



I-KANDO

I-KANDO Final Report

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Backgrounds

Problems

Given that many Tea-Pluckers families in Kandy are living under the poverty line, their living environments are overcrowded and poorly managed which contributes to the infectious diseases such as Hepatitis, Scabies, and Typhus becoming prevalent in the region. More importantly, many of them are falling victim to nutrition deficiency diseases such as Anemia. After being informed by the leaders, the number of young smokers and pathological alcohol drinkers in the region are skyrocketing and one of the critical reasons is that both youngsters and their parents do not have sufficient knowledge regarding hygiene and the importance of healthy habits. Worse still, they also underestimate the harmfulness of the bad habits such as sharing of masks, eating without washing their hands, smoking and drinking alcohol.

Our solution

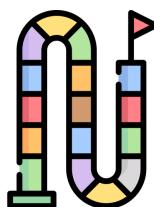
In fact, many infectious diseases mentioned above could be prevented effectively once they are equipped with relevant knowledge and the problem of youngsters smoking and pathological alcohol consumption could also be ameliorated. We know that the teenagers aged between 11 and 13 are in their golden age to be educated and they belong to the groups which are the easiest to go astray. For the sake of consolidating their knowledge about hygiene, global health and helping them to establish healthy habits, I-KANDO board game is designed to allow them to learn important knowledge through fun and exciting games.

Introduction

I-KANDO is a program targeting children of ages of 11-13 in TEA Plantation Estate (Kandy). All of the following sections target the children to successfully change their behaviors to reduce health problems in the community.

I-KANDO is divided into *four* parts:

1. 3D Board Game
2. 7-week Challenge
3. Behavioral Changes
4. Sustainability



3D Board Game

The objective of the 3D board game is to *educate* children on nutrition, specific diseases prevalent in Sri Lanka, hygiene and water issues, and smoking/drug/alcohol abuse problems. Individuals will have to do the board game for different levels.



7-Week Challenge

The goal for the 7-week challenge is to enable individuals to reflect on what they have learned from the game and to provide insights for positive behavioral change. The 7-week challenge will be done simultaneously with the board game.



Behavioral Change

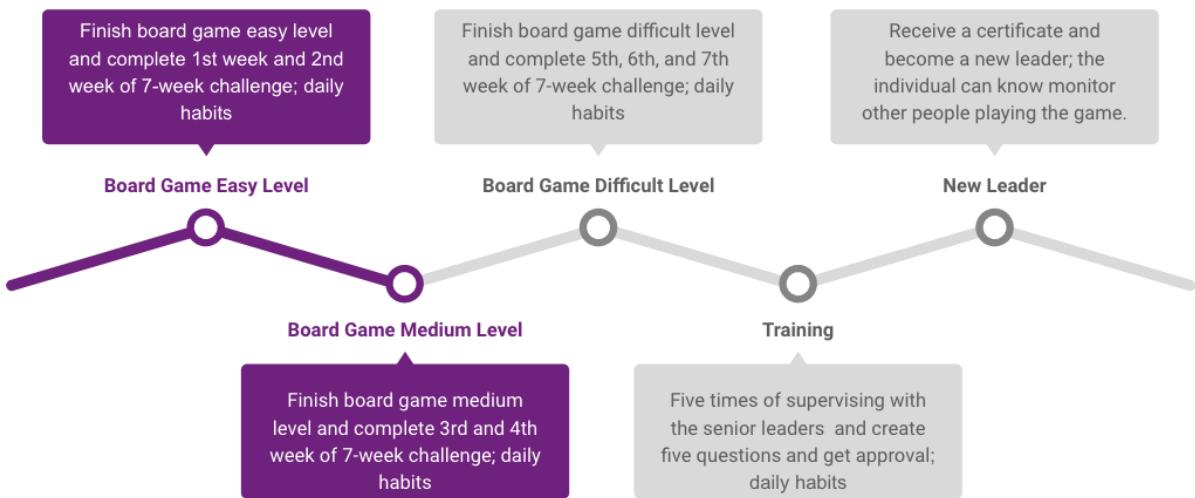
During the 7-week challenge, individuals will also perform compulsory daily habits, including keeping personal hygiene, wearing masks constantly, and drinking clean water, and selective daily habits to change their behavior to become a healthy individual.



Sustainability

Individuals may also become a leader. After finishing the prior steps, they will need five times to supervise with the senior leaders and create five questions (and get approval). They will receive a certificate and become a new leader to monitor others playing the game.

Timeline



Week 1

Board Game Easy Level

1st week of 7-week challenge (Water Filter)

Daily habits

Week 2

2nd week of 7-week challenge (Egg-coke Experiment)

Daily habits

Week 3

Board Game Medium Level

3rd week of 7-week challenge (Pepper-water Experiment)

Daily habits

Week 4

4th week of 7-week challenge (Bread and Soap Experiment)

Daily habits

Week 5

5th week of 7-week challenge (Poster Design)

Daily habits

Week 6

Board Game Difficult Level
6th week of 7-week challenge (Visual Comparison Activity)
Daily habits

Week 7

7th week of 7-week challenge (Assessment)
Daily habits

Week 8

Supervise the game with the TEA leaders
Create five questions and get approval
Daily habits

Week 9

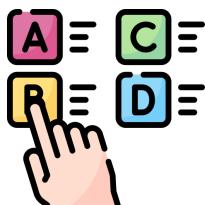
Receive Certificate
Become a leader

For more detailed information, please refer to “Implementation Plan.”

