improvement for test scores for each are 6.80, 6.41 and 1.35 percentage points respectively.
10. The first semester, the first five books, skills, games, projects showed higher participation results, this is due largely to holidays that come later in the year, October/November, Chhath/Diwali/Eid which reinforces the need to begin the program as soon as school opens, deliver as much as possible before the summer floods, and the subsequent holidays.

Recommendations

1. Placement and timing of the baseline, midline and end line tests coincides with the timeline of the program, the first half is intensely engaging and the second half that

begins after regional holidays (one-month or longer) furthering into winter vacations sees less impact due to low attendance and lack of regularity. It might be of value to consider running a twice to three times/week series of skills courses that take advantage of the four months of high attendance i.e. instead of running the program once a week across six to eight months, run it three times a week across two months. This can be tried for the new design of the skills program for 2018, with new content prototyped and run across two months, in high intensity, to see if that achieves skills goals.

2. The first semester had higher impact, it was also ‘known’ or ‘established’ skills stories/content. The second semester had new skills content that was new for both Going to School teams delivering and teachers. As teacher training is shown to have mixed results and take up a lot of time, for mixed results, it’s recommended that Going to School teams and teachers, deliver together for trying out new content, and use this delivery as not just testing results for content, but also for changes/tweaks in delivery to design teacher training movies for ‘how to deliver’ this content. It was shown in our own internal delivery that movies shared through WhatsApp of how to tell a story, how to deliver, worked very well for teams to be able to practice and then deliver. Hence, recommendations for new content delivery are for a design-thinking teaching collaboration between Going to School teams and Government School Teachers for ‘testing’ the delivery, not just the content, making changes in the delivery based on this delivery and making videos, that can be shared by WhatsApp groups, as teachers have those at every district, to show how to deliver and also have access to the groups for follow up, answering questions from teachers and monitoring.

3. There will always be new content, as yet unproven, that has to be tested, changed and then rolled out at scale, content must move with the skills young people need to go work and with issues as they change i.e. climate change, pollution, violence against women and girls, ensuring the delivery is as important as the content, and designing content for this delivery is paramount as a way forward for inclusion in schools and scale, empowering teachers with resources they can use, movies, to deliver skills at school.

Tables

Table 1

List of stories, games and skills challenges in the order of implementation

About the Story	Game/ Activity	Skills Challenge	Skills + Values
1. Family Tree "Everyone in my family is a hero." Seema learns the meaning of an entrepreneur. She goes on a journey and explore how her family is a family of entrepreneurs. In her family, nobody says, "I want this" or "I want that," they make a plan to achieve whatever they want. This story is about finding a hero in each one of us, wherever we are with whatever skill we have.	Pehchaan Kaun/ Who's That: Can you make your friends guess a word without using the most common words associated with it? Guess skills, household objects, relations, and enterprises!	Mission Family Tree: Children practice their understanding of who is an entrepreneur following this step by step challenge to find out their heroes in the family. As a conclusive step, chalks out a plan for their lives identifying the resources, people and skills they will need to stick to their plan.	Introduction to all entrepreneurial skills. Taking initiative. Taking responsibility.
2. Design in Everyday Things Design is everywhere, in everyday things. What is a good design? A design that solves problems. How can you make a great design? By being resourceful. What is a sustainable design? Something that you can use and reuse. Through this book, you can explore design in everything you see in your day to day life.	A poster with an outline of a street cart that goes into every classroom. Work together to fill the outline with different resources that can help build the cart. For example, on the surface of the cart you can paste waste wood.	Mission My Street cart: Children design a street cart of their dreams following their understanding of the principles of human centered design and use of sustainable resources. Not just this, they follow the same principles to decorate the cart as well.	Design thinking. Identification of Resources. Sustainability.
3. Book of Leaves You may be surrounded by problems, but there are solutions all around you as well. You can start by identifying the problems, followed by finding their solutions. And what then? Gathering all the necessary resources. Climate change is a problem which is affecting us all. Meet some of the heroes and know their stories about how they're fighting climate change.	Cash Flow: Children earn/lose money as they move across the board and have to maintain a cash flow statement.	Mission Blueprint: To solve a problem by connecting the locally available resources to sustainable solutions and making a blueprint for the same.	Sustainability. Making a blueprint. Identification of resources.

