

# P2 Report

## Using Nudges to prompt positive actions among children in schools



By,  
Thuli N Chishi  
Interaction Design  
IDC, IIT Bombay

**Guide**  
Prof. Ravi Poovaiah

## Acknowledgement

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Thuli N Chishi  
176330004  
Interaction Design Sr.  
M.Des 2018  
IDC school of design.

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# 1

## Introduction

Nudging has been used to promote healthy and desirable behaviour for a person's wellness and wellbeing in clinical sense, and help people make better economic decision. The theory of Nudge's legitimacy is proven by the successful applications of it in the field of economy and behaviour change.

Children are challenging, in sense that they need to be nurtured, educated and cared for. They demand plenty of attention and requires the parent or guardian to invest time and resources. Often it becomes difficult to handle children and one might find themselves frustrated with their behaviour.

Investing in children from a very young age can help to nurture them into responsible, healthy adults. The emotional, social and physical development of young children affects their overall development into adulthood. Studies also show that habits formed during childhood are often carried into adulthood. Children with unhealthy eating habits will likely continue the same pattern of unhealthy eating into adulthood. There is also a very strong relation on how our spending and saving habits are influenced by childhood experiences regarding money.

In this project, the theory of nudge is to be applied to prompt positive behaviour in children, of a specific subgroup in a specific environment. This project details the identification of the intervention areas, the attempts in explorations of nudge as solutions to the identified problem areas.

# 2

## The Nudge theory

Richard Thaler and Cass Sunstein (2008) defines nudging as the practice in which behaviour is influenced by changing the choice architecture. In simpler terms, by changing the way in which we present options, we can gently influence people towards making decisions without restricting options or significantly changing their economic options.

Daniel Kahneman uses the concept of System 1 and System 2 to explain how an individual thinks and how these systems are responsible for rash decision making vs calculated decisions. In Kahneman's own words "System 1," he explained, is the brain's fast, automatic, intuitive approach. "System 2," he said, refers to the mind's slower, analytical mode, where reason dominates. But the first often dictates the second. A nudge is employed to appeal to these system by taking advantage of their fast thinking system 1 or trigger their calculating system 2 to make decisions.

In system 1 appealing nudge, the cognitive effort is lessened as one makes decisions on the go instinctively. An example is placing cut apples in front of children instead of whole apples, children are more likely to eat the cut apples. The cognitive load to make decisions is cut short by them not having to think at all, the option is presented as a base default that can be done without thinking.

### 2.2 Examples of Nudging

Nudges have been incorporated in making policies that helped people make better economic decisions.

An example of the nudge theory in application was the automatic enrolment of people in the UK for the pension scheme. The theory was that people wanted to save more money for retirement but didn't want to fill out the forms, they were put off by having to fill in the forms. When the auto enrolment happened, the people were automatically defaulted to having to

save money and they could opt out of saving anytime they wished to. This actually increased the number of enrolment in private sectors. This is a case of changing the default settings.

A simpler and often cited example of the nudge would be a fly being etched into the men's room urinals in Amsterdam to "improve their aim". An Amsterdam airline had enough of men spilling their urine all over the bathroom floor and took measures to curb this practice. This was done so by etching a small target fly on the urinal, this encouraged men to aim and there was a significant decrease in spillage on the men's bathroom floor.



### 2.3 Nudging in children

Nudging has been used in dealing with the younger generation. The Summer Nudging[1] is a good case study for how effective a nudge can be in the educational sector. Studies showed of a phenomenon called the summer melt wherein highschoolers from low income background who applied or qualified for college dropped the idea due to lack of resources, guidance etc. And the enrollment for higher studies were much lower than the interest shown. To solve this issue policy makers came up with a nudge, where students were reminded and prompted through text messages to follow up on applications and scholarship opportunities. This helped in increasing the number of enrollment of students in colleges.

To help parents solve everyday dilemmas and help children learn or choose healthy habits, nudges are employed. Niyati Mehta, A New York based Behavioral Designer and Digital Design Professor initiated Nudging for Kids, applying creative nudge solutions to help parent avoid negative interactions when situations arises. Among their solutions, a visual nudge to help children wear their shoes correctly is a fine example of how nudges can be applied to children.



## 2.4 Types of Nudges

There are different techniques that exist for nudging. Nudges in an overarching subject that falls in the discipline of policy, but also heavily depends on the understanding of human behaviour.

Nudges have characteristics that can be classified across four different domains.

There are several nudging techniques, using the Behavioural Insights team EAST framework, to encourage a behaviour it should be made easy, attractive, social and timely. These four principles are simple and memorable:

1. **Make it easy-** Reduce the hassle of achieving a certain goal by removing obstacles or creating shortcuts.
2. **Make it attractive-** Highlight the preferable option and attract the target group to the desired action.
3. **Make it Social -** Encourage a behaviour by normalising it and showing that most people perform the desired behaviour. Use social groups and relationships to achieve goals together.
4. **Make it Timely-** Prompt, remind and plan to encourage a behaviour.

With various case studies, and references to the EAST framework, listed below is a set of nudge techniques.

1. **Priming**  
Priming is a technique and process applied in psychology that engages people in a task or exposes them to stimuli. The prime consists of meanings that activate associated memories (schema, stereotypes, attitudes, etc.). This process may then influence people's performance on a subsequent task.  
In one example of priming, music choices affected consumer decision. In an aisle set up with German and French Wine, the music played at the store influenced buyer's decision.
2. **Default Rules**  
Default options are pre-set courses of action that take effect if nothing is specified by the decision maker, and setting defaults is an effective tool in choice architecture when there is inertia or uncertainty in decision making (Samson, 2014). Requiring people to opt-out if they do not wish

to donate their organs, for example, has been associated with higher donation rates (Johnson & Goldstein, 2003).