Board Game

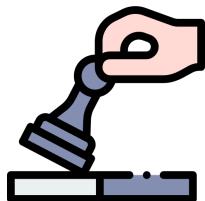
Instructions

1. Each team consists of 2-3 *players*.
2. Players may place the bridge in different regions on the game.
3. Each team puts their token on the space that says “1”. The number represents the “nutrition level” of the player. As the number increases, the “healthier” he or she is becoming.
4. Roll the dice, and move the token forward according to the number shown on the dice.
5. If the token lands on the bridge, either move up or down.
6. If the team lands on the “Quiz” cards, “Action” cards, or “Truth or Dare” cards, do so accordingly. For the “Quiz” and “Truth or Dare” cards, if the team gets it correct, move forward the amount of numbers shown on the dice. However, if the team gets it wrong, do not move the token.
7. The team wins if they reach the space “50” first.



Quiz Card

Players should take a card from the deck and solve the questions. There are three levels for the quiz cards, so make sure when the players are playing the easy level board game, use easy level quiz cards.



Action Card

Players should move according to the instructions stated on the card. For example, if the card says to move five spaces backward, then the players should move five spaces backward.



Truth or Dare Card

The team can choose either “truth” or “dare.” If the players choose “truth,” the team needs to answer a difficult question. If the players choose “dare,” the team needs to do a small activity.

For more reference, please watch the “Instructions” video.

Different Levels

The board game is divided into *three* levels:

- Easy level
- Medium level
- Difficult level



Easy Level

The easy level of the board game tests very basic knowledge on nutrition, smoking/alcohol abuse, and some diseases. It examines the definition and some symptoms of the diseases.



Medium Level

The medium level of the board game tests a more variety of diseases and a bit more detailed questions compared to the easy level. This level tests symptoms and provides a deeper knowledge on behavioral change.



Difficult Level

The difficult level of the board game tests on behavioral changes individuals should make based on different diseases. It also assesses some consequences if the changes are not made.

To access the solutions, please refer to “Solution Manual for the Board Game.”

7-Week Challenge

Introduction

7-Week Challenge is a follow-up for the board game. As the name explains, it is a challenge that is done for 7 weeks. The objective of the 7-Week Challenge is to provide a means for individuals to have a behavioral change that would impact their lives positively.

Before starting the activities, individuals will finish a short assessment with around 20 questions (from the “Quiz” cards). The same assessment will be given in week 7 to see if there are any improvements.

The activities done for the 7 weeks are the following:

- Week 0: Assessment (*refer to Week 7 for more information*)
- Week 1: **Water Filter**
- Week 2: **Egg-coke Experiment**
- Week 3: **Pepper-water Experiment**
- Week 4: **Bread and Soap Experiment**
- Week 5: **Poster Design**
- Week 6: **Visual Comparison Activity**
- Week 7: **Assessment**

For more details on the 7-week challenges, watch the videos or images for each activity.



Every week after the challenge, individuals should take a photo of their work and post it on the I-KANDO platform (google form); without this step, individuals will not be able to pass the week's challenge. The leaders will check if the activity was done appropriately (based on the manual), and if approved, individuals may move on to the next challenge.

For each successful challenge, individuals will receive **5 stamps** (total of 35 stamps since there are 7 challenges).

For more details on the stamp system, please refer to the “Stamp System and Sustainability” section.

Week 1: Water Filter



Introduction

Over seventy percent of Earth is covered with water; however, drinkable water contributes around only three percent. There are many people around the world that do not have access to **clean, drinkable water**. The purpose of the water filter is for individuals to gain access to clean water and develop a habit of drinking clean water.

Materials

- 2 Plastic coke or juice bottles
- Cotton balls, small cloth, or coffee filter
- Activated charcoal (optional)
- Gravel or small stones
- Clean sand
- Dirty water (soil and water)
- Scissor or knife
- Tape

Procedures

1. Cut the bottom of both plastic coke or juice bottles
2. Place the cotton balls in the bottle as the first layer. Use anything to push down the cotton balls.
3. Add an inch of activated charcoal as the second layer on top of the cotton layer (optional).
4. Add three to four inches of clean sand as the third layer on top of the activated charcoal layer.
5. Add two inches of gravel or small stones as the fourth layer on top of the clean sand.
6. Place the other unused bottle (cut) under the filter, and tape the bottles together.
7. Pour the glass of dirty water on top of the water filter, and compare the difference in the water quality.

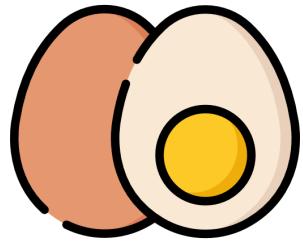
Behavioral Changes

Instead of drinking tap water or water from the river (without filtration), Individuals should try to use the water filter in their daily life for **filtered water**.

