SAMSUNG

Solve for Tomorrow

Project Facilitator's Guide - Manual

Together for Tomorrow!
Enabling People
Education for Future Generations

Contents

About the project facilitator's guide - manual

A key factor behind the success of 'Samsung Solve for Tomorrow' has been the facilitator. In the ten years of this program's history and the projects that positively shaped our society, what has been constant is the guiding presence of the facilitator.

There are three important responsibilities that are required of facilitators at 'Samsung Solve for Tomorrow.' The first is to prevent the projects from becoming results-oriented competitions with no educational purpose. Instead, your role is to facilitate the projects bring about growth in the participating students, and not just outcomes. The second is your ability to guide the projects through the design thinking process. The third is to resolve possible conflicts that may arise between students and provide constant motivation so that the projects can be completed within the allotted time.

The following resources will help carry out your three key responsibilities:

1. Project Facilitator's Guide - Video
2. Project Facilitator's Guide - Manual

What you are currently viewing is the project facilitator's guide, which helps you gain an overview of the SFT process through a sample project involving a group of students who become alarmed by use of profanity and slang by their peers and seek to find a solution. The project facilitator's guide also helps you understand the facilitator's responsibilities for each of the phases, along with tips and guidance on how to help the students gain insights through the process.

3. Design Thinking Toolkit Workbook
4. Design Thinking Toolkit Facilitation Guide

The design thinking toolkit workbook is used throughout the course of the project, and the accompanying design thinking toolkit facilitation guide provides you with the assistance that you will need as a facilitator. Once you gain an understanding of the big picture through the project facilitator's guide, you may start the project by having the students use the design thinking workbook while you coach them using the facilitation guide.

Tips

- Watch the videos to gain the overall picture of solve for tomorrow. The sample project will be especially helpful for understanding the facilitator's responsibilities.
- Use the guide manual to review, in detail, the facilitator's responsibilities for each of the phases. Read through the tips to prepare yourself for some of the potential challenges you may face.
- The project will gain a natural momentum as you work through the design thinking toolkit workbook with the students in tandem with the design thinking toolkit facilitation guide.

Contents

The facilitator's guide - manual contains a total of seven phases. The five phases of design thinking are supplemented with preparing and sharing. Each phase highlights the facilitator's key responsibilities, tips, and some necessary techniques. Ensure that you are aware of the main ideas behind design thinking and apply them as you follow along in the videos. And challenge yourself to personalize the journey by finding the approaches and methods that work for you

Samsung Solve for Tomorrow
Each phase includes a song that express some of its main concepts. Talk about the reasons behind the selection of each song. There are no right or wrong answers.

#1 Preparing : come together
#2 Empathize : I want to hold your hands
#3 Define : a whole new world
#4 Ideate : bibbidi-bobbidi-boo
#5 Prototype : defying gravity
#6 Test : we are the champions
#7 Sharing : thank you for the music
+ FAQ

Sections under each phase
a. Hashtags (key terms)
b. Video story
c. Facilitator's responsibility
d. Panel talk
e. Checklist
f. Review

Come together

#1 Preparing

#Prepare
#Teambuilding
#Planning #Groundrule
#Expectation #4MAT

Video story

The project is prompted by Emma's question. Four friends gather to form a team, meet with a facilitator, and apply to the SFT competition. How teens use language online is a problem that resonates with Emma, Joseph, Joshua, and Moses, and they agree to find a solution together.

Sarah is a teacher that has taken on the role of the facilitator. She introduces the design thinking process and guides the discussion about expectations, ground rules, and the project plan.

Facilitator's responsibility : Team management

Team building

It is imperative to the project that you identify each student's strengths and characteristics. The 4MAT® theoretical framework identifies four styles of learners. The first is the 'Why-style' who are highly participative and people-oriented. The second is the 'What-style' who are fact-oriented planners. Third, the 'How-style' of learners aim for results and are action-oriented. And finally, the 'If-style' learners are holistic fun seekers.

A well-balanced project team will have members of all four learning styles. However, this diversity may not always be possible. In such cases, you will need to facilitate the team formation process by helping the students further understand the significance and necessity of all four styles and encourage existing members to fill the necessary roles.

Overview of the four learning styles
Type 1 : Why - Highly participative and people-oriented

- Values team members and focuses on creating a positive
- Working environment.
- Tends to focus on and consider fundamental meaning.

Type 2 : What - Analytical and fact-oriented

- Makes detailed plans and carries them out in an orderly fashion.
- Invests energy in gathering latest information.
- Diligent and organized.

Type 3 : How - Objective and action-oriented

- Produces efficient results.
- Skilled and task-oriented.

Type 4 : If - Intuitive and innovation-oriented

- Seek novelty and problem-solves holistically by connecting diverse perspectives.
- Generates new ideas and is not afraid to take risks.

Tips

- Can you recognize the four styles in the video? Compare the characters to your students. And what do you think is your learning style?

All learning styles are inherently good; no one style is better than another. What is important is the process of understanding and valuing diversity and using them to the team's advantage to generate solutions. This is also the key to the students' growth and performance.

Ground rule

Ground rules lay the foundation for good processes and performance. They are necessary, not to punish or constrain, but to enable learning and building momentum in the projects. Ground rules work best when established collaboratively with the students, rather than decided by the facilitator. Use the following guidelines to develop suitable ground rules that work for the team.

Ground rule guidelines

1. Focus on the fundamental WHY, not the WHAT.
2. Reward, not punish.
3. Communicate for consensus.
4. Be open to the potentials and possibilities.
5. Know that decisionmakers take ownership.
6. Provide support if the rules need to be adjusted or supplemented.

Expectation

The most valuable thing students gain from the process is growth, more than the final output. So, it is important for you to set the right expectations. Talk about the importance of personal and professional growth. Remember the goals that they set for themselves and provide constant reminders. And feel free to consider and share what your own expectations and goals are as a facilitator.