3. **Salience**  
By highlighting the choice that is preferable and making it more noticeable. Ambient Orb—a technology that provides users with feedback on energy consumption by glowing red during periods of heavy use and green during instances where less use occurs is an example of salience.
4. **Simplification**  
By removing the hassles that one has to bear in order to perform the most beneficial choice. Eg Most people would opt out of retirement benefits because they wouldn't want to go through the process of filling forms.
5. **Descriptive Norms**  
Using social heuristics, by presenting a choice as something that is most likely to be followed by the majority influences decision making. For example, in a study showing the users the line "70% of the users buy at least one ecological product" while they were browsing an e-commerce site led to them buying the products.
6. **Pre commitment strategy**  
By using human's need to have a consistent and continuous self image, pre commitment strategies can be employed to drive decisions. People are more likely to stick to a behaviour if they make pre commitments, not too publicly. An example is that of the 'Save more tomorrow' program where each employee is given the option to gradually increase their savings rate when they get a raise.
7. **Incentives**  
Rewarding behaviour is one of the most basic ways of influencing actions. Financial incentives have often been used to make people perform actions. Using incentives, one could habituate a person in performing a task that could benefit them in the long run.
8. **Social Proof**  
Social influences can go a long way in nudging people. Humans being social animals are more likely to follow what their peers or people around them are doing.

9. **Framing**

Framing choices by highlighting their negative or positive traits can increase or decrease the attractiveness of an option. There are different types of framing

- a) Risky Choice, eg the risk of losing 10 out of 100 and saving 90 out of 100.
- b) Attribute framing, beef that is 95% lean and 5% fat
- c) Goal Framing, 10 rs rewards vs 10 rs penalty.

10. **Reminders**

Some actions need reminders to follow through. Using timely prompts and alarms can help people follow up with actions. In the case of the summer melt. Using text messages and alerts to application, admission dates and scholarships helped in enrolling students in colleges.





# 3

## Primary Research

To understand the environment where nudging would be applied, a primary research was conducted with parents and teachers. A series of visits were scheduled to homes, offices and school to meet them.

First, it was clear that children had three main dominating environmental settings; at home under the care of their parents and/or guardians, in school with teachers and, in the playground/outside with friends or family.

The goal was to converge the focus from areas of play, home and school environments to a more narrow field. This study was undertaken in all three environments as a way of exploration and to identify possible areas where nudging could be applied.

### 3.2 Parent Interviews

The parent interviews were taken in the form of an unstructured casual narration of incidents and experiences with raising children. Through this interviews, glimpses of their daily activities and interactions were gained. From narratives of how different their children's personalities are to how they imitate their parents habits, a better understanding of the dynamics of parent child relationship and the role of parents in moulding a child was formed. The conversation and narratives were collected and documented as comments.



### 3.3 Teacher Interviews

On visit to schools, a few teachers were interviewed candidly on their experiences teaching. A list of keywords was made based off the previous unstructured interview with the parents and then expounded upon with the teachers. Keeping in mind the environment being different than the home environment, it was also necessary to observe children in a classroom environment and in their interactions with the teachers.

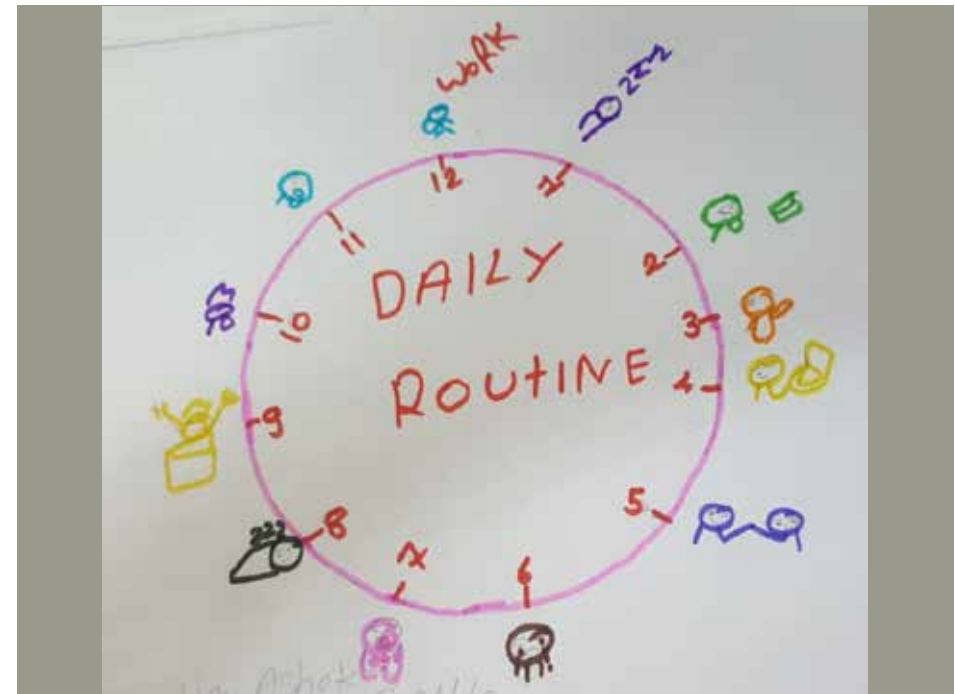
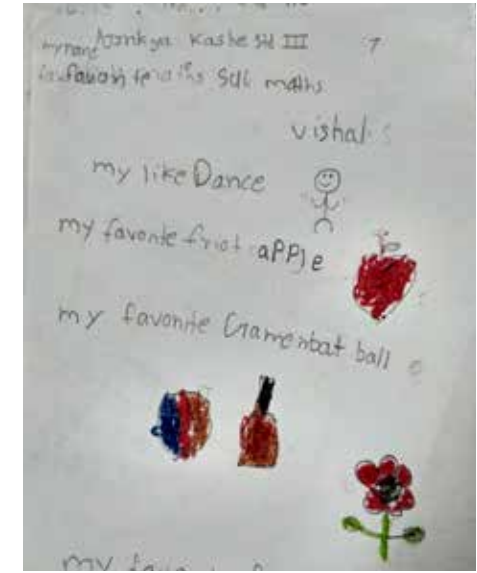
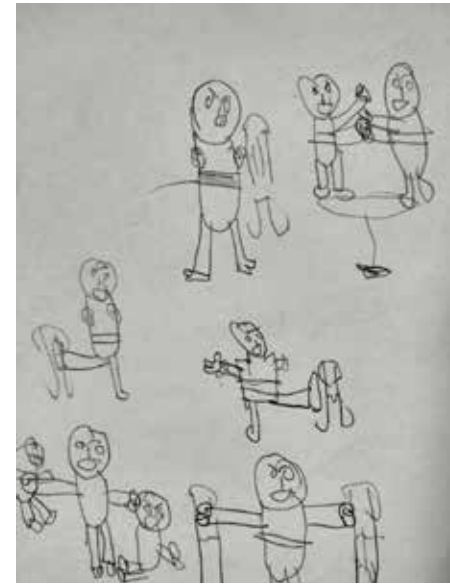
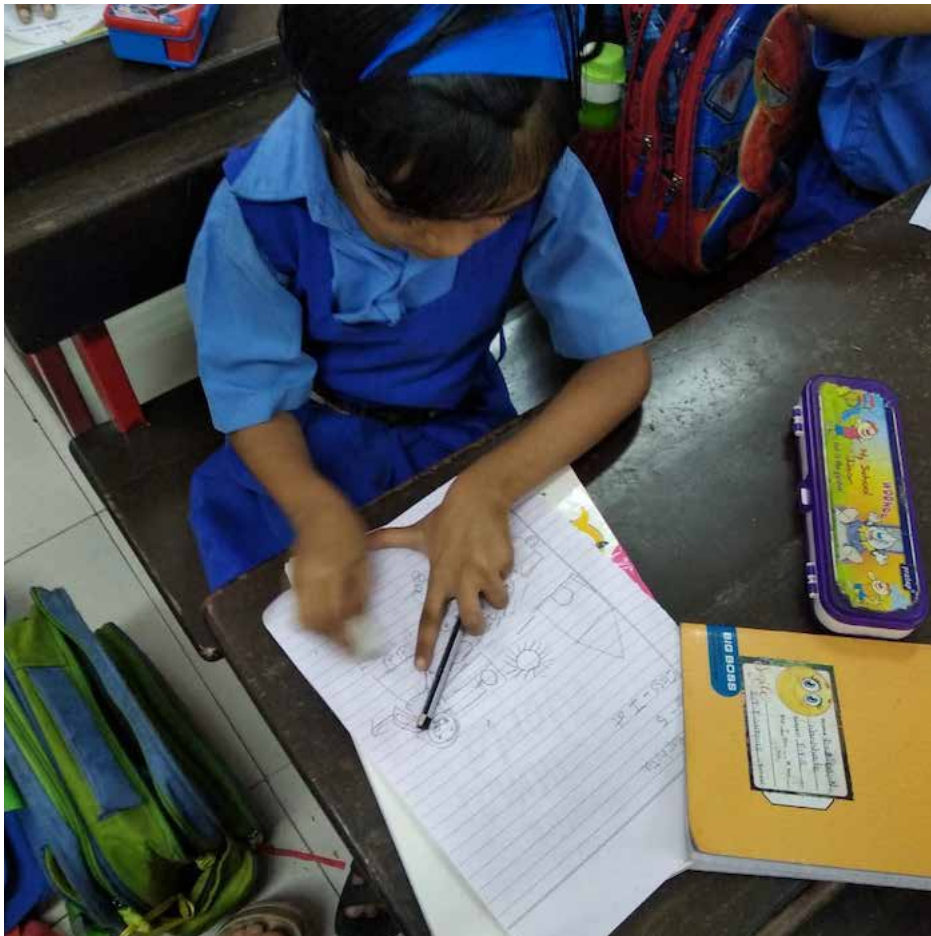