Week 2: Egg-Coke Experiment

Introduction

The purpose of the egg-coke experiment is to explore the concept of **dental health**. This experiment will exhibit the importance of brushing our teeth and demonstrate how our dietary choices can impact our bodies. Specifically, the egg-coke experiment will explain how drinking a lot of acidic beverages can erode our teeth, and how brushing our teeth could reduce the risk of damage.



Materials

- 3 white-shelled hard-boiled eggs (and a few more if possible, since some could crack)
- Regular coke
- Diet coke
- Water
- Toothbrush and toothpaste
- 3 clear plastic cups

Procedures

1. Boil the eggs, and make sure all of the eggs do not have cracks.
2. Fill each of plastic cups, one with regular coke, one with diet coke, and one with water.
3. Fill a plastic cup with regular coke and label the cup with “regular coke”.
4. Put a boiled egg in the regular coke
5. Use the food wrap to cover the plastic cup
6. Repeat steps 2 to 4 with diet coke
7. Repeat steps 2 to 4 with water
8. Once the eggs are cooled, place one egg inside each plastic cup. Leave it overnight.
9. Write down the changes you see in each egg. Discuss ways to get the eggs back to the original state (no stain).
10. Use a toothbrush and some toothpaste to see if the stains could be removed.

Further Experiment (Optional)

In addition to coke, diet coke, and water, individuals can try using orange juice, coffee, and vinegar. Write down the changes you see in each egg.

Experiment Result

- Water does not dissolve the eggshell
- Acids in cola weakened the eggshell
- Toothpaste could remove some of the stains on the egg

Behavioral Changes

Individuals should brush their teeth twice a day with fluoride toothpaste and always remember to brush their teeth before they go to sleep.

Week 3: Pepper-Water Experiment



Introduction

The purpose of the pepper-water experiment is for individuals to understand the importance of **using soap** when they are washing their hands. It is extremely important for individuals to develop a habit of washing hands with soap. The pepper in this experiment represents the germs, and investigate what happens if we use soap.

Materials

- Shallow bowl or plate
- Water
- Pepper
- Dish soap

Procedures

1. Fill the bowl or plate with water (until it reaches about 1 inch).
2. Sprinkle the peppers evenly across the surface of the water.
3. Try sticking your finger (without using soap) in the water.
4. Write down what happens to the peppers on the water.
5. Try sticking your finger with soap in the water.
6. Write down what happens to the peppers on the water.

Experiment Result

Without using the soap, the peppers (the germs) do not move. However, using the soap, the peppers (the germs) do move away from the soaped finger. This represents how the soap could repel germs, and this reveals why we have to use soap when we wash our hands.

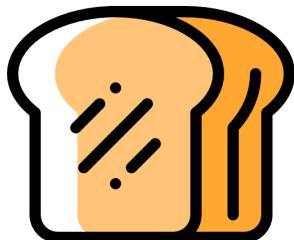
Behavioral Changes

Individuals should wash hands with soap after going to the toilet and before preparing and/or eating food.

Week 4: Bread-Soap Experiment

Introduction

In this activity, individuals will compare the consequences of different washing hands habits, and will demonstrate the need of **soap** when washing their hands. The experiments will be done-- bread touched with dirty hands, bread touched with hand sanitizer, and bread touched with soap and water. Individuals will make conclusions based on the results they observe.



Materials

- Three bags
- Bread touched with dirty hands
- Bread touched with hand with hand-sanitizer
- Bread touched with hand washed with soap and water
- Paper and pen



Procedures

1. Label each of the three bags with pen:
 - a. Dirty Hands
 - b. Hand Sanitizer
 - c. Soap and Water
2. Touch one slice of bread with dirty hands, another slice of bread with hand sanitizer, and another with hands washed with soap and water.
3. Place all the bags in the bag and seal it.
4. Take all the sealed bags and put them in a cool, dry place.

5. Look at the bread daily (without taking the bread from the bag), and write down the observations you see.

Experiment Result

The bread touched with dirty hands has an excessive amount of mold on the bread. The bread touched with hand sanitizer is better than the one touched with dirty hands; however, it still has a lot of mold on it. The bread touched with soap and water has almost no mold.

Behavioral Changes

During normal daily activities, such as working and playing, disease causing germs may get onto the hands and under the nails. If the germs are not washed off before preparing food or eating, they may get onto the food. It is important to remember that individuals should wash hands with soap frequently.

Week 5: Poster Design



Introduction

The purpose of the poster is for individuals to **raise public awareness** on the different diseases, ways to keep personal hygiene, etc. The posters will be posted on the board in the community center so other people could be informed on these knowledge as well.

Materials

- Paper
- Color pencils or markers

Procedures

1. Choose a topic on what the individual learned through the game (or the challenge) or what the individual wants to convey to the audience.
2. Be creative!

Behavioral Changes

This is a chance for individuals to reflect back on what he or she has learned. It will also encourage the public to positively change their behaviors.