The strength to continue to the end will come from setting and looking towards a common goal. After students share about their own goals, guide them through the process of sharing them as a team and arriving at one common team goal. This will also be an exciting opportunity to articulate the kind of team that they want to become in this journey.

Write down and hold onto the expectations of individual students, the team, as well as your own as the facilitator. Check on these expectations once in a while to see if any of them have been met. And encourage them to set new ones. Their involvement and enthusiasm for the project will increase as they set higher expectations and goals for themselves.

Tips

a. What is the general mood you expect during the process and at the end?
b. What are the expected growth areas and results that are expected by those around us?
c. What is the outcome that we want as a team?
d. What projects can serve as models for us?

Planning

Time management is a crucial element of any long-term project. Once a team has been formed with ground rules and shared expectations and goals, the next step is to create a detailed schedule with the time they have.

Design thinking will provide the means to discover the best solutions. But the students must remember that they won't get it right the first time. It will require short, but multiple cycles of design thinking, so this also must be worked into the timeline. Thus, a general understanding of the design thinking process will be necessary for successful planning.

Set aside ample time in each of the phases where students can immerse themselves in deep thinking without feeling rushed. The key

here is in the planning, not the plan itself. In other words, the plan itself can be adjusted, but it is the process of planning that will generate genuine growth and solutions.

Panel talk

Essential question 1

What might be a good tip for facilitators during team formation? Is there a good way to identify the strengths of each of the students?

- Engage and converse with the students early in the project to identify their strengths and potential roles. Listen, and help them refine their thoughts expressed during the conversations. Then allow the whole team to become aware of the identified strengths.
- Help bring unity and trust to the team through a shared sense of purpose and common values so that they can embrace diversity and become more accepting of different perspectives.

Essential question 2

How can a group of unique individuals become a team with a common goal?

- Help the members share their thoughts on the team's goals, as well as what personal goals they each have.
- Encourage a growth mindset that will allow them to recognize setbacks as learning opportunities.

Essential question 3

What kind of support might be offered to struggling students? Any tips for the preparing phase of the project?

- Help them understand that everything is a learningprocess. Nobody is perfect, and the best we can do is to give it our best with the assigned roles and responsibilities.
- Encourage them to utilize whiteboards and various tools that can help them visualize the project phases, activity plans, and their responsibilities. This process can also encourage more communication within the team.

Checklist

Use the following checklist to see if you are ready for the next phase.

- ☐ Do I understand the goal of SFT and have the necessary resources?
  - Project Facilitator's Guide - Videos
  - Project Facilitator's Guide - Manual
  - Design Thinking Toolkit Workbook
  - Design Thinking Toolkit Facilitation Guide
- ☐ Do I understand my role and responsibilities as the facilitator?
- ☐ Have the strengths and characteristics of the students been identified? Have their roles been assigned accordingly?
- ☐ Have the expectations of the students been gathered and shared?
- ☐ Has a realistic project schedule been set and agreed upon by the team members?
- ☐ Does the team have a working space? Have communication tools and channels have been prepared?
- ☐ Do I understand the design thinking process?

Review

Come together!
We seek to collaborate and find solutions to the problems that face our communities. Your role as facilitator is central to this process as you unite the students through team building, laying ground rules, setting expectations, and planning. Look forward to more exciting adventures ahead!

I want to hold your hand

#2 Empathize

#Empathize
#Deepthinking
#Research
#Userinterview
#RealWhy

Video story

The students are preparing for the interview to gather information and opinions. They also take steps to practice the interviews. It will be important to collect as many stories and experiences as possible that surround the issue.

Their challenges with deciding the interviewees, goals, and methods are resolved, thanks to the facilitator's advice and encouragements. As a result, the students discover the significance and importance of the project.

Facilitator's responsibility :

Deep thinking

User feedback

Facilitate the process of identifying the genuine needs of the users. Help the students recognize the importance of dialogue and empathy before they begin learning the skills for empathy from the design thinking toolkit. The students must be able to relate to the users, not only with their minds, but holistically to conduct the interviews. Your responsibility here will be to help conduct successful interviews as well as to keep good records so that they can be accessed and shared easily later. The students should try to meet with and interview as many users as possible; the only limit is the time they have available. Hearing from a wide range of users, from outliers to mainstream users, will allow the students to gain valuable, diverse perspectives on the problem at hand.

Surveys can also be used to gather a wide range of opinions. However, they must be careful of biases and leading questions that may influence the responses. And in most, the interviewees should be informed of the project background and goals.

We recommend that the students run a few simulations to familiarize themselves with the interview process. Informally assess whether the necessary parts of the project background and goals are clearly explained, if the questions are appropriate, and how responses are being recorded and organized. And help them refine their skills by exchanging feedback on the simulations. It will work to their advantage to hone their interview skills, as they will be used in other upcoming phases of the project.

User interview tips

- Needs / disappointments / pains
- Past successes / cause of failures
- Ideal conditions / current context / variable factors
- Feelings about other, but similar topics
- Break down to fundamental elements of the topic
- Scenarios and roleplays
- Measuring through points, rank, or scale

Observation & immerse

Observation skills are vital in this empathize phase. As a facilitator, pre-empt any potential issues that you foresee and encourage an atmosphere where students are comfortable about observing the users. Then help the students learn how to allow the users themselves to feel comfortable about being observed in the field. And finally, help them decide what it is that they want to observe and understand. Encourage them to develop an observation checklist to observe from multiple angles. This can include things like environment, activity, points of contact, objects, etc.

One great way to build empathy is to become the user to gain first-hand experience. Experiencing the real inconveniences and the many issues will be very eye-opening. Ensure ample coordination and agreement with the participating users and ensure safety. Remind the students to record their thoughts and feelings while they are fresh. They will need to reflect on their experiences and share with team members.

Questions to uncover the real why

Deep thinking is a key part of being able to empathize with the users and the difficulties they face. Good questions will equip students with the ability to empathize with the problems more deeply. You, as the facilitator, will be modeling the art of asking.

Questions for deep thinking

1. Five Whys
   This is a technique that helps uncover the underlying causes and core of a particular problem. It will help you move beyond the superficial and identify the root cause.

