SDGo Launch Workshop Guide

April 22 - 23 2017

SDGo Competition Committee

About SDGo

SDGs refer to the UN's 17 Sustainable Development Goals. The SDGs were established in 2015, ranging from No Poverty to Climate Action. These goals should be not only tasks for governments, but also guidelines for all citizens, especially students who are the future builders.

SDGo refers to ñ**Sustainable Development Goò**, an initiative to invite students to take actions upon the 17 global goals. "SDGo" represents our educational philosophy that the classes should not be traditional ones where teachers give lectures while students listen, but instead project-based where students learn by cooperating to solve SDGs problems.

The generic methodology for SDGo breaks down into three phases:

GREY PHASE	**Define a SDG problem**
YELLOW PHASE	**Analyse a SDG problem**
RED PHASE	**Solve a SDG problem**

GREY PHASE ACTIVITIES

- locate a real-life SDG problem
- observe and study in the field
- reach authentic understanding of the issue
- build empathy for different stakeholders.

YELLOW PHASE ACTIVITIES

- break down the problem into small research questions
- research for scientific/practical references
- build multidisciplinary knowledge around the problem of choice
- analyse and report.

RED PHASE ACTIVITIES

- propose solution
- quick prototyping
- feedback and improve
- publish in public
- communicate and present

Schedule

<table>
<tr><th colspan="3">Opening workshop SDGo</th></tr>
<tr><th></th><th>Saturday April 22</th><th>Sunday April 23</th></tr>
<tr><td>09.00 - 09.30</td><td>Registration</td><td rowspan="2">The guesstimation game: Solving the world's problem on the back of a napkin. Measuring nature and society from first-principle with numbers: quantitative science.</td></tr>
<tr><td>09.30 - 10.00</td><td rowspan="2">Visionary Talks: SDGs - actions needed from all citizens (Francois Grey, Professor at University of Geneva, Director of Citizen Cyberlab, Luping Xu, Professor at Tsinghua Univeristy, Director of Open FIESTA)</td></tr>
<tr><td>10.00 - 10.30</td><td rowspan="4">Fieldwork Planning 2: Design your method for measuring the SDG problem in life using accesible knowledge and technologies to you from different disciplines. Take the example of different measuring strategies or instruments.</td></tr>
<tr><td>10.30 - 11.00</td><td rowspan="2">Ice breaking activity : SDGo.ooo (a game to know about SDGo competition).
Objective: get to know each other and understand the SDGo, SDG#6 and SDG#12</td></tr>
<tr><td>11.00 - 11.30</td></tr>
<tr><td>11.30 - 12.00</td><td rowspan="2">Lunch break (optional: Movie watching)</td><td rowspan="2">Lunch break</td></tr>
<tr><td>12.00 - 12.30</td></tr>
<tr><td>12.30 - 13.00</td><td rowspan="2">Narrative workshop: Everyone draws and tells a story related to the two SDG topics</td><td rowspan="4">Prototyping workshop: Using basic tangible material (cardboards, paper, play dough) to illustrate your group's results from Fieldwork planning 1 and guesstimation game. Complete the prototype with written documentation and short (1 minute) videos.</td></tr>
<tr><td>13.00 - 13.30</td></tr>
<tr><td>13.30 - 14.00</td><td rowspan="2">Team Building: Based on the stories, the team should discuss and decide on one topic that they want to investigate in the competition & Team naming</td></tr>
<tr><td>14.00 - 14.30</td></tr>
<tr><td>14.30 - 15.00</td><td>Coffee / Tea break (We scan everyone's story)</td><td rowspan="2">Presentation and showcase of prototypes.</td></tr>
<tr><td>15.00 - 15.30</td><td rowspan="3">Critically looking at sustainability: review the topic with critical thinking tools, propose questions of interests</td></tr>
<tr><td>15.30 - 16.00</td><td>SDGo Lauching Ceremony</td></tr>
<tr><td>16.00 - 16.30</td><td rowspan="3">Fieldwork Planning 1: Identify the different stakeholders in your questions and organize panel discussion inside the group to develop empathy for each stakeholder - start the first phone interview with someone you don't know</td><td rowspan="3"></td></tr>
<tr><td>16.30 - 17.00</td></tr>
<tr><td>17.00 - 17.30</td></tr>
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Description of each session

Overview:

Over the next two days, you will be introduced to the methodologies from the SDGo guidebook. It is important to understand that your project starts today. After the workshop you will have achieved the following things:

- Find a topic for your competition
- Write a fieldwork guide
- Learning about quantitative and qualitative research methods
- Learning how to prototype an idea

Narrative Workshop (60 minutes)

[Presentation 1]

In the book Think Like a Freak, author Steven Levitt (University of Chicago economist) and Stephen J. Dubner (New York Times journalist) discuss that large-scale problems such as global warming is asked by researchers all over the world. But the reason it has not been solved is because the question is too big! In order to start somewhere, ***we must start from a small problem and start building case studies and projects that make impact[1].***

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Activity 1: Narrative making inspired by daily life

What you need:

- Pen and Post it

Starting from our own life: Every object and situation we interact has an inherited narrative: It involved human activity and a process to create it. Identifying these narratives will help students find problems they can further investigate.

What do we mean by process?
This is related to how we produce the material. Questions such as:

- Where do you get this material come from?
- How do you think this material is made?
- How is this material processed?
- What machines are used in the making?

What do we mean by human activity?

- Who makes the material?
- Where is the factory to make this object based in?
- How many factories are involved in making this material?
- What is the carbon footprint for exporting this material from the factory to my home city?

Goals:

- Find a topic from your daily life

1. (5 minutes) Introductory presentation

2. (10 minutes) Pick keywords related to Human Activity and Process within your daily life related to either SDG#06. Then do it for SDG#12. Write on the Post-its.

[1] http://freakonomics.com/podcast/big-returns-thinking-small/

3. (5 min) Post on Wall and we will sort the keywords into groups
4. (15 minutes) Write and draw a narrative for SDG#6.
5. (15 minutes) Write a narrative for SDG#12.

Team Building (60 minutes)

*Make sure each tutor is involved with their teams during this session

At this point each group have stories produced by each members. We would like for you to take the time to present these stories to each group, discuss and decide on one topic.

KEY POINT for Students: the topic should NOT be too broad (e.g. food waste) or too specific (e.g. food waste created by my classmate.

Activity:

1. (20 minutes) Layout the stories and each person tells the stories. Each person 3 minutes maximum - have a timekeeper.

2. (20 minutes) Identify the most relatable problems out of every story, and summarize the topics based on the story
    a. Pick keywords from the stories (concrete and general words)
    b. Vote for keywords

3. (20 minutes) Decide on one topic. Try to resolve disagreements by justifying your reason why this topic is interesting, linking and merging topics.
    a. Draw a new story to illustrate your decided topic
    b. Finally vote if there is still disagreement.
    c. Name your team
    d. Define different roles in your team: coordinator, researcher, documentation, communicator, etc

Team name:
Roles:
Topics discussed:
Final topic:

Critically Looking at Sustainability (90 minutes)

*Make sure each tutor is involved with their teams during this session
[Presentation 2]

Activity: Critically analyse your problem as a group

This activity is about reflection and critically analysing the context is important and a solution could be sustainable for certain aspects of the problem while cause unsustainability in other aspects at the same time

KEY POINT for Students: You have identified the óknownsô which exists within your current environment

These narratives are valuable knowledge derived from what you already know. This is a starting point, and in the next section we will challenge these ‘knowns’ (what you already know) to see how we can interrogate them and find questions derived from our daily life.

KEY POINT for Students: Question what you already know

In order to find a niche perspective, it is necessary to understand that certain understandings we have are not rigid, but rather preconceptions. Based on what you already have, try to ask questions based on the guidelines we have provided on how you can challenge your assumptions. Here we introduce you **critical thinking methods**:

- Time as a measure
- Cultural Context Matters
- Tech-centred vs eco-centred
- Looking outside of Human centred thinking
- Myth of ‘green’ energy

1. (20 minutes) Presentation & Questions
2. (20 minutes) Each person becomes an expert on one of the concepts. Use a post-it to write you ideas. Dissect the following elements from your stories.
3. (20 minutes) share your ideas (3 minutes each - have a timekeeper)
4. (30 minutes) Discussion in group. Ask and answer the following questions:
    e. **Identify demographics (people):** Who would you like to go ask questions? Where are these people? Where do they work? What are their contact details? Where can you find them?
    f. **Identify locations:** Have you identified sites you would like to go visit?
    g. **Identify the óunknownsô**Have you identified any further questions you would like to ask yourself to further investigate?