Ret  
Box

### 3.4 Interaction with students

In one visit to the school I was given the opportunity to interact with students from grades 1-5, all belonging to ages 6-12. In each grade, an exercise of drawing was done. Some Children were asked to draw their favorite things, and some were instructed to draw their daily routine.

After analysing the drawings and what the children had performed, an expansive map of what children liked was made and everything that was a part of their daily routine was listed. This helped in developing personas.



### **3.5 Findings from primary research**

It was now clear that the intervention would be focused on Nudging in a school environment. While children from better off family had sensible educated parents, working and doing their best with whatever they can with their resources to take care of their children and raise them children from low income families aren't paid attention to as much in areas of hygiene, grooming, civil behaviour etc. It is not to assume that the parents do not care but they simply do not have the resources or are not aware of how to guide their children. There is a lot that could be done to help instruct the children and to steer them towards positive actions.



### 3.5 Persona

Dhanushree 8

Background:

Dhanushree's parents own a small vegetable shop. Dhanushree is shy but admires an older didi and watches videos in her didi's phone when she is bored. She likes drawing and likes glitters. Dhanushree has a difficult time catching up in English class, she likes the storybooks in the library. When young Dhanushree did not attend preschool and started class 1 with no prior knowledge. She has a difficult time keeping up in class..

Motivation: Play, fun, curiosity

Needs: Has to catch up with her peers, nurture understanding and not be distracted.

Interests: Watching TV, playing with friends, drawing



Mihir 9

Background:

Mihir's father is an auto driver.

Mihir likes karate and imitates karate with his friends, he likes dancing too and can be loud in class. Mihir is told to stay outside of class because he was making fun of his friend, he ends up drawing things on the ground with his finger.

