



**Team-Based Inquiry
practitioners' manual**

Big Picnic



Team-Based Inquiry practitioners' manual

Big Picnic

**Theano Moussouri, Georgios Alexopoulos
& David Francis**

June 2019

Suggested citation: Moussouri, T., Alexopoulos, G. & Francis, D., 2019.
Team-Based Inquiry practitioners manual. London: BGCI

Front cover images: Natural History Museum, University of Oslo

Design: www.seascapedesign.co.uk



This project has received funding from the European Commission under the Horizon 2020 –
Work Programme 2014 - 2015 Science with and for Society, Grant Agreement number: 710780

Contents

Section 1: Introducing TBI	04
1.1 What is TBI?	04
1.2 About this manual	04
1.3 The TBI cycle	05
1.4 The cyclical nature of TBI	06
1.5 Creating your own TBI-cycle	07
1.6 Activity: Mapping your co-creation project	07
1.7 Activity: Placing your co-creation project in time	07
Section 2: Asking TBI questions	08
2.1 Introduction	08
2.2 Types of questions	08
2.3 Activity: Deciding on your questions	09
2.4 Activity: Refining your questions	09
2.5 Finalising questions	10
Section 3: Investigating TBI questions	11
3.1 Introduction	11
3.2 Activity: Methods worksheet	11
3.3 Interviews	11
3.4 Focused observations	14
3.5 Numbers or words? – Other methods	15
3.6 Visitor tracking	15
Instructions for visitor tracking	15
Key things to remember when visitor tracking	15
3.7 Self-administered questionnaires	17
3.8 Quantitative approaches to questionnaires: Leichardt scales	18
3.9 Qualitative approaches to collecting data: Visual tools	20
Concept mapping	20
3.10 Qualitative methods: Semi-structured interviews	21
Five key questions that guided the interview	21
Semi-structured interviews and coding	22
Other methods for gathering visitor feedback	22
Section 4: Reflecting on data	23
4.1 Introduction	23
4.2 Analysing data	23
4.3 Coding interview data: The process	24
Step 1: Questions	24
Step 2: Categorising the data	25
Step 3: Key findings	26
Step 4: Discussion and reflection	26
Section 5: Improving your co-creation project	27
5.1 Introduction	27
5.2 Reporting on your TBI evaluations	27

Section 1: Introducing TBI

1.1 What is TBI?

Team-Based Inquiry (TBI) is a systematic tool designed to help botanic garden and museum professionals to evaluate their project. One of the key aspects of TBI is that evaluation is not conducted by an external consultant, but that it is an evaluation process aimed at giving practitioners the skills to evaluate their projects themselves.

TBI was developed by the **NISE net (Nanoscale Informal Science Education Network)**, a community of informal educators and scientists, based in North America, dedicated to fostering public awareness, engagement, and understanding of current science, technology, engineering, and maths (STEM). As a result, pre-existing resources exist in relation to TBI including the TBI guide, workshops, tips and tricks and video presentations which can all be accessed at <http://nisenet.org/>.