2. Meta Questions
   Meta questions explore abstract meaning and values; they allow you to discover the more fundamental and value-related causes. Questions are followed up by more questions that allow us to dig deeper into our experiences and discover meaning. For example, "What does it mean to you?" "How is it important to you?"

Utilizing resources such as interviews or research papers by subject matter experts is another element of empathy. Incorporating trusted resources that address similar issues will raise the overall credibility of the process. Help the students with the various ways such resources can be accessed. And remind them to accurately reference their sources.

Panel talk

Essential question 1

What are some tips for the empathize phase?

- Seek to improve listening skills. Listen to understand. Embrace the potential of alternative interpretations of what is shared in the interviews. Consider the emotions behind what is said.
- Observation is a tool for empathy. But encourage the students to further immerse themselves to reach deeper empathy.

Essential question 2

What are some tips for helping students that experience problems and challenges after the interviews?

- Help the students identify and challenge their own assumptions and opinions about the topic so that the interviews can be approached with a growth mindset. This will allow them to respond more flexibly to unpredictable situations.
- Encourage them to approach the interviews like a treasure hunt. The desire is for the students to grow their patience. Also, look out for opportunities to explore different ways to observe and approach the problem.

Checklist

- ☐ Do the students understand the five phases of design thinking? Do they have a comprehensive understanding of the empathy phase?
- ☐ Have suitable interviewees been decided? Are there additional interviewees that should be considered?
- ☐ Has the questionnaire been finalized, and have the students practiced?
- ☐ Has there been ample investigation of the users' issues and challenges that will can help the students empathize? Any information or users that could have been overlooked?
- ☐ Have all the resources and information gathered in this phase been organized and shared with everyone?

Review

I want to hold your hand

The empathy phase binds everyone closer together. Hand-in-hand, we now step closer into the heart of the problem. Engage with the users and take ownership of the challenges. Encourage the students to broaden and deepen the scope of the problem, and to view it from multiple angles.

A whole new world

#3 Define

#Define
#Phenomenonoftheproblem
#Causeoftheproblem
#Who #What #Howmightwe
#Realproblem #Problemstatement

Video story

The students struggle to identify the root causes of the problem. Sarah, the facilitator, provides support by emphasizing the need to look at the WHAT, and not the WHO.
The students learn about the importance of having a clear problem definition and the methods that can help them reach it.

Facilitator's responsibility :

Problem statement

The real problem

Once the students can fully identify and empathize with the problem, they will need to articulate, in writing, the problem and its core components clearly and concisely. Many struggle to grasp the fundamental essence of the problem at this stage. The process is often rushed with shallow reflections, leading to a focus on superficial or even wrong problems. But remember that this is a part of the larger process. Empower the students to resolve the issues themselves.
To that end, your awareness of whether or not they have a suitable problem statement or not will determine the effectiveness of your support. Below are some ways to diagnose their readiness.

1. Was there a shared "Aha" moment? Is there mutual consensus on the drafted problem statement?
2. Does it describe the invisible root cause of the visible problem?
3. Does it sufficiently reflect what was learned during the empathy phase?
4. Would the users be satisfied with the resolution of the stated problem?
5. Is it one complete sentence?

These questions can be used as starting points for your guidance.

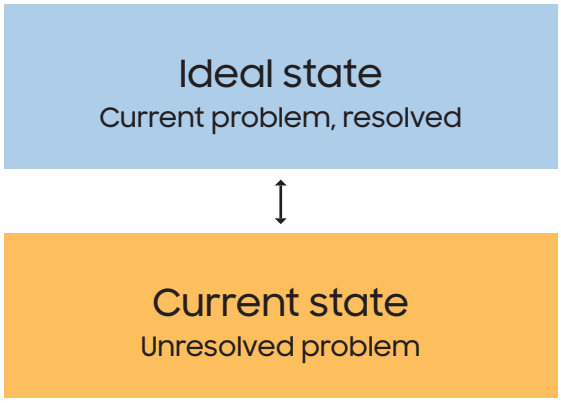
From who to what / Heart and mind

Avoid attributing the cause of problem to certain individuals or their behaviors; shift the focus away from the WHO and dig into the WHAT behind the problem. You may notice emotional knee-jerk reactions or even anger and frustrations about the problem. Allow the students to articulate and take ownership of those emotions, rather than suppressing them. Then help them objectively process what they felt to arrive at a holistic problem statement. Neuroscience teaches us that everything that we see, hear, and feel move first from the emotional, then to the rational part of the brain. The students will gain a lot of value as they journey from empathy, facing the emotional aspect of the problem (including the difficult ones), and arriving at the ideal, rational statement of the problem.

Ideal vs. current state / Problem statement template

The easiest way to define a problem is to analyze the gap between the ideal and current state. Guide the students through this analysis using the following problem template:

The users need _____ (user needs and desires)
but due to _____ (factors that prevent the attainment of needs)
they are experiencing _____. (difficulties and challenges that users experience)



Problems can be complex. Encourage the students to draw from everything they have experienced so far and create multiple drafts of the problem statement from the users.

Panel talk

Essential question 1

How do we know that we have the "right" problem definition? What are some tips for checking its readiness?

- First, it is important for the students maintain an inquisitive attitude. They will need to continuously ask themselves and assess whether they have the right definition of the problem. Model this attitude by continuously inquiring and exploring the many facets of the problem.
- Encourage the students to ask themselves,
  - Is it a real problem for the users?
  - Does its resolution create a lot of value for the users?
  - Does the team feel inspired to solve the problem?
  - Is the scope of the problem realistic for the team to handle?

Checklist

- ☐ Do the students understand the contents of the define phase? Are they able to apply the methods for defining the problem?
- ☐ Have the key findings of the empathize phase been incorporated into the problem?
- ☐ Do all members agree on the readiness of the problem statement?
- ☐ Will solving the problem bring positive change for to the users' lives. Has the final problem statement been discussed with, and readiness verified by the subject matter experts and users?

