

Design for Change: Impact of an In-school Experiential Learning Program

Design for Change (DFC) is a global movement that introduces experiential learning to students in schools, and operates under a **framework called Feel-Imagine-Do-Share (FIDS)** that has been developed by the Riverside School in Ahmedabad, India. Under this framework, children are encouraged to **Feel** a problem that bothers them, **Imagine** a way to make it better, **Do** something to make a change and **Share** their story of change with the world. Through this experiential learning approach, the DFC model aims to introduce 21st century skills to students, foster a collaborative learning environment that is interactive and engaging^{1,2}, and improve critical thinking and problem-solving skills³ for the participants.

DFC holds the DFC School Challenge every year, and as part of the challenge, school students are encouraged to spend a minimum of one week working on a project to bring about positive change in their communities. The DFC School Challenge received 700 project entries from India and 1500 entries globally in its initial years. In 2014, these numbers have increased to 1992 and 7539 respectively. DFC is currently operational in over 30 countries across the globe.

An in-depth case study analysis conducted by Evaldesign in Tamil Nadu using the maximum variation sampling strategy measured the impact of the DFC program on students, teachers and parents. The evaluation has clearly shown that the DFC program has a significant impact on all stakeholders and brings about a sustainable, long-term positive change in society. Key impact areas are listed in this brief and a case study is presented to highlight the impact of the program.

1. Feel-Imagine-Do-Share is a transferrable model
2. Participants demonstrate higher creative skills
3. Students learn 21st century skills and attitudes
4. Teacher involvement improves
5. Parental perceptions become positive
6. Community behaviour changes
7. Significant sustainable positive change occurs

Outcomes of the DFC Program

1. Feel-Imagine-Do-Share is a transferrable model

The transferability of the FIDS model was demonstrated by the ability of students to apply the process to design solutions to social issues. Based on the responses of the students for an activity that assessed whether the FIDS model was used to solve the issue of caste discrimination, it was evident that the students had acquired the ability to understand and articulate problems, design creative solutions and propose means of implementing change.

Table 1. Student responses demonstrating the FIDS approach applied to the problem of caste-based discrimination.

<p>FEEL <i>"Where is the line that divides people into caste? I don't see it."</i> – Grade 9 Student, PUMS, Soolapuram</p>	<p>IMAGINE <i>"Amongst us students, we never see who is from which caste. If it could be the same in society, it would be very nice."</i> – Grade 8 PUMS, Student, Achimangalam</p>
<p>DO <i>"I will go for an inter-caste marriage."</i> – Grade 9 Student, PUMS, Achimangalam</p>	<p>SHARE <i>"Visit schools in our locality and present speech skit on the topic."</i> – Grade 12 Student, Kaligi Montford</p>

2. Participants demonstrate higher creative skills

DFC project participants demonstrated higher creative skills as compared to non-participants. The Torrance Tests of Creative Thinking (TTCT), created by Ellis Paul Torrance, is one of the most widely used creativity tests. Analysis of drawings created by 301 based on a single item of the Torrance Test showed that students who had participated in DFC demonstrated higher fluency (production of ideas), flexibility production of different ideational categories) and originality (production of unusual ideas) of ideas. The median frequency (non-uniqueness) of an image created by a DFC participant was 20, whereas it was 40 in the case of a non-participant, indicating that 50% of non-participants were likely to create images that were repeated 40 times, twice as many times as that of DFC participants.

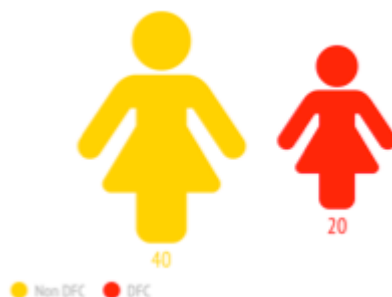


Figure 1. Median Frequency of images recorded for the Torrance Creativity Test by DFC (n=90) and Non-DFC participants (n=211).

3. Students learn 21st century skills and attitudes

Based on self-reported student responses (n=81), confidence (28%) and social consciousness (11%) were the most commonly inculcated skills for DFC participants. Other attributes included empathy, communication skills, collaboration, diligence, equality, management skills, motivation, pride and social awareness. Several years after the completion of the projects, students continue to report better communication skills, improved teamwork and greater confidence levels. They also demonstrated greater critical thinking and negotiation skills and learnt networking, business planning and time and financial management skills.