Pick your perspective				
☐Time as a measure	☐Design is never culturally neutral	☐Tech-centred vs eco-centred	☐Human centered thinking	☐Myth of ‘green’ energy
Post-it ideas:				

people	location
“Unknown” (questions created from the critical sustainable thinking process)	

Fieldwork Planning 1 (60 minutes):

[Presentation 3]

It is perfectly normal to not know everything - further it is encouraged to identify areas within your narrative that you do not know yet. In one way, this activity is supposed to help you understand areas within your topic that you are not informed of. We will address your 'unknowns' within Week 2 of Phase Grey.

KEY POINT for Students: Embrace that we do not know everything.

Key words:

- Qualitative research: Descriptive data, where we collect stories, images and facts rather than relying on numbers
- Quantitative research: Collecting data with numbers

In order to prevent the projects from being driven based on assumption, we utilise ethnographic research in this program. Ethnographic research usually involves observing target users in their natural, real-world setting, rather than in the artificial environment of a lab. The aim is to gather insight into how people live; what they do; how they use things; or what they need in their everyday or professional lives.[2] We hope this opportunity to encourage the students to go find out inspiration from the real world.

Instructions:

1. (10 minutes) Presentation
2. (20 minutes) Activity 1
3. (30 minutes) Activity 2

Activity 1: Writing an interview guide (20 minutes)

Interviews are very effective in giving a human face to research problems. In addition, conducting and participating in interviews can be a rewarding experience for participants and interviewers alike. Interviews offer the opportunity for participants to express themselves in a way ordinary life rarely affords them. Interview guide is a manual for what you want to find out and questions.

Tips:

- **Be respectful:** During interviews, the person being interviewed is considered the expert and the interviewer is considered the student. The researcher's interviewing techniques are motivated by the desire to learn everything the participant can share about the

[2] Definiton of ethnographic research provided by Gov.uk ***https://www.gov.uk/service-manual/user-centred-design/user-research/ethnographic-research.html***

research topic. Researchers engage with participants by posing questions in a neutral manner, listening attentively to participants' responses, and asking follow-up questions and probes based on those responses.

- **Ask Open-ended question:** When conducting an in-depth interview, researchers ask mostly open-ended questions – that is,questions that encourage a detailed response rather than "yes," "no," or one-word answers to drawout unstructured talk from participants about their experiences and opinions. Later, researchers analyze what participants say for insights into the person's attitudes, beliefs, and perceptions.
    - "Would you use a sustainable fuel for you car?"
    - "Would you please describe your daily routine within the factory"

Activity 2: Go call someone (30 minutes)

As you identifying during the ***Critically looking at Sustainability session***, identify the numbers you have found and go call them.

Instruction:

1. Prepare you interview guide and dial
2. Repeat step for another 2 numbers
3. If you finish early write a reflection on why it worked or didn't work. Did you find out what you wanted to find out? If you didn't, let's think of a strategy as a group.

Tips:

- **Who are you?:** Take advantage of your status as a student - people are more inclined to help you out!
- **Be respectful:** Let the participant talk - you only ask questions. They are the expert in this situation.
- **Roles:** Decide on roles when you interview. There should be an interviewer (ask questions) and a note-taker (does not interrupt)
- **Why are you calling?** You should explain the purpose of the interview to study participants within the broader context of the research study. In doing so, it is important that you be truthful and straightforward about the study objectives and the anticipated risks and benefits to the individual participant and the community, and that you identify the organizations involved in the study.

Ways of documenting:

- **Raw data:** keep notes of the conversation. If you prefer to record, ask the participant for their consent. Do not edit anything out.

	Question 1:	Question 2:	Question 3:
Interviewee 1 Name:			
Interviewee 2 Name:			
Interviewee 3 Name:			
Summary / reflection			

How to measure our life - Guesstimation Game (60 minutes)

[Presentation 4]

Activity 1: Learn about “Guesstimation” Game (20 mins)

What is ñGuesstimationò and why estimate on the back of a napkin?

By this stage of SDGo, you should have collected a few qualitative data and the next step to get some quantitative data - the numbers, to have a deeper understanding of the question you raised. Instead of spending all our time on getting a very accurate answer on a small part of the problem, we need to first look at the big picture - make an estimation.