Motivation: Fun, curious, friends, appreciation

Needs: Needs to be less distracted and disruptive

Interests: Karate, cricket, drawing, games

# 4

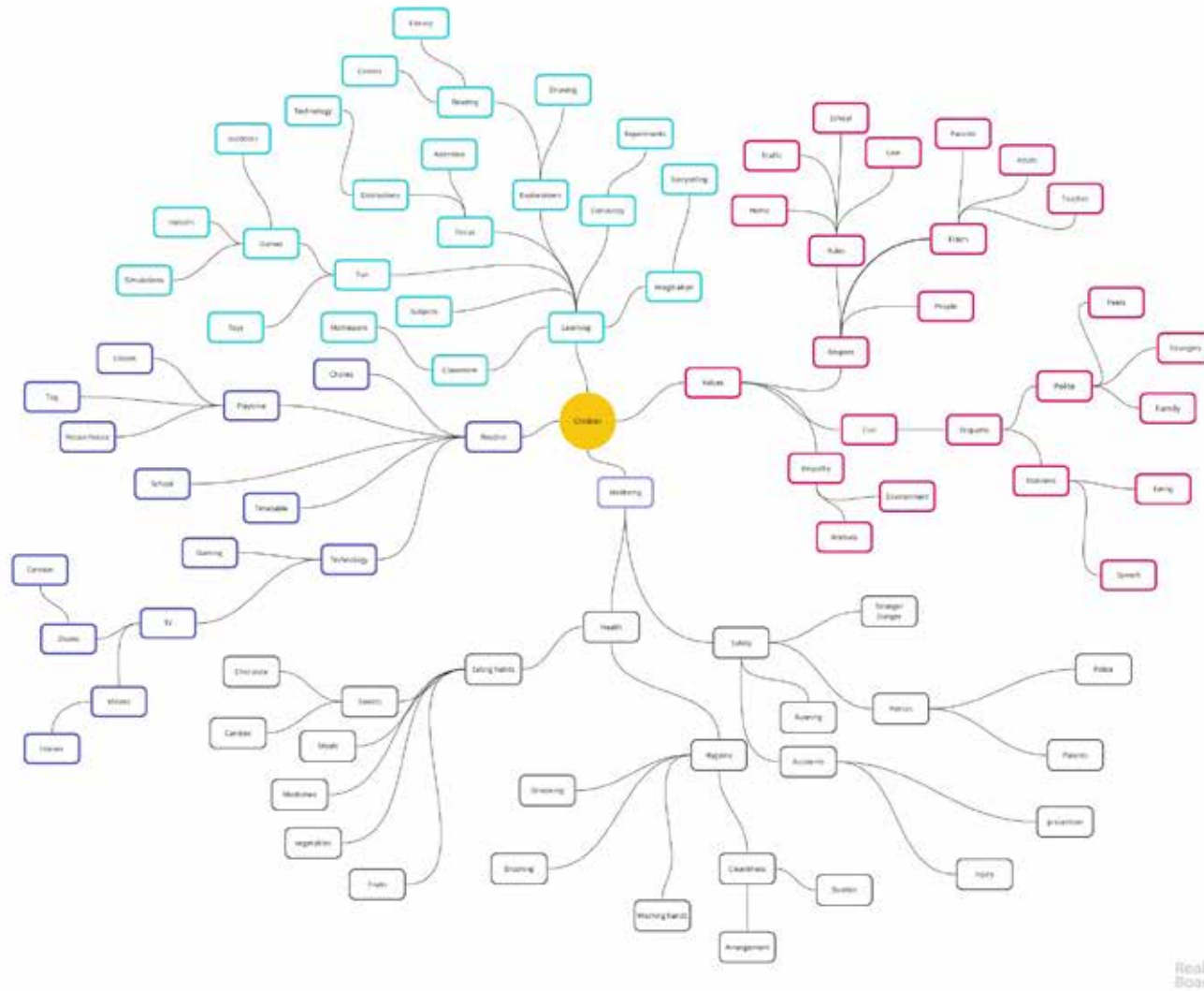
## Problem Definition

With the primary research taken care of it was now time to analyse the findings and narrow down the focus area to a viable scope. The goal of analysis was to gain insights into the primary research conducted, find problem areas and finally converge the problems to specific sub sets.

The process involved working with keywords that was picked up from user interviews and observations. Mindmaps and mappings played a vital role in identifying intervention areas.

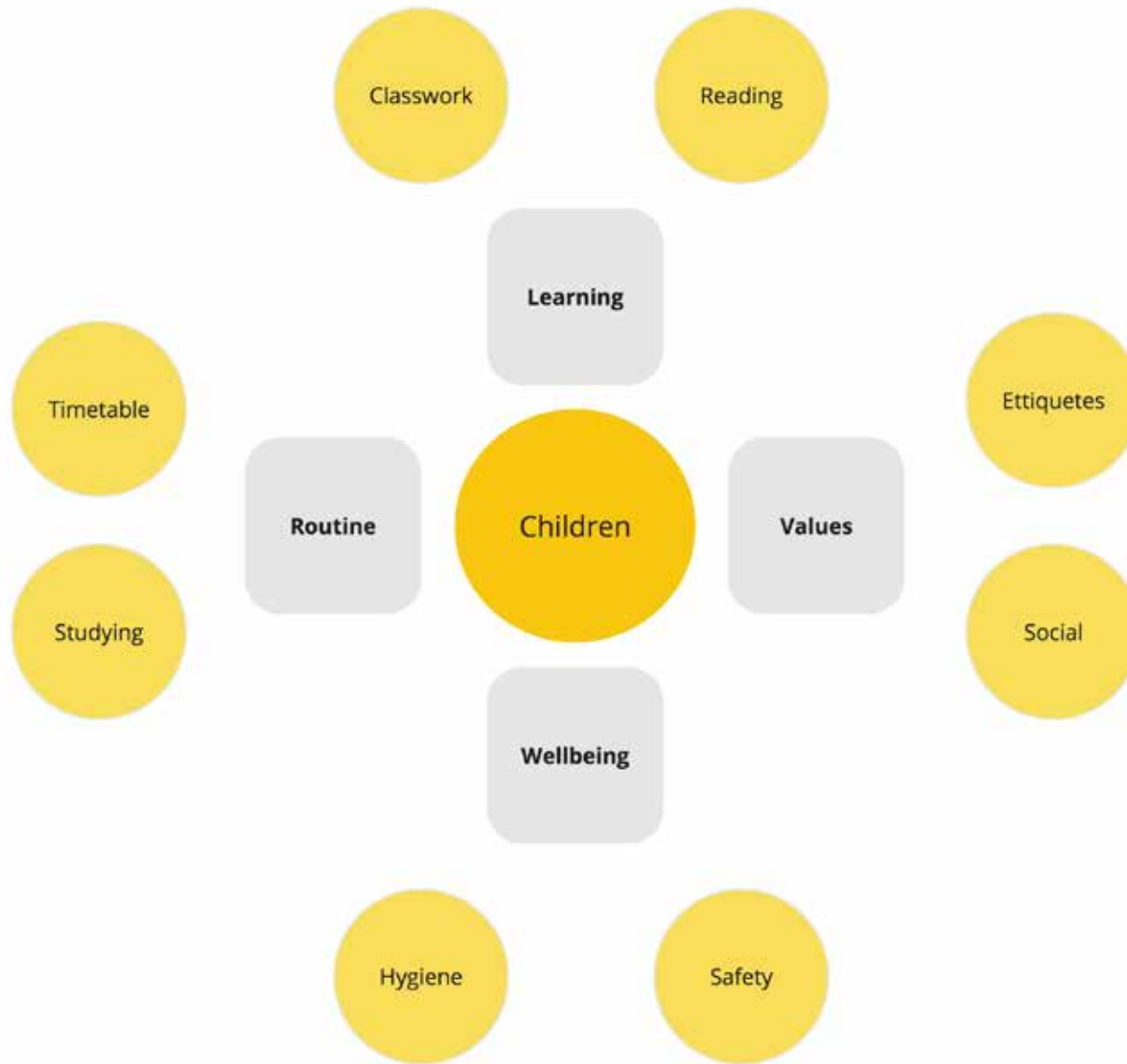
## Mindmap

An expansive mind map from parent concerns and needs from the interviews, general comments and observations was made.