4. Teacher involvement improves

Teachers in participating schools demonstrated a greater ownership of school activities and improved classroom interaction. Teachers began taking the responsibility for motivating students to bring about change. In Kalachery for example, the teacher was central to leading the students for bringing about profound change in the community. The school succeeded in bringing suicide rates to zero through the DFC project initiated by a teacher.

5. Parental perceptions become positive

Execution of DFC led projects not only changed the parental perceptions of education, it led to a positive change in parental attitudes towards government schools. In Aachimangalam, for example, over 20 parents moved their children from a private school to the government school as a result of the recognition received due to the successful completion of the DFC-led Eco-wall project.

6. Community behaviour changes

Based on 81 responses, received from DFC participants across the sample schools, regarding changes they observed in the community post project implementation, development constituted 25% of the responses, followed by social awareness accounting for 20%. Other community outcomes included, change in mind-sets, confidence, equality, courage, motivation, recognition, empathy and collaboration.

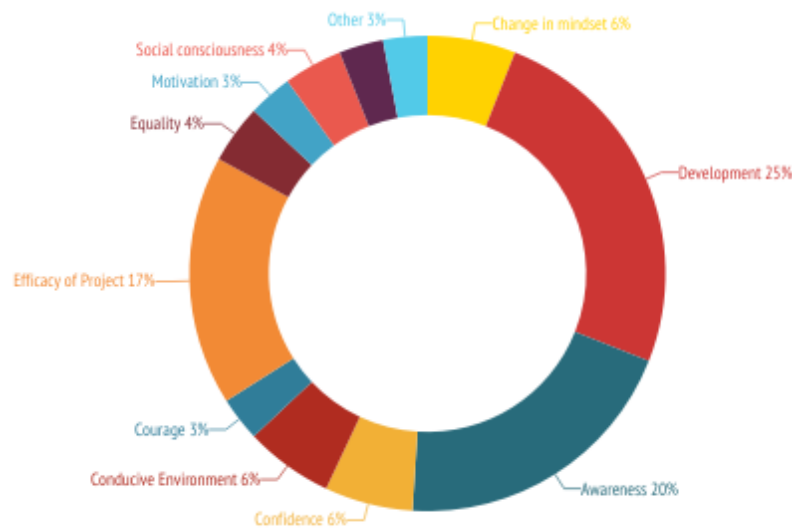


Figure 2. Pie chart demonstrating observed changes in community as reported by students (n=81)

7. Significant sustainable positive change occurs

Significant community level improvements were observed as a result of activities initiated through the DFC program. For example, in Bettatti, alcoholism was addressed; in Kalachery, the issue of rampant suicides in the community was tackled; in Tiruvallur child abuse was brought to the fore as an issue and in Karur, sanitation was taken up as a cause. Following the FIDS process, not only do the students and school create a positive impact on the community, but also succeed in making long-term and sustainable change in society.

Case Study: Construction of an Eco-Friendly Boundary Wall

Panchayat Union Middle School (PUMS), Achimangalam is located on the outskirts of Karur and has earned popularity for its ‘Eco Wall’, which was constructed as part of a project for DFC School Challenge in 2014.



In 2014, students of PUMS, Achimangalam built an innovative, eco-friendly compound wall around the school. The lack of a boundary wall was an issue for the school because passers-by used to dump garbage in the school premises, stray animals would wander into the compound and given that the school was located close to a busy road, the chances of children accidentally running out to the road was high.

Inspired by knowledge shared by their science teacher Ms. Sasireka, who had watched a video on utilizing recycled waste to construct houses in low income countries Grade 7 & 8 students decided to build a compound wall for their school using environment friendly and low-cost techniques. The students first experimented by building a small 4ft x 4ft wall on campus using recycled plastic bottles filled with sand and mud, layered on top of each other. The success of erecting an experimental wall encouraged them to build a larger section of wall around the school campus. Their teacher told them *“not to wait for others and to solve their own problem of not having a compound wall.”*

The next step towards building the full-scale wall was the collection of recyclable bottles in large quantities. Students collected about 600 bottles from their neighbourhood. This required presenting and defending their idea to a sceptical community. All bottles were required to be of the same size so that layering in order to build a wall could be uniform. Furthermore, it was hard to procure bottles with caps to ensure sand would be contained. Regardless, the students successfully collected about 1500 bottles in collaboration with teachers and students from other schools, a ticket collector in the transport department and with friends of their teacher. Impressed by their hard-work and conviction, the Head Mistress of the school agreed to finance any additional material required to construct the wall.