Review

A whole new world

Opening new worlds involves bringing to surface the essential but hidden elements of problems. This first requires us to picture the ideal. It is the clash of the ideal future and imperfect present worlds that generates potentials and possibilities.

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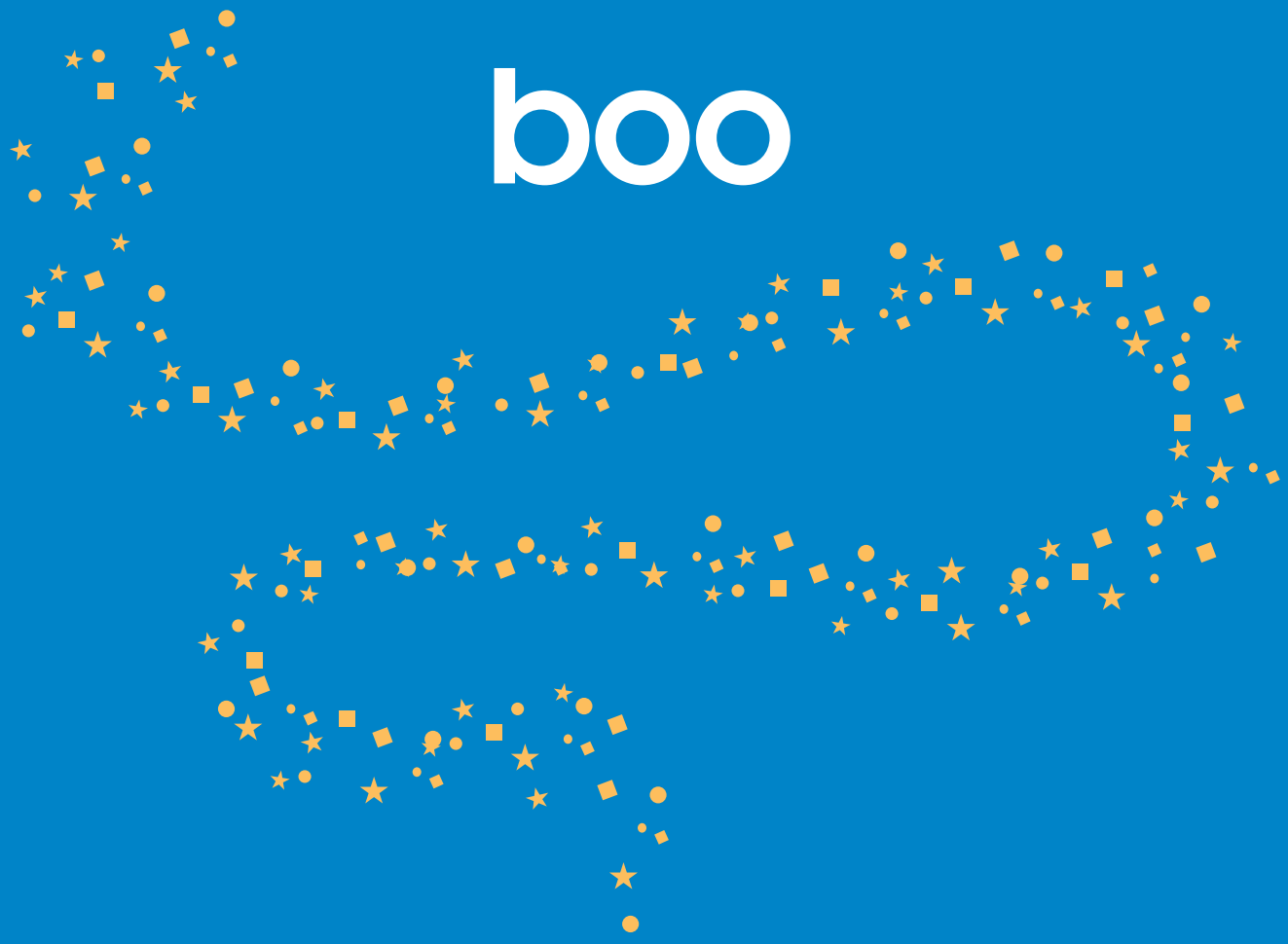


#4 Ideate

#Ideate #Groundrule
#Logictree #Brainwriting
#Feasibilityimpactmatrix
#Generate #Evaluate
#Facilitating

Video story

Joseph reviews the overall progress of the project. He explains the processes of generating ideas based on the problem statement, precautions of ideation, idea generation methods, and how to organize and categorize ideas.

Sarah provides on-going encouragement so that the students can continue to the completion of the project.

Facilitator's responsibility :

Idea generation and evaluation

Ideation rules

Once the problem has been defined, the next step is to generate a wide range of ideas. Ground rules will help this process by enabling a safe environment where the students feel safe to take risks and freely express their thoughts. Remind the students of the purpose of ground rules and encourage them to try different approach and angles.

Examples of ground rules for ideation

1. Listen; all opinions are equally important.
2. Be clear on which of the sub-issues the idea is addressing.
3. Distinguish clearly between idea generation and evaluation. Evaluation is not permitted during generation.
4. Think as you talk; talk as you think. Quantity is as important as quality.
5. Record all ideas and group them according to similar contexts.
6. Generate as many ideas as possible within the available time.

Ideation skills and facilitation

Your facilitation will impact the quality of generated ideas. If the students were proactive, motivated, and participative through the define phase, it may be safe to let them continue this momentum in this ideate phase. If necessary, teach them how to record, organize,

and sort the ideas, and step back. However, if you feel that they need more support, you could kickstart the process, but gradually delegate before stepping away. This is a great opportunity for the students to increase their independent problem-solving skills and feel a sense of achievement.

Help the students prepare

1. Compile the wealth of ideas that have already been generated during the empathy and define phases. This will allow for more productive discussions.
2. Gather ideas from their own network of family, friends, and subject matter experts. This will give their ideas more depth.
3. Benchmark and gather related materials (e.g., photos and videos). This will help them convey their ideas more clearly.