4. Plan Bee Failure leads the way to success. But on the journey, you will need to learn many new things. And, in the end, they will all be useful. The road to success is, more often than not, bumpy. First a cowherd, then a dishwasher, mason, luggage carrier, windmill construction labor– our hero was all of these before he became a beekeeper. A successful one. He didn't only solve his personal problem but also the problem of the environment.	Marketing Game: Two people play against each other. They pick a business card and are given two minutes to pick out marketing cards that work best for that particular business. The referee then evaluates both strategies and chooses the winner.	Mission Marketing: A weekly challenge to move up the entrepreneurial skills curriculum to learn how to create a marketing aid for your product or service, understanding the basic fundamentals to design something that is not only attractive but sells your product to the customers.	Marketing. Rising over failures. Making a plan.
5. Choose Your Own Adventure This is your story. You are the hero. Make your choices, and then see where you end up. It is going to be a very interesting journey. Decisions are all kinds – good and bad. Weigh the pros and cons of any decision beforehand. Most of the things in life come with choices, and the best part is that you get to choose what is important for you.	Adla Badli/The Swap - A group of 5+ people play together. Every person gets a recipe card and certain resource cards. You must barter with the other players to swap your resources and collect all the cards you need.	Mission Choose your own adventure: As kids take roles of the heroes for this story, they journal they thoughts about every decision they take stating the fears, calculations, pros and cons that they are thinking while taking a decision.	Decision making. Weighing pros and cons. Conducting Market Research. Understanding demand and supply. Taking responsibility.
6. The story of One Acre A month by month guide to planting your own organic garden. The invisible skills you will need: resilience, discipline, patience, perseverance and time management.	The Nursery Game: How many nurseries can you build? Roll the dice, buy resources, trade, and strategize!	Mission Plant Journal: On a given format to record the long term growth of their organic gardens, children make notes about all the plants they are growing in their organic garden.	Working in a team. Understanding the consequences of being on time. Overcoming failure. Making a plan and documentation. Patience. Determination.

7. The Brown Eyed Boy You must have heard that fruits and vegetables today don't taste as good as they used to. Taukir wasn't happy about it, he wanted to change this. The question was – How? He found the two word answer in a long lost forgotten diary – Organic Compost.	Charkhi Bazaar: Market are always unpredictable. Spin the wheel to know where you land with your marketing strategy for your unique product. A 4-player challenge, ruled by a referee lets the players to run against time to get the best marketing strategy for their product following the principle of 4P.	Mission Marketing Plan: Children make a marketing strategy for Taukir's Vermi compost Business. following the four principles of marketing they learnt from this story.	Making a plan. 4Ps of Marketing. Effective communication.
8. Where's the Loo Many girls and boys miss school. Some return early from school. Some even fall sick when they go to school. Rashmi went to the root of this problem and found the reason – there was no toilet in the school. How can you solve this problem? By building toilets for all!	Flush: If you do not make the right move in this 4-player board game to avoid getting flushed out of your business. Stay cautious, as anything may your way while you are paying all your effort to your work.	Mission Toilet Audit: To understand the real needs of the people in their community, conducting a survey may just be the best tool. It is important you ask the right questions in the right way. Children complete a little survey understanding people's toilet needs in the community.	Getting to the bottom of a problem. Research. Problem solving. Conducting a survey. Asking the right questions.
9. Made, A Story of Two Ways Ganesh and Manjula embark on a journey and end up at the same place. What do they do? They make their dreams come true. There is one common thing between both of them – they make something out of once-used-things.	How to build a robot DIY kit: geared with a glue gun and the necessary materials to build a simple yet heavy duty all terrain robot gives kids a chance to practice some engineering themselves.	Mission Product Testing: Just Manjula and Ganesh come up with a prototype and run it by their potential customers to get feedback and making appropriate changes to the same.	Product testing. Making alterations to prototype. Accepting feedback.
10. Recycled Paper Bag Hero What can girls do? Everything. And also, run an enterprise. Shazia is an observer. She realized the different roles men and women were playing around where she lived. But it bothered her. Why? Because girls were not doing everything they wanted. Another thing that bothered her was – plastic. It was everywhere. She made a plan	Debit Credit Game: After getting their hands on writing an error free cash flow, this game encourages children to work with real coins to see the money come and go in their accounts. A challenging series of mathematical tasks to be done using coins makes this for an exciting play.	Mission financial planning: As the name suggests, the skills challenge drills kids on the various heads of expenditure and earning leading the kids to come up with the most concrete financial plan for their enterprise.	Identification of resources, sustainable resources, sustainable solution, environmental consciousness. Breaking gender stereotypes. Taking ownership.

and that made all the difference.			
11. The Ultimate Stitch Sometimes you take many wrong turns to find your way. Angat finally does and builds an enterprise. A sustainable enterprise – he upcycles rice sacs and helps in curbing the use of plastic. But for the enterprise to be successful, he needed to know more things. Branding, marketing and what else?	My Business Plan Game V2: A big board game that provides four different contexts and options to choose from to set out your perfect business plans. The one who gets the connection between the problem, customers, services and the supply correct is the winner at the end.	Mission business plan: This skills challenge combines kids' knowledge gained from book 1 to book 10 to help them create a business plan for their enterprise idea.	Recovering from failure. Market research. Making a business plan.