Realtime Board





Roaltime  
Board

### **Problem Definition**

From the areas that were narrowed down, a few more keywords were derived. Possible areas of interventions were listed and then an ideation process was followed.

# 5

## Ideation

The ideation process is a four step model, it involves taking an identified problem and brainstorming on it by understanding the context and then choosing an appropriate nudge. The ideation was done so with brainstorming sessions with classmates and colleagues who helped in deriving solutions with the information and context at hand.



### **1. identify problem**

From the areas of possible intervention that was identified, user statements were corroborated with the area and a the problem was identified and taken.

### **2. Understand context**

For each problem, the specified context was drawn up with the help of user personas and the observations made in the interactions with school children and visits.

Here it was a given that we map out the actions, triggers and motivation for the children for each solution.

### **3. Select nudge**

From the list of nudges, we selected appropriate nudges that could work on the particular problem in the specific context.

### **4. Test and Iterate**

The ideas were taken to schools where the teachers and the student reactions were observed and noted.

# Idea 1

## Problem: Posture and sitting

**Context:** From user interviews it was found that in low income BMC schools, A few children from poor family enrol into classes with the same age group without having any prior preschooling. This meant that the children had to be taught a lot of basic things, one being how to sit properly. The children not used to sitting in desk and benches often do not sit appropriately, with their feet on the desk as they will.

The children are more likely to sit in a position they find comfortable, unfortunately comfortable may not mean appropriate. The main goal here is to make them put their feet on the ground and accustom them to sitting with their feet on the ground. Children eventually learn how to sit properly but for those who are just starting their schooling, it becomes a challenge. Most teachers would reprimand the child for sitting inappropriately.

**Nudge:** Cueing the children to place their feet on the ground by giving them a visual incentive. A visual anchor could be used to let the children place their feet on the ground.

### Feet pads

At the beginning of the school year, children who start school late are unable to adjust to their new environment, teachers have to consistently teach them how to behave in class and how to sit properly. Using feet pads, children can adopt a proper position with their feet on the ground.



## Idea 2

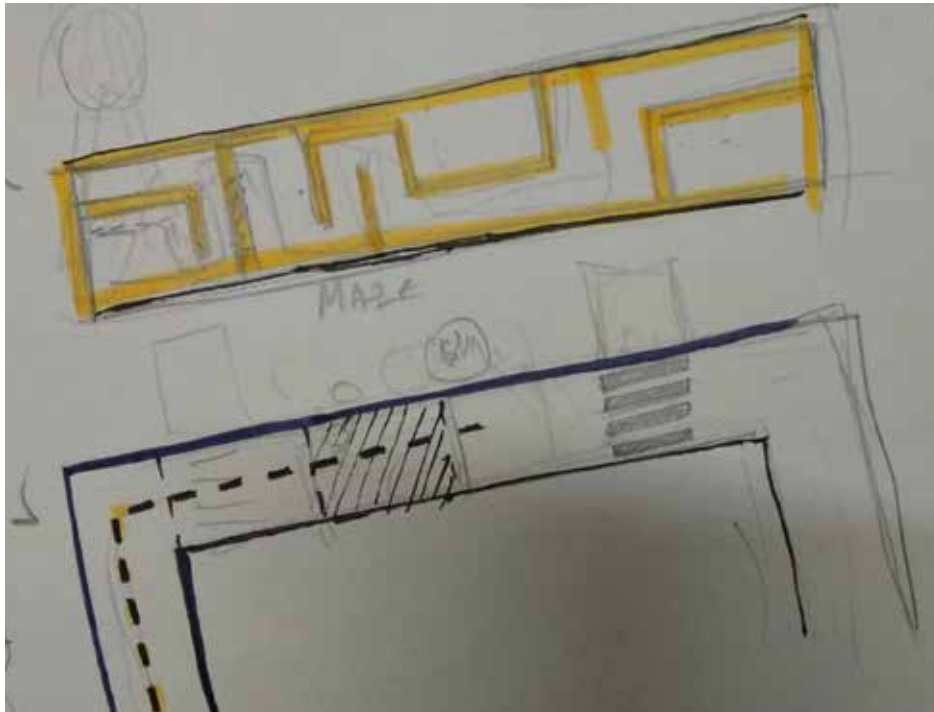
### Problem: Running in the Hallways

**Context:** Children are energetic and waste no time in making the most of their time in school in the hallways when they are let out of their classroom. Either they are playing or simply hurrying along, they do not adhere to the rules of not running in the hallways. There are plenty of signages that tells them not to run but they barely read them.

**Nudge:** By distracting the children from running.

#### Hallway traffic

Painting the hallways with a maze or a traffic pattern can help children navigate and slow them down from running too fast.



## Idea 3

### Problem: Throwing trash in the dustbin

**Context:** In BMC schools, children receive mid day meals daily. A lot of these food go to waste and children often dump them into the dustbin. However they end up spilling a lot of the wet gruel on the outer areas of the dustbin and spill it all over the floor.

**Nudge:** Saliency, by bringing attention to the dustbin they would throw trash in the dustbin. And by making them aware of the teeth around the dustbin they can avoid spilling or littering the area around the

#### Dustbin

Making the dustbin more salient by highlighting it and using a cartoonish character to let kids feed the dustbin.