Sample Poster



Week 6: Visual Comparison Activity

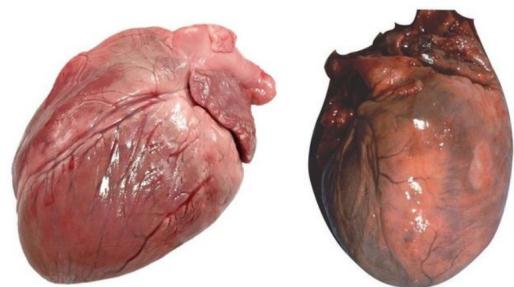
Introduction

The purpose of the visual comparison activity is for individuals to reflect through different visuals. By comparing images, individuals will understand how **smoking** could hugely impact our health.



Materials

- Images (provided underneath)
- Paper
- Pencil (to write down some notes)



Procedures

1. Look at the different images provided. Answer “what are the differences between the images?”
2. Write the differences down on the paper
3. Reflect. Should people smoke or not?

Experimental Result

- First image: the lung on the left is black; it shows smoking can negatively impact our lungs
- Second image: the person on the right looks older and have more wrinkles; it shows smoking can cause aging
- Third image: the teeth on the right looks blacker and more rotten; it shows that smoking can also affect dental health
- Fourth image: the heart on the right is turning black; it shows that smoking is also detrimental to the heart

Behavioral Changes

To become a healthy individual, people should not smoke. It is important for individuals to not develop smoking habits at a young age.

Week 7: Assessment

Introduction

An assessment would be given before and after the 7-week challenges. The purpose of the assessment is to identify whether the individuals have improvement in their knowledge. Same 20 questions will be given to the individuals to measure their improvement, and they will have to finish it in a day. Leaders will provide the assessment paper (from the file) to the individuals.

Refer to the assessment paper

Short Term Implementation Plan

The following is I-KANDO's short term implementation plan, from sending the board game to Sri Lanka, TEA leaders receiving it, and students completing the whole process of I-KANDO. *This plan assumes that it will be implemented in June 2021:*

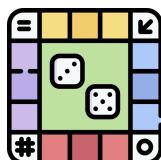
June 2021



Raise Funds for I-KANDO

The I-KANDO team will raise funds to:

- (1) Pay for the experiment materials, printing, and developing the game
- (2) Make I-KANDO sustainable, in long term



Prepare I-KANDO and ready to send

The I-KANDO board game would be printed, and I-KANDO cards would be translated to Tamil and be printed.



Deliver I-KANDO to the community center through DHL

Parts of I-KANDO that would be sent to the community center include:

- (1) The I-KANDO board game with the cards
- (2) Instruction Manual and the Solution Manual
- (3) Stamp Booklet and I-KANDO stamp

Other parts of the game, including the experiment materials, would be provided by the community center.



Train the TEA leaders

Prior to playing the board game, the TEA leaders would:

- (1) Read the manual
- (2) Watch the demonstration video, which would be provided either through AR code or youtube link
- (3) Hold online meetings with the I-KANDO team

If the TEA leaders have any questions related to the game, they can always contact the I-KANDO team through the google form or the WhatsApp group.



Promotion of I-KANDO in the TEA Community

I-KANDO would like to target a minimum of 30 people to enroll in this program. The I-KANDO team would like to promote this program through posters, videos (if available), and through communication of TEA leaders with the community people. The program should proceed once a minimum of 30 people enroll in this game and start forming teams.

July 2021

Day 0: Pre- I-KANDO Activity

July 1, 2021

This would be an ice-breaking session for the children. The I-KANDO team and the TEA leaders would have a short briefing session, around 30 minutes, with the children. The aim, structure of the program, and the schedule (refer to the stamp booklet) would be introduced. The stamp booklet would be distributed, and the individuals would fill their personal information in the stamp booklet. On this day, the children would have a short Pre- I-KANDO assessment to test their understanding prior to learning about the health-related topics.

Day 1: Start of I-KANDO Board Game Easy Level, Start of 1st week challenge (Water Filter), Start of habit establishment plan (stamp booklet)

July 2, 2021

The TEA leaders would give instructions to the children about how the board game would proceed. Two teams (with 3 members each) would play the game. Please note that the teams are playing at an *easy level*. After the completion of the game, individuals would start their 1st week challenge, which is the water filter. The TEA leaders would distribute the experiment materials, and the TEA leaders would show the experiment video.

*The instructions for the water filter are also written on the stamp booklet.

Day 8: Deadline of 1st week challenge, Start of 2nd week challenge (Egg-Coke Experiment)

July 9, 2021

Individuals will submit their 1st week challenge product (water filter) to the TEA leaders, so that it could be uploaded on the I-KANDO platform (google form). Individuals who have successfully finished the challenge will receive 5 stamps from the leaders and will proceed to the 2nd week challenge (Egg-Coke Experiment). Those who fail to complete the 1st week challenge will have to redo it. The TEA leaders will distribute the experiment materials for the 2nd week challenge, and the leaders will show the experiment video.

**The instructions for the egg-coke experiment are also written on the stamp booklet.*

Day 15: Deadline of 2nd week challenge, Start of I-KANDO Medium Level Board Game, Start of 3rd week challenge (Pepper-Water Experiment)

July 16, 2021

The TEA leaders would give instructions to the children about how the board game would proceed. Two teams (with 3 members each) would play the game. Please note that the teams are playing at a *medium level*.