Table 2

District wise division of schools and the enrolment of kids in each district

S. No.	Districts	Total no. of schools with GTS program	Total enrollment in schools
1	**Bhagalpur**	120	27877
2	**Darbhanga**	113	31631
3	**Gaya**	100	29909
4	**Katihar**	60	18494
5	**Khagariya**	59	16880
6	**Kishanganj**	60	9990
7	**Muzzafarpur**	100	35251
8	**Nalanda**	100	22000
9	**Samastipur**	85	31320
10	**West Champaran**	95	19136
11	**Patna**	50	11500
Total		942	253988

Table 3

District wise distribution of sample for control and treatment groups

S. No.	District Name	Total number of schools with Be! an entrepreneur program	Number of schools in treatment arm	Number of schools in control arm
1	Bhagalpur	120	20	20
2	Katihar	60	10	10
3	Khagaria	60	9	9
4	Kishanganj	60	11	11
5	Gaya	100	15	15
6	Nalanda	100	15	15
7	Darbhanga	113	19	19
8	Muzaffarpur	100	17	17
9	Samastipur	85	15	15
10	West Champaran	95	16	16
11	Patna	50	7	7

Table 4

Number of schools for selected categories in control and treatment arms across 11 districts.

S. No.	District	Types of schools for treatment and control group			Setting for the treatment and the control group	
		Co-Ed	Girls	Boys	Urban	Rural
1	Bhagalpur	18	1	1	1	19
2	Darbhanga	18	1	0	0	19
3	Gaya	15	0	0	2	13
4	Katihar	10	0	0	1	9
5	Khagariya	9	0	0	9	0
6	Kishanganj	11	0	0	0	11
7	Muzaffarpur	16	1	0	0	17
8	Nalanda	14	1	0	1	14
9	Samastipur	14	1	0	0	15
10	West Champaran	14	2	0	0	16
11	Patna	5	1	1	3	4
Total		144	8	2	17	137

Table 5

Number of children in treatment and control groups across baseline, midline and endline assessment.

S. No.	District	RMSA					
		# of Baseline		# of Midline		# of End-line	
		Treatment	Control	Treatment	Control	Treatment	Control
1	Bhagalpur	2589	1885	2123	1523	1742	1236
2	Darbhanga	1535	1306	1250	1008	1201	971
3	Gaya	1497	1156	1173	851	928	708
4	Katihar	723	381	529	289	402	210
5	Khagaria	1420	964	0	0	0	0
6	Kishanganj	1350	754	655	500	515	387
7	Muzaffarpur	1392	1222	668	706	558	611
8	Nalanda	2258	2466	1744	1966	1468	1572
9	Patna	852	706	542	419	468	329
10	Samastipur	1327	1161	1117	976	1050	916
11	West Champaran	1262	1146	870	833	797	735
Total		16205	13147	10671	9071	9129	7675

Table 6

Mean scores for different groups under different score categories, along with percentage change.