## Idea 4

### Problem: Making children read

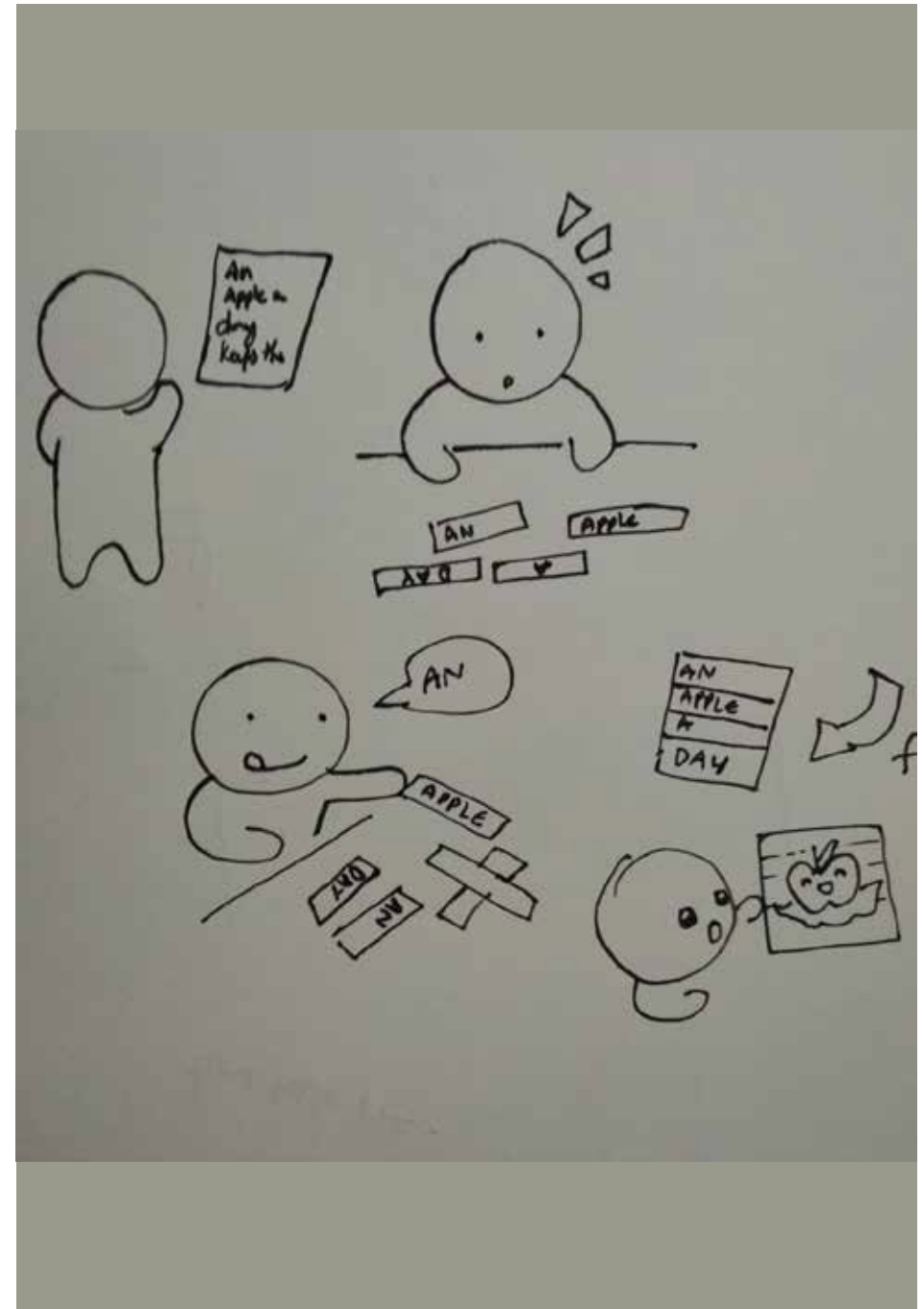
**Context:** There is a library at every school and children are encouraged to read with reading hours and classes allotted specially to spend time in libraries. However, children barely read the books and flip through it. A teacher boldly stated "My children love books, they do not read but they flip through just for the pictures."

Apart from the children being more interested in the visuals, it was noted that some children show no interest in reading because they do not have the comprehension skills for it or they are simply not motivated enough to read. What fascinates them to no end are the illustrations and visual imageries these books provide. Instead of reading the story they create their own stories interpreted from their understanding of the images.

**Nudge:** Default rules and incentive . By restructuring the order of the reading process, ie by making the child read by default and rewarding them with something they look forward to.

### Puzzle reading

Children tend to like books mostly to see the pictures and rarely do they read. The order can be change in such a way that children have to read first to uncover the image. The reading material could be in pieces like a puzzle which have to be put together by understanding the reading material and then on being able to solve the puzzle the child is able to see the hidden image.



## Idea 5

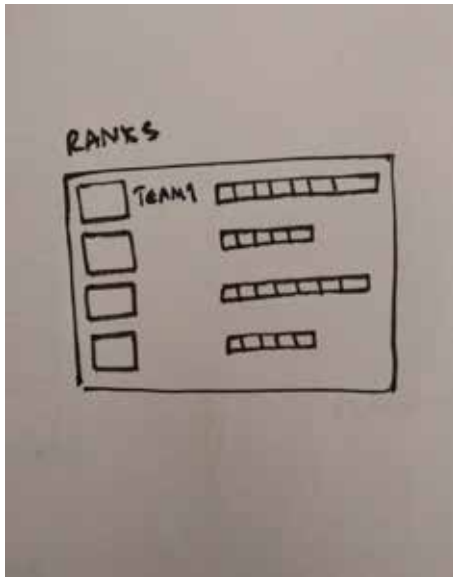
### Problem: Keeping up with learning

**Context:** In a class there is a mix of students who perform well and those that underperform. One of the reasons for this divide is that some students are unable to keep up with their peers. Their level of basic learning is also affected by their backgrounds, some children start school late.

**Nudge:** Social norms. Encourage children to learn by motivating them with social incentives.

### Buddy and board system

By teaming up children and using leaderboards, keeping a track of their score. They can be motivated to do better in class.