Individuals will also submit their 2nd week challenge image (egg-coke experiment) to the TEA leaders, so that it could be uploaded on the I-KANDO platform (google form). Individuals who have successfully finished the challenge will receive 5 stamps from the leaders and will proceed to the 3rd week challenge (Pepper-water Experiment). The TEA leaders would distribute the experiment materials, and the TEA leaders would show the experiment video.

**The instructions for the pepper-water experiment is also written on the stamp booklet.*

Day 22: Deadline of 3rd week challenge, Start of 4th week challenge (Bread-Soap Experiment)

July 23, 2021

The procedures for the challenges are the same.

**The instructions for the bread-soap experiment is also written on the stamp booklet.*

Day 29: Deadline of 4th week challenge, Start of 5th week challenge (Making Poster)

July 30, 2021

The procedures for the challenges are the same.

**The instructions for making posters are also written on the stamp booklet.*

August 2021

Day 36: Deadline of 5th week challenge, Start of I-KANDO Difficult Level Board Game, Start of 6th week challenge (Visual Comparison Activity)

August 6, 2021

The procedures for the challenges are the same.

**The instruction for visual comparison activity is also written on the stamp booklet.*

Day 43: Deadline of 6th week challenge, Start of 7th week challenge (Final Assessment)

August 13, 2021

The 7th week challenge is an assessment. Individuals will finish the assessment anytime during the week.

**The instruction for the assessment is also written on the stamp booklet.*

Day 50: Completion of 7th week challenge (Final Assessment), Debrief

August 20, 2021

By the 7th week challenge, individuals should check whether they have received all the stamps from the challenges. Individuals should reflect on oneself on what he or she learned and what behavioral changes he or she could make in the present and future.

The debriefing session would also be held. By this date, individuals who have successfully completed the challenges and the daily habits (both compulsory and selective daily habits) should have collected 100 stamps in total. Those who have earned 100 stamps can join the leader training program.

**The leader training program is specified in the “sustainability and the stamp system” portion of the manual.*

Stamp System and Sustainability

Stamp System

It is important for this game to have new leaders so that this game could be sustained and allow more people to play in the future.

For the sake of helping children to establish essential habits, we have launched the habit development strategy which grants the children to keep track of the progress of their habit development. Our team would provide stamp booklets that contain 100 spaces for them to earn stamps. The children who can gain **100 stamps** will receive a certificate for celebrating their achievements and it is also proof of completing our program. There are mainly **two approaches** to help the participants to gain the stamps.

The *first approach* is that children need to complete the **7-week challenge**, and each experiment will allow them to gain 5 stamps. Therefore, individuals can earn 35 stamps from the experiment part.

The *second approach* is the **habit establishment** part. The children have to perpetuate some particular habits selected by our team. There are two types of daily habits in this program: (1) compulsory daily habits, and (2) selective daily habits. These compulsory daily habits are required to do continuously for 45 days, which means they can gain 1 stamp once they have finished the selected habitats every day. It is far from enough for the participants to gain 100 stamps or stickers if they just finish the compulsory habits. There are 20 spaces that are remaining and the only way to collect the 20 stamps is to practice the extra habits (selective daily habits) and the additional habits are provided in the stamp booklet.

Sustainability

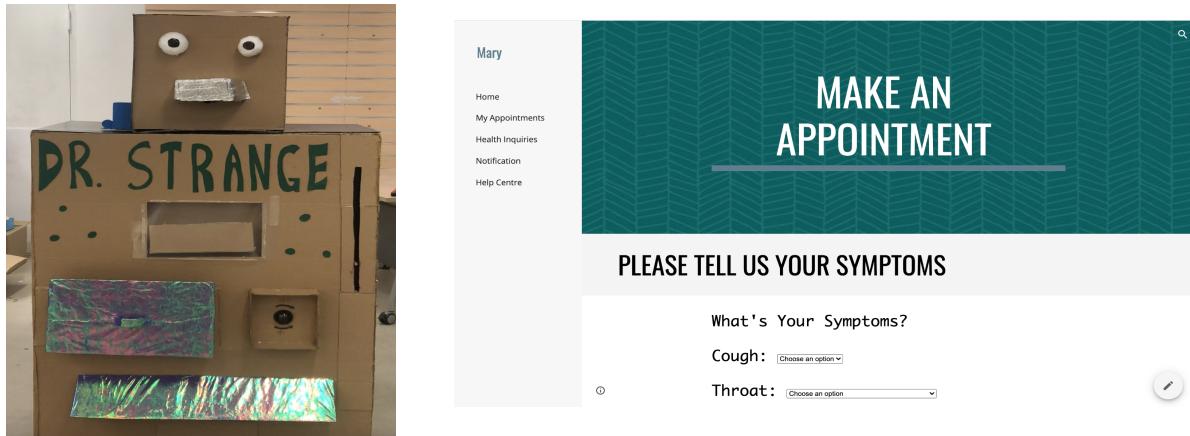
Once the individuals have earned a total of 100 stamps (from the implementation plan), they may proceed to the *leader training program*. Individuals should do the following:

- Five times of supervising with the TEA leaders to master how the game is proceeded
- Create five questions and get approval

By completing these tasks, individuals can receive a certificate and become a new leader.