Score categories	Arm	Baseline	Midline	Endline	Maximum score	delta1%= Midline-baseline	delta2% =Endline-midline	Percentage Change	Compare percentage treatment - control
Total Score (11)	**T**	4.95	5.62	4.18	11.00	6.0	-13.0	-7.78	6.27
	C	5.04	4.37	3.43	11.00	-6.1	-8.5	-14.05	
Skills Score (8)	**T**	3.22	3.53	2.67	8.00	3.8	-10.7	-7.26	6.57
	C	3.29	2.75	2.14	8.00	-6.8	-7.5	-13.84	
Financial Literacy (2)	**T**	0.90	0.63	0.48	2.00	-13.7	-7.2	-19.88	4.26
	C	0.93	0.52	0.43	2.00	-20.7	-4.3	-24.14	
Identifying sustainable resources (2)	**T**	0.72	1.17	0.72	2.00	22.5	-22.7	-5.26	8.61
	C	0.72	0.79	0.45	2.00	3.7	-16.9	-13.87	
Using design to solve a problem (1)	**T**	0.44	0.22	0.22	1.00	-22.1	-0.7	-22.66	-1.98
	C	0.42	0.22	0.22	1.00	-20.2	-0.6	-20.69	
Understanding entrepreneurship	**T**	0.56	0.72	0.41	1.00	15.7	-31.0	-20.16	-4.28
	C	0.56	0.53	0.40	1.00	-2.7	-13.6	-15.88	
Marketing	**T**	0.65	0.86	0.88	2.00	10.2	1.2	11.45	12.38
	C	0.73	0.74	0.71	2.00	0.7	-1.6	-0.93	
Decision making	**T**	0.50	0.65	0.37	1.00	14.8	-27.4	-16.67	-1.32
	C	0.49	0.48	0.34	1.00	-1.9	-13.7	-15.35	
Gender attitudes	**T**	1.67	2.02	1.48	3.00	11.6	-18.1	-8.58	5.94
	C	1.68	1.56	1.23	3.00	-3.8	-11.2	-14.52	
Rural Test Scores	**T**	4.90	5.63	4.27	11.00	6.6	-12.3	-6.52	7.01
	C	4.99	4.31	3.45	11.00	-6.2	-7.8	-13.53	
Urban Test Scores	**T**	5.83	5.43	2.74	11.00	-3.7	-24.5	-27.25	-7.73
	C	3.81	3.34	1.59	11.00	-4.3	-15.9	-19.53	
Rural Skills Scores	**T**	3.18	3.54	2.74	8.00	4.4	-10.0	-6.02	7.28
	C	3.26	2.71	2.16	8.00	-6.9	-6.9	-13.29	
Urban Skills Scores	**T**	3.81	3.34	1.59	8.00	-5.9	-21.8	-26.49	-1.26
	C	3.98	3.46	1.86	8.00	-6.4	-20.1	-25.23	
Co-Educational Total	**T**	4.91	5.60	4.18	11.00	6.3	-12.9	-7.45	6.41
	C	5.00	4.30	3.42	11.00	-6.4	-8.0	-13.85	
Boys School Total	**T**	5.41	5.03	3.05	11.00	-3.5	-18.0	-20.83	1.35
	C	5.32	4.96	2.81	11.00	-3.3	-19.5	-22.18	
	T	5.39	5.95	4.48	11.00	5.1	-13.4	-8.95	6.80

Girls School Total	**C**	5.54	5.17	3.76	11.00	-3.4	-12.8	-15.75	
Co-Educational Skills	**T**	3.19	3.52	2.67	8.00	4.1	-10.6	-6.94	6.57
	C	3.26	2.71	2.14	8.00	-6.9	-7.1	-13.51	
Boys School Skills	**T**	3.46	3.05	1.86	8.00	-5.1	-14.9	-19.24	3.35
	C	3.43	3.04	1.55	8.00	-4.9	-18.6	-22.59	
Girls School Skills	**T**	3.55	3.73	2.83	8.00	2.3	-11.3	-9.25	7.77
	C	3.75	3.24	2.33	8.00	-6.4	-11.4	-17.02	

Annexure

I. Selection criteria for control group

1. Accessibility: The scores for this parameter was calculated based on
    a. the number of villages that the school caters to,
        - If the school caters to children from 1-5 villages, it was scored as 3
        - If the school caters to children from 6-10 villages, it was scored as 2
        - If the school caters to children from 10-15 villages, it was scored as 1
        - If the school caters to children from more than 15 villages, it was scored as 0.

    Lesser the number of villages, higher the score.

    b. The distance of the next nearest school where grade 9 is taught?
        - If the distance was less than 5 kms, it was scored as 3.
        - If the distance was between 5-10 kms, it was scored as 2.
        - If the distance was between 10-15 kms, it was scored as 1.
        - If the distance was more than 15 kms, it was scored as 0.

    Nearer the school, greater the score.

    c. The greatest distance travelled by the child to attend the school?
        - If the distance travelled by the child was less than 5 kms, it was scored as 3.
        - If the distance travelled by the child was between 5-10 kms, it was scored as 2.
        - If the distance travelled by the child is between than 10-15 kms, it was scored as 1.
        - If the distance travelled by the child was more than 15 kms, it was scored as 0.

    Nearer the school, greater the score.