## Idea 6

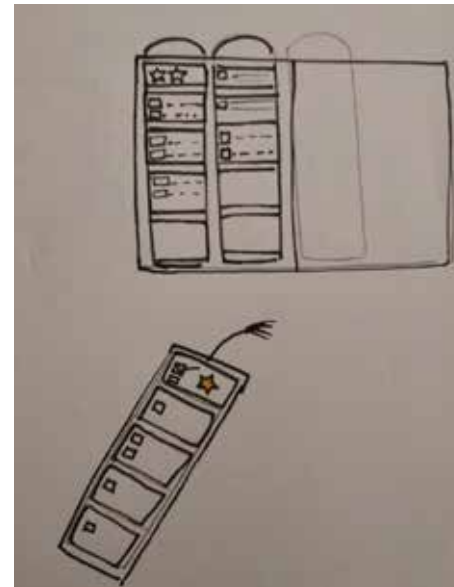
### Problem: Keeping up with consistent classwork

**Context:** There are those students in class who would rather be playing than be working. Children in such cases have to be disciplined by the teacher. Some children do not even listen to the teachers in an ongoing class to complete the work.

**Nudge:** Checklist and rewards. Helping the child anticipate the amount of tasks to be done and then rewarding the completion of tasks.

### Checklist bookmarks

Using bookmarks that inform the children of what they have to learn on a daily/weekly basis coupled with a reward system, study time and homework could become more approachable.



## Idea 7

### Problem: Washing Hands

Context: Children are curious and go around poking and prodding everything that interests them. It is not unusual to see them pick up objects from the floor. What they do not do is wash hands regularly or when needed. During lunch time the teacher calls for the students to prepare to eat and some of them do not even wash their hands. Be it a quick trip to the toilet or sliding under the desks and crawling on the floor. The children need to wash their hands. Schools have provided soaps and have taps with running water. The action here is to motivate the children to wash hands.

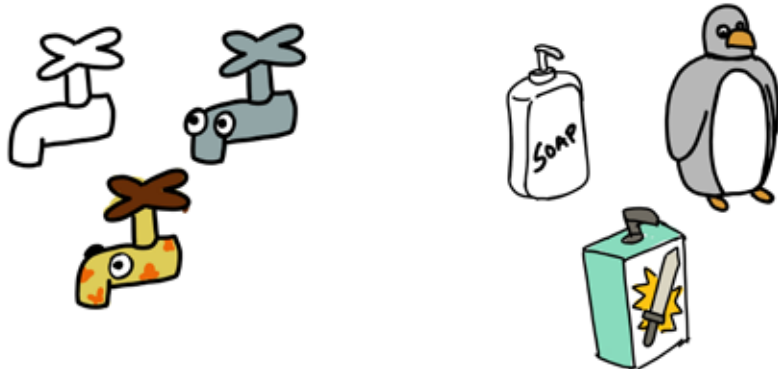
**Nudge:** Salience. By making the water taps more attractive and directing the children towards them.

#### A. Soap sleeve

By fun graphical soap sleeves for liquid soaps, children would want to use the soap. Just to maybe pet the bottle.

#### B. Taps

Brightly coloured or painted taps in washrooms could make the taps more salient and novel for children to use them.



## Idea 8

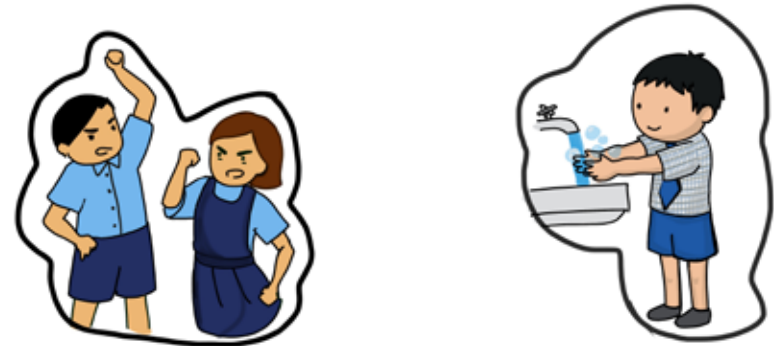
### Problem: Teaching children right and wrong

**Context:** Posters are hung everywhere in the class but children rarely read them. They are fascinated by the images but the novelty wears off once they are bored with the image. The teachers try to inculcate basic ethics to children everyday.

**Nudge:** Salience and priming. By highlighting the concept of right and wrong everyday.

#### Do and don't poster

A poster that can be changed by the teacher depicting acceptable and unacceptable behaviour. This ensures that the children has new content to look at everyday and understands what is considered right or wrong everyday.



## Idea 9

### Problem: A noisy classroom

**Context:** children making noises in class is a constant complaint that teachers have. Not only do they disrupt the classes, they frustrate the teacher and in the end of the class the teacher has to resort to unseemingly means to discipline the class. With teachers trying not to resort to corporal punishment, it has become difficult to manage children. By the end of the day they give up and their voices are coarse.

The children do not heed warnings and are more interested in what their friends are upto. Even with the most strictest of teachers threatening corporal punishment they lean over and whisper.

While getting them to learn is a bigger issue, helping the classroom reduce its noise levels so as to not be disruptive in class is a good place to start.

**Nudge: Salience.** By warning the children when the noise level in class increases.

#### 1. Silencing clock

A clock/device in the classroom that detects the noise level and rings when the children are being too noisy.

#### 2. Noise indicator

A similar concept using lights to indicate level of sound in the class. In this case the device will glow red or green depending on the level of noise in the class.





## Idea 10

### **Problem: Encouraging homework**

**Context:** Children are not very fond of homework. They see it as another chore, task and some of them refrain from doing it. Some students try to finish up homework as soon as possible during class hours and tend to lose track of classwork.

Most students who do not do their homework simply do not do it because they want to play more, homework is too much work or they do not understand the work given to them.

**Nudge:** Simplify. By simplifying and easing the approach of completing homework.

### **Worksheets**

Letting teachers give homework in sheets instead of in the notebook. By doing so, homework seems to be relatively lesser than if it was in their notebooks. The design of the worksheet could also accommodate examples or make it bright and colourful to make homework seem fun and easier to do.