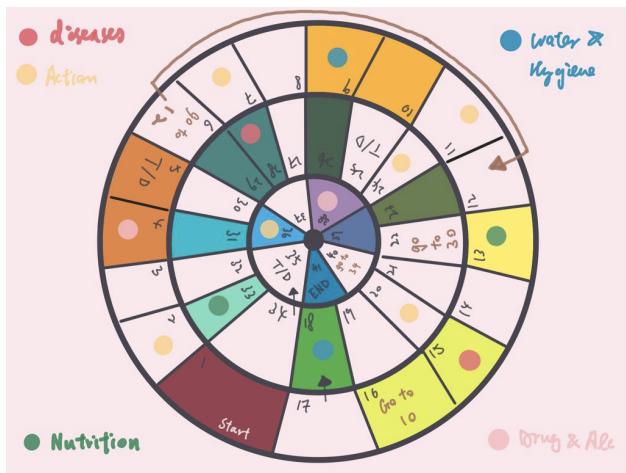
Design

Preliminary Design (Fall 2020)



The original idea to help improve health in Sri Lanka was the Doctor Strange project but there are already some existing solutions of telemedicine and a high technological background is needed, so we came up with I-KANDO.

2D Game Design



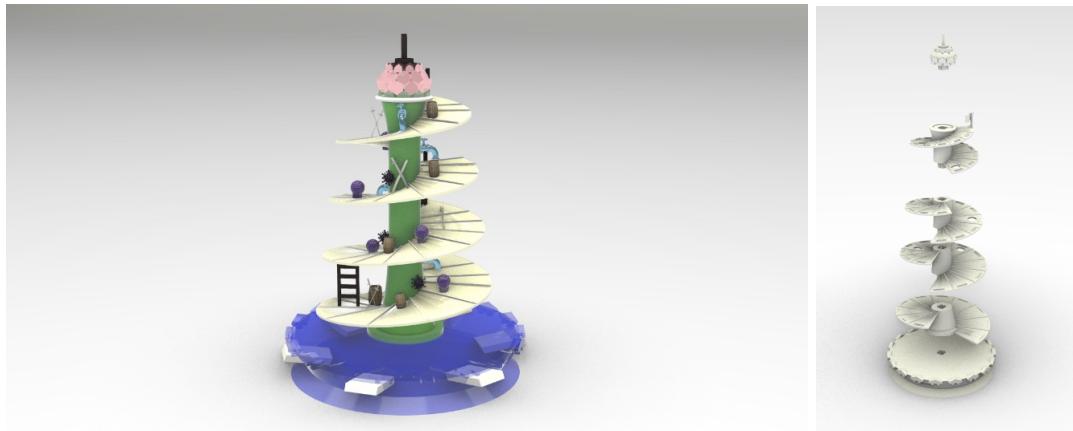
A 2D version of the game was made as an initial prototype to demonstrate how to play the game. There are 41 blocks here and several questions for the players to answer.

2D Card Design



Simple card designs to divide the quizzes in different levels. Art Nouveau Style is used to express natural elements and sensuality.

3D Colombo Tower Design



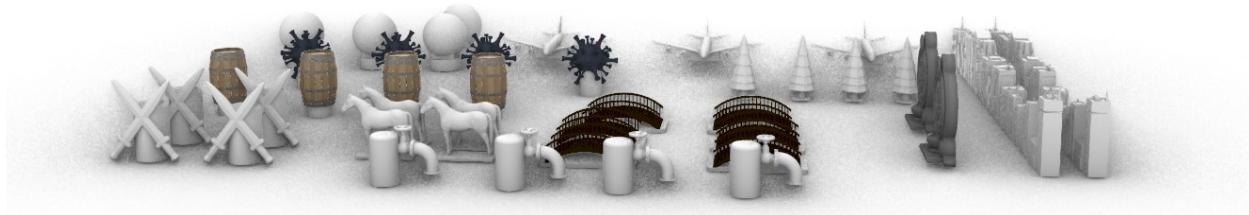
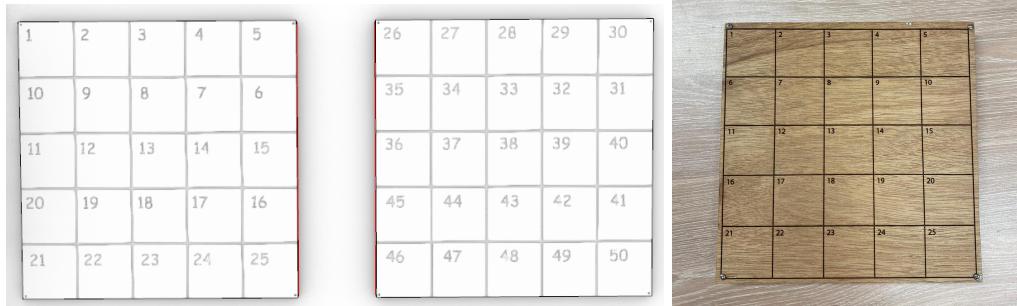
The design is based on the landmark Colombo tower in Sri Lanka. We created spiral structures of 50 blocks for the users to play the game and the base as a card holder. Also, the 3D tower is assembled by 3D puzzles which are separated from the tower into segments. This gives rise to easy shipping and a fast rebuilding of the model.