***** The highest score for the domain was 9 and lowest score was 0. The range of score for the accessibility domain was between 0-9.***

2. Infrastructure: The scores for this parameter were calculated based on the following 10 observations.

a. Hostel facilities for children, score 1 if “Yes” or else, score 0 if “No”

b. Number of classrooms

- If the number of classrooms were more than 30, then it was scored 6.
- If the number of classrooms were between 25-30, then it was scored 5.
- If the number of classrooms were between 19-24, then it was scored 4.
- If the number of classrooms were between 13-18, then it was scored 3.
- If the number of classrooms were between 7-12, then it was scored 2.
- If the number of classrooms were between 1-6, then it was scored 1.
- If there were no classrooms, it was scored 0.

c. If blackboard was available, it was scored “1”, if it was not available, it was scored “0”

d. Electricity

- If the school had electricity access for more than 4 hours, it was scored “2”
- If the school had electricity access for less than 4 hours, it was scored “1”
- If electricity was not available in the school, it was scored “0”

e. If boundary wall in the school was available, it was scored “1”, if it was not available it was scored “0”

f. If the school had access to water, it was scored “1”, if it was not available it was scored “0”

g. If the school had access to drinking water, it was scored “1”, if it was not available it was scored “0”

h. Availability of toilet

- If toilet was available, it was scored “1”, if not it was scored “0”
- If toilet was functional, it was scored “1”, if not it was scored “0”
- If toilet was available for girls, it was scored “1”, if not it was scored “0”

The total score on this sub-domain was “3” with the highest score being “3” and the lowest score being “0”.

i. If a functional library was available in the school, it was scored as “1” and if no library was available, was scored “0”

j. If a playground was available in the school, it was scored as “1” and if no playground was available, it was scored as “0”

***** The highest score for this domain was 18 and the lowest score for the domain is 0. The range of score for the infrastructure domain is between 0-18.***

3. Teaching resources: there were three questions pertaining to number of sanctioned teachers, number of teachers assigned to the school and the number of female teachers in the school. However, teaching resources were not taken into account as the information could not be validated with a reliable source. Further, availability of toilet is taken into account and not the number of toilets.
4. Enrolment:
    - If the enrolment was less than 200, it was marked as “2”
    - If the enrolment was between 200-400, it was marked as “1”
    - If the enrolment was more than 400, it was marked as “0”

II. Test Questionnaire

1. Which of these is the most sustainable design for a sun-shade? Select one of your choice.
    a. A sun-shade made of new sheets of plastic
    b. A sun-shade made of metal
    c. A sun-shade made of old sheets of plastic

2. Which of these designs is the least useful? Select one of your choice.
    a. Using brightly colored paint to decorate a street cart
    b. Arranging the benches in a classroom so that all students can hear the teacher
    c. Sewing pockets of different sizes into your bag to help you carry more things

3. Farah is an entrepreneur because: (Select one of your choice).
    a. She wants to make more money
    b. She wishes to solve a problem for people in her community with the help of her business
    c. She wants to gain popularity

4. Which of these would be an effective way to create an identity for your new product? Select one of your choice.
    a. Tell people how your product is just like something else that is already for sale
    b. Describe how your product is new and different
    c. Only try to sell your products to your friends

5. Women should have opportunities to work outside the home because: (Select one of your choice).
    a. Women are more skilled than men
    b. Women can equally participate in economic activities
    c. There is no reason for women to work outside the home

6. Which of these is a sustainable resource? Select one of your choice.
    a. A certain flower available only in another country
    b. Bamboo collected from a village far away
    c. Cow dung available in your village all year-round

7. You own a street cart, and want to know whether you are making a profit. In the month of January, your income from your cart was Rs. 200. The materials to make the products you sold cost you Rs. 100. You had to pay Rs. 20 to rent space for your cart. You also had to pay Rs. 10 in taxes. How much profit did you make in January? Select one of your choice.
    a. Rs. 200
    b. Rs. 70

c. Rs. 90

8. Girls and women can make a successful financial decision based on: (Select one of your choice).
    a. Their own knowledge or that gained through education
    b. What their parents suggest
    c. The male members of their family

9. Which of these is an important step in marketing? Select one of your choice.
    a. Thinking about the packaging for your product
    b. Changing your product based on input from your family
    c. Choosing to set up a shop in your own village

10. What is the importance of insurance to your business? Select one of your choice.
    a. To help increase your profits
    b. To help more people get attracted to your business
    c. To cover risk of theft/fire/natural disasters

11. Enterprises (e.g., adult literacy camps) that help women are important because: (Select one of your choice).
    a. Women have equal right to learn as men do
    b. Women can write letters to their husbands

    Women can write grocery lists