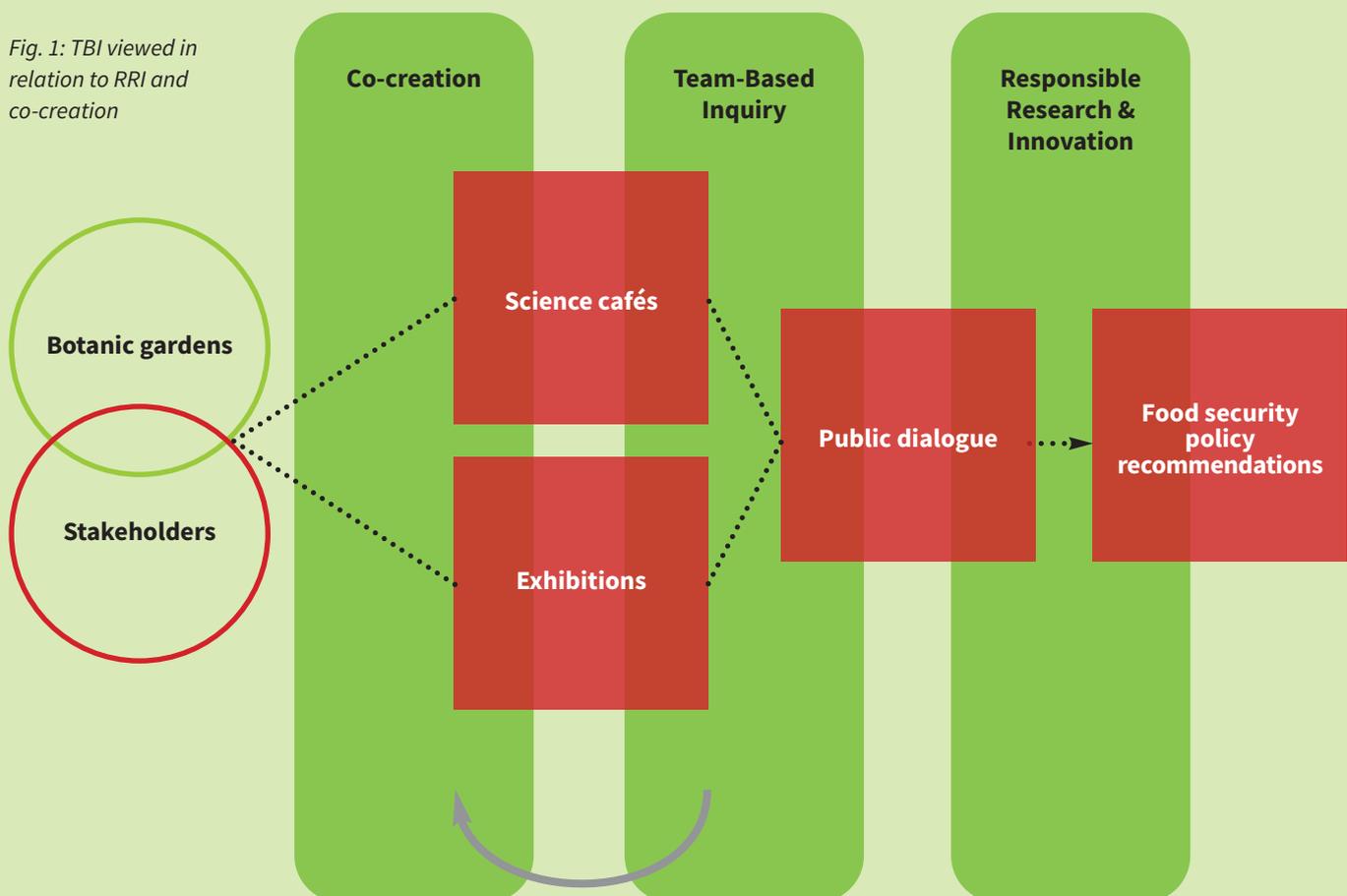
1.2 About this manual

This manual was originally designed to support BigPicnic partners to evaluate co-created exhibitions and science cafés about food security as well as the co-creation process itself. Therefore, the manual relates the TBI process to co-creation and its evaluation, however, the TBI approach can be adapted and applied to evaluate any project or action related to any topic.

The aim of BigPicnic is to generate and capture public dialogue about food and food security to support future Responsible Research and Innovation (RRI) related to these ideas. To achieve this, the project's botanic garden partners co-created and delivered outreach exhibitions, science cafés and engagement events and activities to reach a variety of audiences. TBI has been applied to complement and support co-creation activities, reflecting the values and ethos of and feeding into RRI (see figure 1). TBI has been used as a means of evaluation by which botanic garden practitioners can explore ideas about food security with multiple audiences, and assess the impact of finished exhibitions, activities and events.