Steps and techniques

1. **Dare to be imprecise, use the factor of ten: ~10, ~100, ~10000, ~10^x**
2. **Break the problem into smaller pieces**
3. **Multiply**
4. **Estimate by bounding**
5. **Take the geometric mean**
6. **Compare the answer**
7. **Note possible estimation failure**. (3 types)
    a. **Over or underestimate a quantity.**
    b. **Wrong Model for our estimate**.
    c. **Nonlinear problem (1+1Í 2)**

Example: Who unrolled the toilet paper? 谁搞乱了手纸卷？

Activity 2: Make your own estimation (40mins)

- Pick up one question related to your own topic that you are NOT sure about the answer and you want to find out
    - Question should NOT be simple or trivial
    - You should NOT know the answer beforehand

- Follow the steps that you learned about guesstimation and make your guesstimation. Please **write down each steps** with the form below

What is your question: (e.g. how much fast food are wasted in McDonald's everyday ?)		
How do you break down your question: (e.g. how many customer at a time, how long do they stay in McDonald's , how much do each customer waste, etc.)		
Quantity you know	Quantity you search	Quantity you estimate (by factor of 10)
Your equation and result:		
What could lead to a failure (quantity, model or nonlinear):		
*What comparison did you make ? (optional)		

Fieldwork Planning 2 (90 minutes):

[Presentation 5]

Overview:
After the guesstimation activity, we have achieved a certain level of understanding of the topic we chose and questions we wanted to answer, especially the scale of the problem and its boundaries. What we don't have is the authenticity of the data we used in our guestimation - they are mostly estimated. In this section, we are going to get first-hand data by conducting fieldwork measurement.
This section is also a continuation of fieldwork planning 1 and we will add quantitative data collection methodologies into the qualitative research

KEY POINT for Students: Measure with your own methods

Activity 1: Complete your own data by action guide:

Instruction:

- (20 minutes) Presentation
- (20 minutes) Identify the **physical place** where you can conduct your field trip by reviewing the questions (people, places and unknowns) proposed in the previous sections (it can be the same question or a different one):
- (50 minutes) Identify the **actions** that you can get numerical and narrative data.
    - What observation can you make ? How do you observe ?
    - Design your methods to measure the data.
    - What data will you get? How this data is going to help answer the question?
    - What instruments will you need for this measurement ?

Where?
Data you want to collect:
Design your own method:

Prototype Workshop (120 minutes)

[Presentation 6: What is low-tech prototype?]

Overview:

By this point you have already collected quantitative and qualitative data by your selves:

- End of Day 1 you have contact with someone who you do not know (qualitative data)
- Day 2: Guesstimation game (experiment and experiment with data) (quantitative)

We value “thinking through making”, when you are creating an outcome for the project. There are a variety of ways to achieve this: it can be a solution or raise awareness through publicity of your well-thought-out SDG solution. Remember that you can use art or any form of expressions which are encouraged. In this phase, you will bring their solution into the real world and let the general public judge whether or not it is good enough. The quality and practicality of each team’s solution will be scored heavily on the societal impact of their product.

Activity 1: Produce a 3D sketch of an artefact

Low-tech Prototyping Tool kit (Extract from SDGo Curriculum Guidebook)

Low-tech means simple technology, often of a traditional or non-mechanical kind. In this circumstance means things you can make with your hands.

The prototype can be a solution, demonstration, imagination or illustration of what you have. This is a non-critical chance to commit to and build an object: **to make mistakes and open doors.** These are exercises encouraging you to make and push your ideas into a tangible and physical form. It will demand that you produce an object, create opportunities and possible ways to extend the physical and narrative potential of your thinking.

Key Point: Force yourself to make something.

This exercise will provide a platform for you to forge one. Making will create a reactive space where you can manifest your thoughts, create interventions and explore how these change the environment or context you are thinking through.

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Gaffa Tape and Cardboard:
Producing a 1:1 model of what you envision in your head. You are asked to produce a **three-dimensional sketch of an artefact** : a product, a wearable, a piece of technology, something architectural or a ‘prop’ from within a territory you consider. It can be anything, but it has to somehow interact with or relate to your interests and/or current studio project. Some ideas:

- Copy and Replicate an object
- Imagine: How things look like
- Functionality: How things work
- Human Interaction Make a performance

1. (15 min) Presentation

2. (90 minutes) **The rule during this session is, move your hands, not your mouth.** Make a 1:1 scale model of your chosen object. Use found images and make drawings to work from (or study the real thing if you have it to hand). Be adventurous; don’t choose something simple for the sake of making the model easily or quickly.

3. (15 min) Documentation & Clean up. Make sure you take a photo of you and your objects the way it is supposed to be represented.

Image credit: Risk Facilitator by Sam Hill 2009
http://samhilldesign.blogspot.co.uk/2009/07/building-risk-facilitator-flickr.html