Utilize facilitation tools

Logic tree

- An organizational tool that can identify potential solutions by dissecting the ideal and current states.
- Visualization of the possible solutions can help in narrowing down options and making logical decisions.

Brainwriting

- An idea generation technique of exchanging and building on one another's ideas.
- Especially helpful when trying to further explore and develop ideas that have potential.
- Generating as many ideas as possible and making connections with a time limit can make this a stimulating and engaging activity.

Precautions for ideation

Idea generation involves the accumulation of as many ideas as possible, but the following evaluation process involves the selection of the most effective and essential solutions. The following points should be explained to the students.

It is best not to identify who first came up with specific ideas so that there can be shared ownership of the ideas and allow for a more objective evaluation process. Stress the importance of producing results as a team, not by one individual that wants to get ahead. Create an atmosphere where the students can look back and celebrate the achievement of collective effort and achievement in this phase.

All opinions should be equally heard, but decisions are also necessary. And all members must remember not to make negative or critical

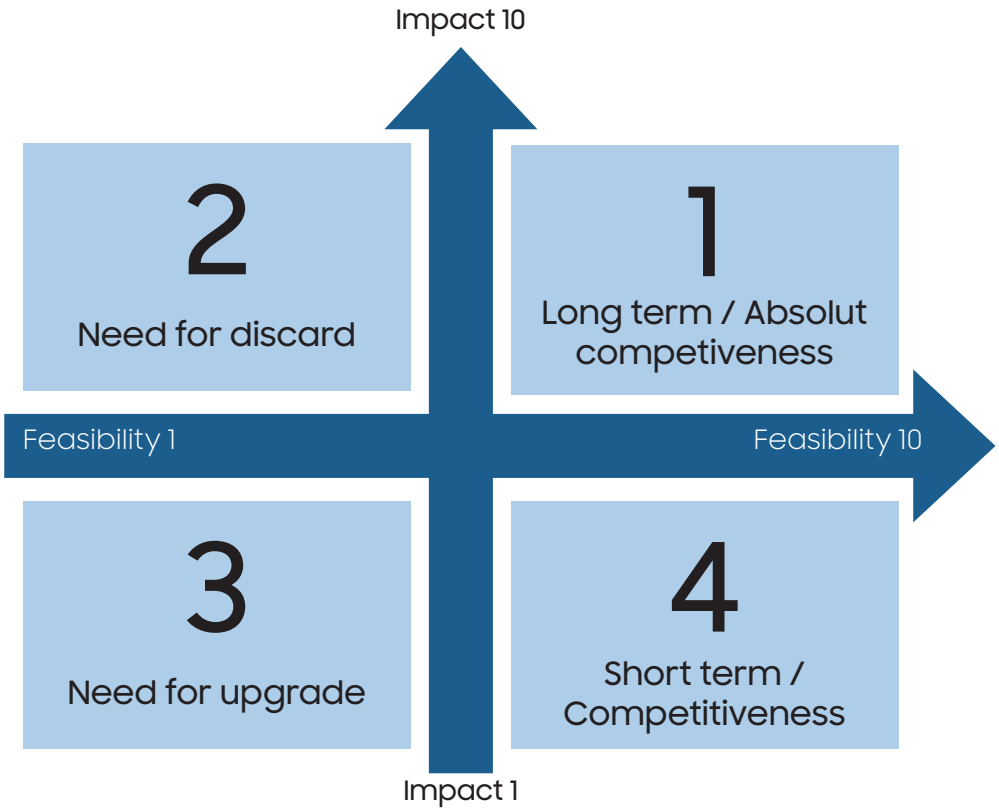
remarks about one another's opinions. The payoff-effort matrix is a method that allow ideas to be objectively evaluated based on their feasibility for us and impact on the user. But the students must understand that the feasibility and impact of some ideas can change when variable factors technological developments and environmental changes are taken into account.

The evaluation must be based on a clear set of criteria. Vague and subjective evaluations can cause problems and holdups in the later stages. Help the students invest ample time on developing the criteria.

Be receptive to existing ideas and the opinions of subject matter experts. It is possible that the idea is not an original one and has already been developed by someone else. Help the students take advantage of such cases by building on them rather than feeling discouraged or giving up. Samsung's mentors can be valuable sources of help when it comes to STEM-related ideas and patents. Test out the ideas with help from the domain experts. This is an opportunity for the students to experience the joy of discovery.

Feasibility-impact matrix

A feasibility-impact matrix can be used to efficiently evaluate ideas in design thinking. It can also be readily used for deciding priorities in other aspects of our daily lives.



Panel talk

Essential question 1

What are some tips for generating good ideas in a short amount of time?

- Understand that there are no "bad" ideas; make it a fun and safe experience.
- Facilitate the process of developing what will start out as simple ideas. Keep up the energy level by trying out the different ideation methods.

Essential question 2

How can focus be maintained on the problem?

- Review and reflect on the problem again, but it is equally important to create a free and flexible atmosphere.
- Use "How Might We" questions to strike a balance between free-flowing creativity and a focus on the problem. And remember to refrain from judging or evaluating ideas at this stage.

Essential question 3

Is it a good idea to evaluate ideas based on feasibility and impact?

- This is a good way to group and identify ideas that have potential. However, the students will need the help of experts. Provide support as the conduct research for resources or partnership from subject matter experts.
- Caution the students against getting married to one idea. Help them understand that this is an iterative process; they can learn and always adjust.

Checklist

- ☐ Have all students participated in the ideation process? Are the generated ideas feasible?
- ☐ Is there continued enthusiasm surrounding the topics? Is there a continued desire to contribute to achieve the goals of the project?
- ☐ Have the ideas been organized and evaluated based on an objective set of criteria?
- ☐ Have the user's responses to the final idea been positive or as expected?
- ☐ Has the project been progressing according to schedule? Are there ways to improve its progress?

Review

Bibbidi-bobbidi-boo

We can imagine and wish for anything, just as Cinderella did. But we will also find that perfectly fitting shoe—the best solution.