If you would like more guidance on how to carry out and apply co-creation methodologies take a look at the Co-creation Navigator <https://ccn.waag.org/>

Fig. 1: TBI viewed in relation to RRI and co-creation



1.3 The TBI cycle

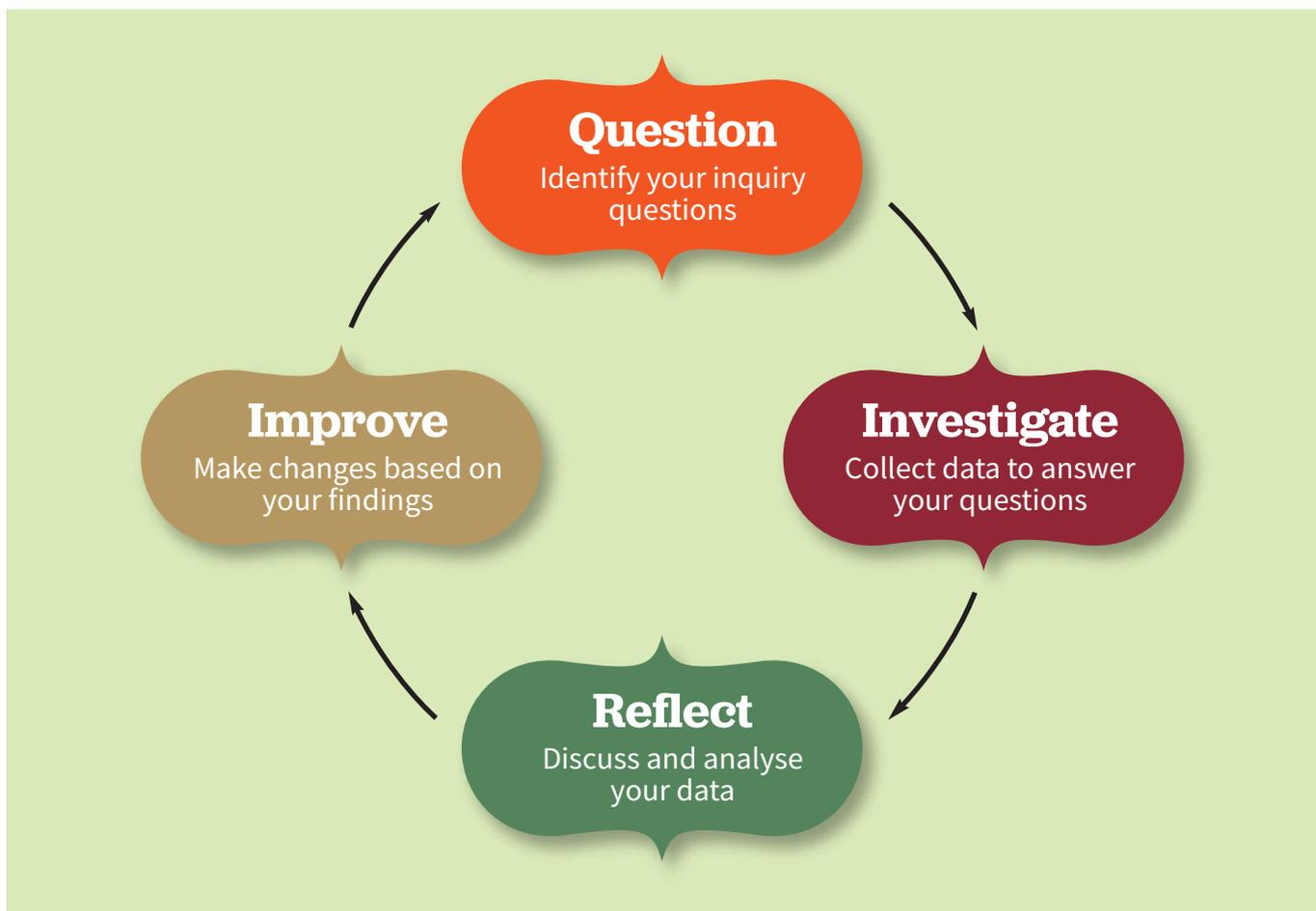


Fig. 2: The four-stage TBI cycle (source: Pattison et al. 2014. *Team-based inquiry: A practical guide for using evaluation to improve informal education experiences* (2nd Edition). Retrieved from: NISE Net)