Besides, the above 3D objects representing quiz stations could be placed freely on the tower . This allows users to control the amount of quizzes as well as the duration of the game.

However, we encountered restrictions in manufacturing the model to Sri Lanka. The 30x30 model requires around 3-week printing time and over \$7000 printing cost. This is very inefficient and less cost effective for mass production, therefore we switched to another idea which is the 3D Chess Board Design.

3D Chess Board Design



The chess board can be manufactured easily using two wooden boards by laser printing and engraving. This raw material can be easily found in Sri Lanka, so the users can make their own game boards conveniently. Our idea is to make the wooden boards into a game book. Two boards could be stuck together with magnets and the 3D stations could be put directly on the boards to play.

AR Scanning



Halo AR

Users can scan the quiz cards using this app to obtain solutions as well as photos and videos related to the questions. The use of phones integrating augmented virtual displays to reality would be very entertaining for the children.

Advisors” Feedback

1. Methods

- 1.1 Online meetings
- 1.2 WhatsApp Chat
- 1.3 Face-to-face meetings

2. Advisors’ Feedback

2.1 I-KANDO Design

First Internal Check

Originally, we designed a 3D model for I-KANDO, however, there are some technical issues when printing the model. Therefore, the professors suggested building our main parts of our model using Lego while the smaller parts will be 3D printed. At the same time, the professors believe that this can train the children’s creativity since they have to build the model by themselves.

2.2 Quizzes

TEA Leaders (Raakeesha)

When we first outlined our game, Raakeesha suggested us targeting on

- 1. Nutrition
- 2. Water issues
- 3. Smoking and alcohol
- 4. Common issues in Sri Lanka
- 5. Business knowledge* (How to earn money? How to plan their career?)

* Financial difficulties are the largest root cause of the current problems and so TEA leaders thought it should be our major purpose of I-KANDO. While business knowledge and health issues are two different topics. To keep I-KANDO simple, we eventually remove the business-related elements in our board game.

First Internal Check

We set our board game as a one-time game without splitting into different difficulty levels. Professors suggested turning the board game into seven difficulty levels since there are 7-week challenges. After completing each difficulty level, followed by a 1-week challenge for the children to work on.

Reason: I-KANDO can only be played once and so it is hard to influence and educate the children in depth. Splitting into different difficulty levels can not only broaden our target age groups but can also cover more contents in our quizzes.

Doctors in Sri Lanka

Originally, we only had 4 main topics covered in our quizzes which are nutrition, hygiene, smoking & alcohol and common diseases in Sri Lanka (e.g. anemia, stunted growth and etc.). Doctors suggested covering more specific and common issues in Sri Lanka. In the following, it shows the suggested categories to add in our quizzes:

Common Diseases: Scabies, Typhus, Diarrhea, Hepatitis and Anemia

Current Resources/Programs: Deworming, EPI and EMTCT

Prevention: Sexual transmitted diseases, smoking and alcohol

Special Issues: Agrochemical uses

Global Issues: COVID-19 (especially on the children's behavior)

Additionally, there are few reminders when setting our quizzes:

1. The doctors said sexually transmitted diseases are sensitive issues in Sri Lanka and so we have to be careful on our wordings when asking questions.
2. Hygiene and nutrition are the root causes of the common diseases, so it is hard to divide hygiene and nutrition into individual topics. Since the topics suggested above are mostly inter-correlated. Therefore, instead of splitting them into different topics, it is better to combine them into one category and divide them into different difficulty levels.

3. There are some specific problems about children's behavior under COVID-19, like exchanging face masks with peers and improper ways in wearing masks. As a result, we should do more research with the TEA leaders to understand their inappropriate behaviors and design our quizzes based on their actual situations.

SIGHT Camp instructors

After splitting our quizzes into different difficulty levels, instructors suggested us including easier and more "common sense" problems in our Easy level before going deep into other issues. Suggested "easy" topics to cover:

1. Overcooking
2. Dental care
3. Personal hygiene (e.g. washing hands, changing bed sheets)
4. Healthy lifestyle habits (e.g. sleeping time, posture at work)
5. Eating habits (e.g. fast food culture)

Second Internal Check

a. Modification on question types

Mostly, our questions are asking the children what they should do under a specific circumstance but not what they should NOT do. Professors suggested including more not to do in our questions, since it is a more direct way for the children to clearly know what they should NOT do. These question types can be more direct to change children's bad behaviors step by step.

b. Modification on question contents and focus

We include all symptoms of our targeted diseases in the quizzes, so professors recommended to ask more about early symptoms than to include symptoms in the later stage of the diseases. It is because we want the children and their family to discover their diseases earlier by understanding the common early symptoms.

c. Modification on explaining answers of the quizzes

We did not add images for the explanation while we only included the explanation in words. In considering our target group (children), adding pictures will be more effective and easier for them to understand the answers since they will be likely to avoid reading pure text solutions.

2.3 7-week challenge

First Internal Check

We have designed some experiments or activities to include in our 7-week challenge without specific purpose and targeted behavioral changes. Professors told us to be clearer on the implications of the 7-week challenge and what are the expectations after joining the challenges.