Defying gravity

#5 Prototype

#Prototype
#Showdontexplain
#Fastandcheapprototype
#SMART #Feedback
#QuickImprovements

Video story

Sarah uses examples to explain the concept and expectations of prototyping. Her explanation eases their anxieties about producing a prototype, and she encourages them to keep going.

Various prototyping methods are introduced. Decision on a method allows the idea to become more tangible. The students persist through the challenges and eventually begin preparing for their SFT presentation.

Facilitator's responsibility :

Fast & cheap prototyping and iterating

Why prototype?

The team will be eager to develop their idea and see satisfied users and good results. But this will not be possible without first prototyping. Prototyping brings the improvements and refinements necessary to arrive at the optimal solution and meet user expectations. It also allows users to visualize and experience the possibilities offered by the solution. Thus, prototyping is a crucial step for reaching the best results and gauging user responses with minimal loss in effort and resources.

This phase provides facilitators with opportunities to plant key learning points. Convey to the students that they won't get it right the first time, and what they want can only be attained through continuous improvement and grit. If things don't go as planned, help them learn from the setbacks and understand that this is a necessary part of the process. Encourage them to try again and again through many iterations by reflecting on what they have and have not tried.

Ground rules for prototyping

Show, don't tell. Challenge the students to visually express their idea. Emphasize the need to obtain feedback as quickly as possible without taxing resources. Have them produce the prototype with minimal time and resources. And continuously check on whether the prototype has stayed true to the core ideas and contains the key elements. One way to evaluate the prototype is to borrow the SMART tool commonly used for planning and time management.

- Specific
- Measurable
- Achievable
- Result Oriented
- Time-bounded

Prototype methods and precautions

Detailed information about four methods of prototyping is available in the design thinking toolkit. However, additional methods such as 3D printing and metaverse platforms can be utilized to make the process more interesting. But as previously mentioned, the team must remember to keep things fast and cost-effective and allow for necessary iterations.

They will also need think a little more realistically with using available technologies, as well as be ready to receive help. What technologies are necessary, and how will they be applied? Help the students connect with domain experts to prepare for the testing process. The key here is to find the tools that will serve the idea. Trying to fit idea to the limitations of the tool will lead to compromises and a breakdown in the design thinking process. The students must maintain their focus on the core idea and the design thinking process, then develop and apply the tools and technologies. Guide the students not to make decisions based on convenience or settle anything less than the best.

If challenges arise, quickly shift back to the ideate phase to search for anything they may have overlooked, or user feedback that can help them regain their momentum. At times, it may be the define or empathize phases that will hold the information they need. Remind the students that design thinking is not a sequential process and going "back" is a perfectly normal and necessary part of the process for arriving at the best solution. If time allows, it may be beneficial to help them through all the phases leading up to the prototype phase.

Talk

Essential question 1

What is the best way to understand the prototyping stage? How can this be a beneficial experience for everyone?

- Prototyping is absolutely necessary for making abstract ideas more tangible. Ideas can gain validation through prototypes created with something as simple as a pen and some paper. During this phase, the facilitator should ask for "rapid prototyping"—fast and low cost. This will be another opportunity to practice communication and collaboration amongst the team members. The purpose of the prototyping phase is to learn.

Essential question 2

When is a good time to show the user the first prototype? How much quality is necessary?

- The prototype must embody the key features and functions of the solution. The users must be able to imagine what they are and how they operate in the prototype. Don't spend too much time on the superficial details. Spending too much time and effort on the prototype can bring about personal and emotional attachments that can interfere with the objectivity of the feedback process.
- Help the students aim for very low-risk, quick and inexpensive prototyping. This is not the final or even the test version.

Checklist

- ☐ Has the prototype been created with minimal effort (quick and inexpensive)?
- ☐ Is it tangible and visual to the users?
- ☐ Does the prototype contain the potential means to solve the user's problems?
- ☐ Are the students ready to quickly discard the prototype if it doesn't work and try again?
- ☐ Has the prototype been produced collaboratively?

Review

Defying gravity

The final product will resolve problems and satisfy needs. Delivering something from nothing will be possible only by rising above the challenges. Defy gravity.


We are
the
champions
#6 Test

#Test #Iterate
#Expertfeedback
#Userfeedback #Surveyanalysis
#Interview #Motivation
#Reallifeapplication

Video story

The team gathers feedback about the app that was developed through the prototype. The feedback is from the users and Samsung mentors.
Sarah has the team check for details that may have been overlooked and encourages them to not give up. The preparations for the final SFT presentation are also underway.

Facilitator's responsibility :

Give your best; have no regrets

Test & iterate

Although this is the final phase, the fluid nature of the design thinking process will take the team in and out of the other phases. Completion is achieved, not by reaching the fifth phase, but through the quality of iterations that the product experiences. The test phase is about trying out the solution and gathering real user feedback. Many students often fall into the trap of thinking that this is the end. Your responsibility is to remind them that this is only the end of the beginning. This can be a challenging time for many students who may feel discouraged by fresh problems and negative feedback. They may also fee unprepared to restart the design thinking process. On rare occasions, the testing may reveal that the users' needs were not properly understood during the empathize phase.

This would be an opportunity to accept the fact that nothing has been wasted. Instill in them the confidence and hope that everything will eventually come together and that the best solution is waiting to be realized. It can be easy for them to start pointing fingers and finding things or people to blame. Steer the focus to more proactive discussions that can help identify the problem and steps can be taken to move forward.

Feedback

Mindset and attitude for user test feedback

Testing is an exciting part of product development. The students may already be feeling satisfied about their solution because of the time and energy they have put into it. Therefore, take steps to ensure that they can be receptive to, and objective about the feedback they will receive. They must also be able to verify whether their idea will really improve and positively change the users' lives.

Tips for gathering feedback

Next, the students need some techniques for writing appropriate questions and overcoming potential obstacles. Below are three tips for preparing and organizing questions.