# 6

## Final Prototypes

Out of the concepts, few of ideas were narrowed down based on two factors; First, the key challenges they addressed in school children and second, the novelty of the solution. They were prototyped and tested. The following are the narrowed ideas

### 1. Feet cues



## 2. Wash hands cues



Cute renditions of taps and soap sleeves

## 3. Silence in class



Prototyping using adruino, mp3 module and speakers. Form to be printed in 3D.



## 3. Do not run in the hallways

Graphic and paints on the hallways to be executed in school.

## 4. Worksheets

Worksheets for english class

### Antonyms

Antonyms are words which have the opposite meaning.

Example:

The antonyms of Big is Small.

The antonyms of Fat is Thin.



Find the Antonyms of the words given below:



Write the Antonyms of the words given below.

Right	Wrong
Happy	
Wet	
Good	
Light	
Dirty	
Cold	

# 7

## Validation

The validation of the ideas was done with constant user feedback and evaluation through school visits, iterations and changes were made accordingly through the feedback received. A few school visits were made where qualitative feedback from teachers and testing on students were done so as to assess the effectiveness of the nudge.

Some Ideas were discarded due to them being already employed like the Buddy system and the leaderboard or score board.



Here is the findings from the first validation of the ideas.

Problem	Feedback	Nudge Technique
Children do not know how to sit properly	The students are hesitant to place their feet on pretty images. Reiterate with different form.	Salience
Help Children read more	Does not count as a nudge due to it's instructional nature. Idea dropped.	Default rules
Children make noise	The first simulation with speakerphone worked and needs to be deployed under better circumstances.	Salience
Teaching values to children	The idea is dropped due to it not being a nudge.	Moral suasion, discriptive norms
Helping kids keep a consistent study routine	Already deployed in school, proved to be working.	Reminders, incentives
Motivating children to improve thier work	Already deployed in school by teacher and it works.	Descriptive norms, Incentives
Help the weaker children to catch up with the better performing children	Already deployed in school by teachers, working.	Social proof

Risa  
Bos

Problem	Feedback	Nudge Technique
Washing hands	To be tested	Saliance, visual.
	To be tested	Saliance, Visual
Keeping their environment clean by using the dustbin	Already deployed in other places.	Saliance
Preventing them from running in hallways	Reiteration of what exactly could distract children could be taken into account.	Saliance
Helping Children do their Classwork	To be tested.	Simplification

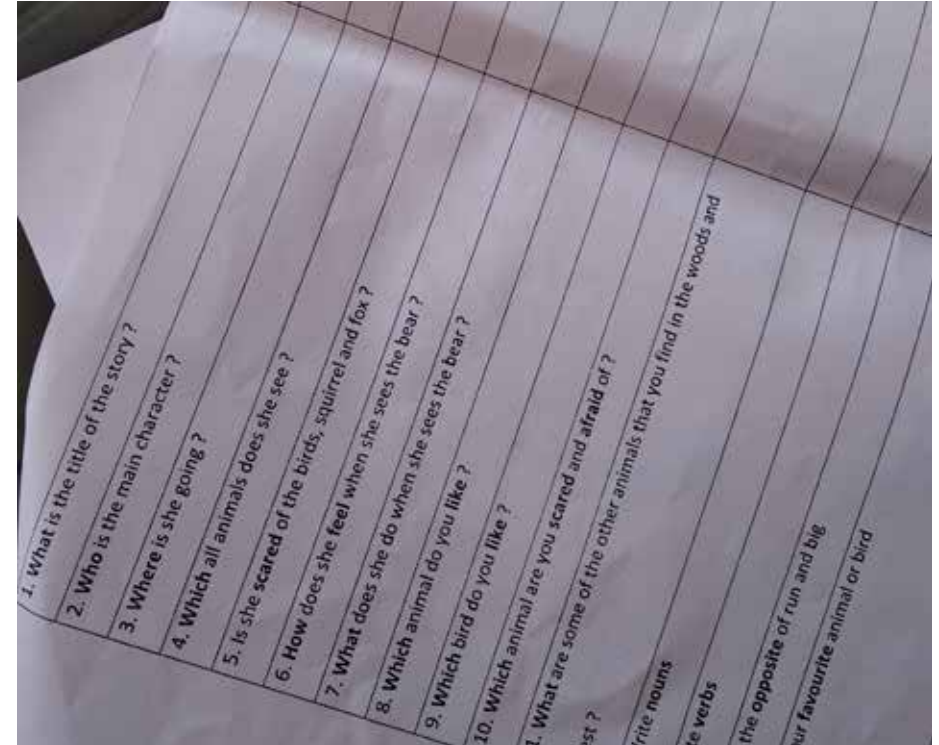


After testing out the foot pad prints, it was discovered that the children were hesitant to place their feet on good visual so there is a need to reiterate and change the appearance of it.





The simulation of the noise device was successful with children maintaining silence when the device threatened to play. Some factors need to be taken into account and will be considered in the final testing.



Worksheets are already used for a school that can't afford reading text books. A few different iterations for different subjects and classes over a small duration could validate the legitimacy of it.



# 8

## Evaluation

The ideas will be implemented in schools and the results will be obtained from observations. Some solutions will take some time and some would require a day or two to observe.

Each implementation will be assessed according to the effectiveness of its implementation. Feedback from teachers and workers will also be considered in validating the design.

The evaluation is to be done so by first understanding what to measure, and then figure out how to measure it.

Since the schools where evaluation is to take place is closed off for the holidays, the designs will be tested when the schools reopen and the report updated with the completed findings.

Nudge	What to measure?	How to measure
Visual cues to help children sit properly	No of times the teacher asks the children to put feet down. Appeal to children	Teacher's feedback, children feedback
Fun taps and soap sleeves to encourage washing hands	The usage of soap and tap before and after implementation of new taps.	Count before and after implementation of nudge.
Classroom noise silencer	Silence, annoyance of the sound, amount of times teacher has to quieten the class	Teacher feedback, data logger
Distraction to Stop running in halways	Distractability from running	Observation
Worksheets for homework	type of worksheets, performance and homework turn in rates	Teachers feedback

# 9

## Conclusion

In this project we created a variety of nudges which were then employed and tested in schools. The learnings are listed below.

- The solutions were effective in sense that they were playful and fun.
- The feedback was positive with the teachers.
- To test the effectiveness in which the nudge achieves its intended goal a longer study is required.

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