Conclusion: We should have an expected behavioral change and purpose after doing each challenge. Take water filter as an example:

Purpose:

1. To provide a way to filter water under limited resources
2. To develop a habit of drinking clean water

Targeted Behavioral Change: Used to drink water directly from the river to drinking filtered/clean water

Second Internal Check

In our 7-week challenge, we focused more on changing children's personal hygiene behaviors, the professor wondered if this is the best category to target. Therefore, they suggested we ask both TEA leaders and the doctors for feedback.

While at the same time, the professors suggested that we can teach them to build a household water filter instead of only building a simple water filter, because it will be more practical for the children and their family to use it every day.

TEA Leaders (Raakeesha)

After receiving feedback in the second internal check, we asked the TEA leaders about the target behavioral changes needed in Sri Lanka. Here are her suggested targeted behavioral changes.

1. Nutrition (e.g. balanced diet, eating less junk food)
2. Personal and dental hygiene, awareness of COVID-19
3. Classroom and working habits

2.4 Measurements of Target Behavioral Changes

First Internal Check

The professors raised a question for us about the measurement of the target behavioral changes, because we were only using assessments to measure how much the children improve before and after playing our board game. However, the final assessment is far not enough to monitor their changing progress. More importantly, the final assessment covered questions which are mostly theoretical knowledge, and so it is hard to determine whether the children actually change their behavior or just remember the theories.

2.5 Stamp Booklet

Based on professors' feedback in the first and second internal check, we designed a stamp booklet to measure children's behavioral changes throughout the whole gaming period.

Basically, the children have to earn 100 stamps to complete our I-KANDO board game. There are two parts in the booklet for the children to earn all stamps. Here are parts:

1. 7-week challenge: Children can earn 5 stamps after completing one challenge. Therefore, the children should be able to earn 35 stamps in total after finishing all 7 challenges.
2. Daily habits: There are 3 compulsory daily habits for the children to do. If they have done these 3 compulsory daily habits in a day, they can earn 1 stamp on that day. For the compulsory part, the total number of stamps can be earned is 45 in maximum. For the remaining 20 stamps, we will provide a list of optional daily habits for them to choose. After completing one optional daily habit, they can earn 1 stamp for that day. Earning 20 stamps from optional daily habits is the minimum requirement for the children.

Second Internal Check

a. Daily Habits mechanism

Originally, in our “Daily Habits” part, children are required to choose 3 habits from the provided list of habits. Because of the high flexibility in choosing their daily habits, the professors reflected that the children may keep doing the same 3 habits where they may ignore the remaining habits. In order to train the children in different daily habits, we should set some rules or restrictions to reduce the flexibility.

b. Additional details

In our daily habits, we will describe the daily habits using a sentence only. Professors suggested including video demonstration for those daily habits so as to ensure the children understand how to perform those daily habits correctly.

Additionally, professors suggested giving more specific information about those daily habits. Take washing clothes (one of the daily habits) as an example, we should also inform them whether they should wash their family’s clothes or should just wash their own clothes.

While at the same time, we should consider the feasibility of those daily habits in Sri Lanka. Take eating fruits as an example, we should ask TEA leaders for a list of common and affordable fruits in Sri Lanka. After that, we should pick the suitable fruits from the list and specify them in the description.

c. Long term plan

The professors mentioned that when most of the children are used to those daily habits and do not need those behavioral changes, we should think of changing our daily habits requirements.

2.6 Engagement of TEA Leaders

In our implementation plan, TEA leaders are engaged in:

1. Explaining I-KANDO rules to the children
2. Checking answers for the children in the quizzes part
3. Supervising the children in the 7-week challenge
4. Preparing materials needed in the 7-week challenge

5. Uploading children's work to I-KANDO platform

First Internal Check

The professors wondered if the TEA leader can engage in I-KANDO that much in the long run since they may have other duties. Therefore, they asked us to think about the sustainability of our game and also suggested that we train children who have completed our game to be a leader for other children.

SIGHT instructors

The instructors suggested we can raise funds via different channels for buying the materials needed in the 7-week challenge. Since both SIGHT Camp and the community center may not be able to subsidize in the long term, we have to consider the budget of I-KANDO to sustain.

2.7 Sustainability

Based on feedback from (2.6), we decided to build a training program for the children after their completion in I-KANDO. The children can join an I-KANDO leadership program which includes:

1. Assessment checking the children understandings about I-KANDO
2. Assisting TEA leaders' supervision
3. Thinking about 5-10 new quiz questions for I-KANDO

Second Internal Check

The professors said it is feasible to sustain I-KANDO. However, we have to consider how to expand I-KANDO to a larger target group or even promote I-KANDO in other areas in Sri Lanka.

Future outlook

For the purpose of ensuring sustainability of our game, we would like to invite the participants to be the future leaders who can update the question banks of I-KANDO and teach the future potential participants to run our game. We also want the future leaders to spread the importance of hygiene, healthy habits to the community so as to create a healthy, vibrant and energetic community. We also hope that the children can practice the concepts they learned from I-KANDO and continue to exercise the good habits established through our game.

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