1. Set clear goals and ask detailed questions. Ask questions that directly relate to the goals and their subcomponents, rather than general experiences or opinions. Thoughtfully consider which methods (qualitative, quantitative, or both) will elicit the most useful responses from the users. And be sure to fully analyze the feedback to inform the improvement steps.
2. Strike a realistic balance between the test specifications (e.g., users and test period) with the goals and overall project schedule. It may also be beneficial to refer to the user interviews conducted during the empathy phase to be reminded of the needs and consider whether the idea truly addresses them.
3. Decide on a template to help categorize the feedback. There are many forms to choose from, but here is one example:

Things I like most	Things that can be imprved
Things I don't understand	New ideas to consider

Panel Talk

Essential question 1

How should the students process negative feedback at this phase?

- It begins with a learning mindset. There is no reason to be discouraged. The feedback is about the creation, not the creator. Using neutral language in the questions will elicit more honest and objective feedback from the test users.
- Remind and help the students to understand that negative feedback is their way to learn and improve.

Essential question 2

What should the students do with the feedback?

- The feedback should be used for refining their ideas and advancing the project forward. It can also be used to generate additional ideas or even going back to redefine the problem. The process of jumping between the phases can seem messy and intimidating but practicing this with your guidance can help them quickly regain confidence.
- The students should include time to apply the feedback in their project plan.

Checklist

- ☐ Have suitable test users been selected, and do they understand the project?
- ☐ Will the prototype allow the test users to experience the core aspects of the ideas?
- ☐ Do the interview questions allow the test users to process and express their experience? Have the questions been tested?
- ☐ Is there a list of key points that can guide the observation of the test?
- ☐ Has the analyzed feedback been shared amongst the team members? Have the action points for improvement been decided?
- ☐ Are the students prepared to engage in more iterations if necessary, and does the overall mood support a growth mindset?

Review

We are the champions

We fight the good fight to serve our community. Pursue happiness and a brighter future for all, and never give up. When they win, we all win! We are all champions.

Thank you for the music

#7 Sharing

#Reviewandshare
#Debrief #Celebration
#Acknowledgement
#Thanks #Presentation
#Endureprogress

Facilitator's responsibility :

Progress review and exponential growth

Debrief

The students' growth is as valuable as the final product. Through design thinking, the students will gain not only problem-solving skills but the experience of adding value to their community through their work as global citizens. The process also teaches the value of collaboration, conflict resolution, and how to learn from failure. Some will also learn from the behaviors that you model as a facilitator, and some may return to this place in the future as a facilitator themselves. The students will learn and grow in areas far too great to contain in these pages, and that is why the debriefing process is so valuable. The debriefing will allow the learning and growth to continue and extend into their lives.

Debriefing techniques

1. Review
   Take some time to review their overall experience. Utilize photos and memorable incidents. Of course, the ideas and results are important, but take this moment to look back and remember each member's contributions.

2. Most memorable content or incident
   As humans, we do not have the ability to remember and recall everything. But our brains remember images. Ask the students to recall and describe their most memorable instances. Reflecting on the emotions behind those instances will then help uncover personal insights and lessons. Help the students verbalize the ways in which those instances were meaningful to them and why.

3. What was learned and realized
   The process of sharing their thoughts will help them discover deeper lessons. Normally, this will not be just one, but several interrelated realizations. Help the students make those realizations deeply personal and actionable.

4. Applications for continuous growth
   The students will continue to grow beyond the time they spent at SFT and positively impact the world around them. To that end, encourage them to share their detailed action plan. If necessary, you can have them think and write individually before sharing. Of course, there is also value in decisions to stop doing something but encourage them to focus on action plans that will produce visible behaviors.

Celebration

Whatever the outcome of the competition, it is the process of having worked together to the end that deserves recognition. The most important part of this process is praising and expressing their gratitude towards one another. As a facilitator, provide authentic and specific praise for their effort and results. Of course, you should praise them throughout the whole process, but use this opportunity to especially celebrate their achievements for a positive and proper closure to this small but significant part of their journey.

Presentation

Presenting their results and learnings is invaluable not only for the competition but also for their growth, sense of achievement, and proper closure. Provide opportunities to present their final product to their peers, teachers, or even their local communities.

Help the students prepare their presentation with these five tips.

1. Look carefully through the presentation requirements. Be sure to fulfill the basics, such as time limit, method, or amount of content.
2. Convey the "why" that makes the project unique. The users should be able to understand why the project is important and what it means to the project team. Clearly explaining the purpose and direction will help with this.
3. Ensure there is a logical flow. Rehearse and check that the content has been logically structured. Verify the accuracy of sources and evidence cited.
4. The final solution should be tangible enough so that the audience can easily picture how it is delivered and used. It may be worth preparing the final iteration of the product.
5. Inject more color into the presentation by sharing the possibilities and potentials of the solution, the lessons learned, and how the team grew through the process.

Panel talk

Essential question 1

Any final things you want to share?

- Debriefing is a very important part of the whole process. It is an opportunity to reflect on the team's goals, successes, achievements, failures, etc. and celebrate the learning experience.
- The key word is "learning." As facilitators, never underestimate how much the students gain from your support. It is the destination and the journey that gives the experience meaning and value.

Checklist

- ☐ Are all materials for the final presentation ready? (Basic materials, process, ideas, expected results, etc.)
- ☐ Has there been ample practice for the final interview?
- ☐ Is there a supportive atmosphere that allows the act and process of presenting to be celebrated too?
- ☐ Are the materials gathered that can help review the whole process?
- ☐ Have you asked debriefing questions and had conversations to help the students personalize the growth and learnings from SFT?
- ☐ Have you challenged the students with the potentials for continued development of the project?

Review

Thank you for the music

We make tomorrow better by solving one problem at a time. Your presence adds meaning to the journey, just as music adds color to life. Thank you.

FAQ

Q1. The idea the students want to develop is not a very good one, in my opinion, but they are so excited about it. What should I do?