The final execution of the construction of the wall was again a challenge. This required guidance from masons, none of whom were willing to try this experiment. Eventually, the students convinced a parent of a classmate, who agreed to help. Further community support was garnered, and with complete involvement of the students, the plastic bottles were bound by a red soil mixture, layered in levels and finally coated with a layer of cement. In one week, a complete compound wall was constructed at very low cost. A student proudly stated, *“If we were to build the wall with concrete, it would cost us around 40,000-50,000. But now we were able to do it in very low cost.”*

Eco Wall was selected among the Top 5 Innovative stories of change in the Long Lasting DFC awards category. The award has brought PUMS, Achimangalam significant media attention and recognition from schools within the state and all over the country. Students are seen applying the reuse and reduce ideology throughout the school and have developed self-confidence and a strong sense of empathy towards the environment to this day. *“If we try, there is nothing we can’t do”*, said one of the students, and a parent was recorded saying, *“nowadays he [his son] can do anything...earlier he used to hesitate.”*

The teacher, Ms. Sasireka has also observed her students take greater ownership of activities and offer suggestions to improve learning in class. The shared experience of doing the project together has built a strong bond between the teachers and students.

The impact of the Eco Wall construction spread beyond the village and even the state. The ease and adaptability of the idea prompted five more schools to replicate the experiment. A number of teachers from schools in the vicinity approached Ms. Sasireka with a keen desire to learn more about participating in DFC. A college from the state of Kerala sent students to learn about the construction process from the school students at Achimangalam and the parent who helped build the Eco Wall has been employed by the college in Kerala to construct a similar wall at a larger scale.

PUMS, Achimangalam secured a position in the Top DFC projects and from the prize money won, they have built a Disney Innovation Room for their primary school. A sense of community pride about the school’s achievement has led to increased school enrolment. In a country where private schools are invariably rated at a higher quality as compared to government schools, the uncle of one of the DFC participants immediately transferred his own son from a private school to PUMS, Achimangalam along with 23 other parents.



Implementation Framework

Overall analysis of the case studies has led to the emergence of a strong theory of change for the successful implementation of the DFC program. Exposure to a stimulus leads to students choosing a solvable problem. Subsequently a needs analysis is conducted to identify a feasible solution to the issue. Students then plan for the successful implementation of the project eventually leading to positive societal impact through dissemination of information and eventually recognition of the students' efforts. Participating in the program eventually leads to change in attitudes and an improvement in 21st century skills. The implementation process is outlined below.