A. Trust the process.

Trust that the design thinking process will shape the idea into an impactful and high-quality solution. Remember that many transformative ideas were viewed at first as too ambitious and sometimes silly. The students' ideas will go through a natural refinement process as they conduct interviews and consider real-world applications. Just make sure that they maximize the design thinking process and use it to their advantage. A deeper awareness of the users' chllenges through the empathy phase will be especially valuable for allowing their ideas to become refined by the realities they face.

Q2. Two close friends are competing for the leader's role. I want to encourage the proactive attitude, but I'm unsure of how to handle these strong personalities.

A. Trust the potential of conflict. Establish a common purpose.

Seek to understand whether the conflict is the process of determining the best option (productive) or arguing whether someone is right or wrong. If it is productive conflict, facilitate dialog and mutual understanding. If the intent behind the strong opinion is good, then set some boundaries with ground rules that will allow people to feel heard. For example, you can set a time for dialog or use the "Yes, and" technique that can help process different opinions before expressing one's own.

Q3. I have become so busy that I am not able to follow through on my commitments to the project. Would it be better for me to leave the project?

A. Encourage more autonomy.

The facilitator's help is required in the beginning, but a good project will take on a life of its own—the students will take more ownership, and the facilitator's role will naturally taper off. Instill in the students ownership over the project from the beginning and rely on the process. Design thinking itself will equip them with the wisdom to rise to all sorts of challenges, including your limited time. You will be surprised by how much they will grow through SFT.

Q4. The students' ideas are a little beyond the scope of my expertise. Do I need to try to increase my knowledge of STEM subjects? I am worried because I don't think I can provide the support that the students need.

A. Don't worry and focus on the responsibilities.

You are expected to guide and facilitate, not be the expert. Connect the students to the experts and technological resources available at Samsung or their school. Another important responsibility is to make sure the students do not overlook any important details they may need for the project as they engage with the experts. Of course, some basic knowledge on relevant topics will certainly be beneficial. But keep in mind that with the right mindset, you will grow too through this process.

Q5. One requirement of empathy is to interview subject matter experts, but I don't know of any that we can contact. How can I help? Should we just start making calls?

A. Help them try, again and again.

This can certainly be a challenge for many facilitators and teams. Even if an expert is found, would they even be willing to help?

Rather than hesitating, encourage the students to step forward and reach out to potential contacts using available means. This will be another opportunity that will prompt further growth. Help the students do this themselves and especially with their ability to clearly convey their needs--What do they want to know? What's the goal? How much of their time is needed? And if things don't work out, it's OK. Help them try again.

Q6. A lot of thoughts are shared during the meetings but keeping a good record of the discussions is very challenging for the students. How can good records be kept without stepping in myself?

A. Use the opportunity to gain organizational skills.

Being organized is an important skill, but it doesn't come naturally for everyone. One way to help the students is for you to first show and model what they need to be doing. Or find an expert or someone that can teach some relevant organizational skills. But remember, again, that this will be a process. The students won't get it right the first time; encourage them to take ownership and

Q7. The students all started with a lot of excitement and contributing proactively to the project. But now, participation levels vary; some continue to work hard, while others seem less interested.

A. Approach this issue with design thinking.

The team will continue to face more and more challenges as the project moves forward. And the students will each have their own circumstances that can raise or lower their levels of involvement. Sometimes there will be conflicts between the students. Facilitate the process of sharing the as a team. You and the students will be able to uncover hidden issues and be surprised by the solutions. Apply the design thinking process to tackle such sub-problems; it will be good practice for the students and increase their confidence with it.

Q8. I am noticing that the team is moving too slowly and behind schedule, and now the limited time is making them feel rushed. I'm worried that this will discourage them, especially because we're still in the early stages. What should I do?

A. Have the courage to drop it and try a different approach.

Perfection is not the goal. Move the project quickly forward to a prototype, then focus on the iteration. However, do spend ample time in the empathy phase. Also, the team will consciously move linearly through the phases in the beginning, but as the project progresses, help them think more flexibly about the phases, which that can be run in parallel and out of order in an iterative fashion.

Q9. My colleagues and I are a little overwhelmed by the many techniques involved in design thinking. How can we do a good job with them all?

A. Learn by doing.

Online or board games include instructions, but it is only after playing the games that the players begin to truly understand. Begin familiarizing yourself with the techniques through simulations. Do this as many times as you feel is necessary to understand their core purposes. The repetition will help. You, as a facilitator, know that you won't get it right the first time. Keep trying and you'll get better.

Q10. I have some good ideas too that I'd like to contribute. Can I get involved, or should I allow them to come up with the idea themselves?

A. Timing is key.

Exactly what "good timing" means will depend on the situation and needs of the team. However, one thing that is certain is the need to let the students try first. You may provide some hints, but the best process and results will be achieved when they feel that they did it themselves. However, there is no need for you to wait when it comes to broken rules and negativity. Step in right away and provide clear feedback that can help the team get back on track.

Q11. What measures can I take for disruptive behaviors such as tardiness, incomplete assignments, or getting into arguments? I'm concerned that disciplining them will have a negative impact on the overall mood and morale of the team.

A. Be objective.

Speak based on evidence and the shared rules. Use these four steps when you need to take corrective measures.

1. Self-check. Examine your own emotions and motives. Make sure that your intent is for progress and growth.
2. Fact-check. You must be able to back up what you say with evidence.
3. Help the team become aware of the negative repercussions if the problem persists, and identify steps to resolution.
4. Help the team commit to preventing the problem from recurring.
   Shifting the focus away from the WHO to WHAT will also be relevant to this topic.

Q12. The SFT competition is over, but the students want to continue and start a business with it. What should I do?

A. This means that the project was a success, and this was made possible through your facilitation. However, your official role as their facilitator ends along with the closing of the competition. We recommend that you step away and allow the students to pursue their plans. However, if you would like to become involved with them again, fully consider what that would mean for yourself and the students before making any decisions.

Memo

SAMSUNG

Together for Tomorrow!
Enabling People
Education for Future Generations