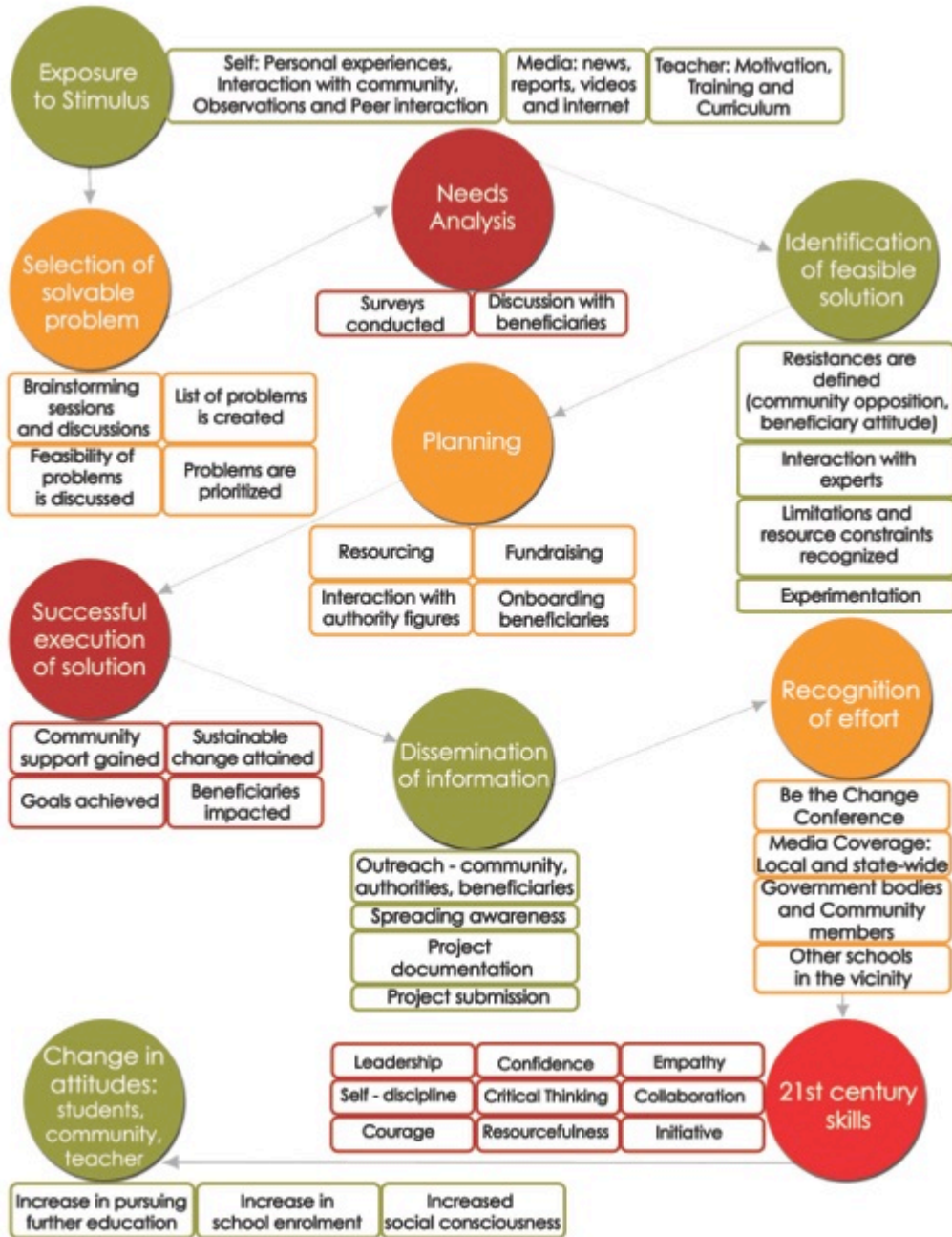


Figure 3. Logical framework for the implementation of the DFC program.

Cost Effectiveness

At a cost of USD 10 to train a teacher, a minimum 10 students are impacted through the DFC challenge using conservative estimates. Therefore at a highly cost-effective rate of 1 Dollar per student per year, DFC addresses the need for learning transferable skills and creating a long-term impact on students. If the impact on teachers and community is considered, the DFC program probably one of the most cost-effective means of inculcating attitudes, values and skills most needed for the 21st century.

References

¹ Thomas, Dennis, J. R. Mergendoller, and A. Michaelson. *Project-based learning: A handbook for middle and high school teachers*. (1999)

Jones, Beau Fly, Claudette M. Rasmussen, and Mary C. Moffitt. *Real-life problem solving: A collaborative approach to interdisciplinary learning*. American Psychological Association. (1997)

² Holm, Margaret. *Project based Instruction: A Review of the Literature on Effectiveness in Prekindergarten*. (2011)

³ Mergendoller, John R., Nan L. Maxwell, and Yolanda Bellissimo. *The effectiveness of problem-based instruction: A comparative study of instructional methods and student characteristics*. *Interdisciplinary Journal of Problem-based Learning* 1.2. (2006)

About Evaldesign

Evaldesign is a Research Consulting Firm set up in 2013 with a focus on designing Educational programs to improve student outcomes. We provide inputs that lend programs an intrinsic ability to capture high quality data for rapid feedback, effective implementation and impact evaluation. Our mission is to help donors, investors, governments and non-profits in the social sector innovate and implement programs by providing high quality, cost-effective consulting on project roll-outs, scale-ups and impact assessments.

Project Evaluation Team: Akanksha Bapna, Namrata Sharma, Manavi Gupta, Aditi Parekh