TBI is based around a four-stage cycle of question, investigate, reflect and improve (see figure 2).

Stage 1: In the question stage the gardens identify their inquiry questions – what is the key information about a project that the gardens would like to find out?

Stage 2: In the investigate stage the gardens identify the appropriate methods to answer these questions and then collect the data to investigate them.

Stage 3: In the reflect stage the gardens analyse the data, undertaking basic statistical methods if they have adopted a quantitative approach, or coding the data if they have adopted a qualitative approach.

Stage 4: In the final stage, improve, the gardens feed their findings back into their project, improving activities and exhibitions through prototyping and also reporting back to stakeholders about the impact of the finished product.



Mapping green spaces in central Sofia as part of the City and Garden science café, University Botanic Gardens of Sofia University “St. Kliment Ohridski”, Bulgaria

1.4 The cyclical nature of TBI

CASE STUDY

Botanic Garden Meise, Belgium: co-creation for the development of science cafés and exhibitions with the African diaspora



Fig. 3: Working on food security with the African Diaspora community of Belgium, Botanic Garden Meise

Botanic Garden Meise (APM) is an institution with a significant botanical collection derived, among other things, from former colonies. APM aimed at better engaging with diaspora communities that could not only become a new audience for the garden but also contribute to the content and direction of a series of exhibitions and science cafés. Tropical food crops became the medium for various co-creation activities that looked at food security issues and the relationship of diaspora people with their culinary traditions, food memories and local, regional and national identities. Throughout the development process and again once the exhibitions and science cafés had been prepared, APM asked a series of questions that helped both develop the content and evaluate its effectiveness.

These included questions asked before the development of the exact content of the exhibitions and science cafés, such as:

- How do people in migration deal with their 'food memories' from the situation they left, and how do they reconnect to the new situation?
- What can help people undergoing (forced) migration to cope with 'lost' foodways and support them to feel at ease in the new situation?

Based on the co-creation sessions the topics chosen for the exhibitions were: *Roots, tubers and bananas as staple crops* and *Edible insects as culturally appreciated sources of proteins*.

During a public exhibition titled *Edible insects here and there* and a relevant science café, the garden aimed to answer questions about the topic of entomophagy:

- What makes people reject or accept entomophagy?
- What information is needed to help people to have a better understanding of the possibilities, advantages and disadvantages of eating insects?

There were also questions in order to evaluate the effectiveness of the exhibition upon opening, such as:

- How did visitors engage with the digital displays?

And questions that allowed the practitioners to reflect on the overall process, such as:

- How did this co-creation process work at APM?

The activities undertaken by APM illustrate the fundamental nature of TBI; that questions are cyclical. Some needing to be answered in the development of the project; some needing to be answered while the project is being experienced by members of the public; and some allowing us to reflect on the project process after its completion.

1.5 Creating your own TBI-cycle

In order to create a TBI cycle, you must have a clear idea about the overall aim of your co-creation projects, who your co-creation participants are, what the process of co-creation is going to look like, what form the finished output might achieve, and who the potential audiences for these outputs are (e.g. who will visit an exhibition which has been co-created).

1.6 Activity: Mapping your co-creation project

Draw a circle and within it write your overall co-creation mission statement/goal, for BigPicnic this would be about food security (see figure 4). An example might be: To improve participants perceptions of the Mediterranean diet (as was the case for the National Museum of Natural History and Science, University of Lisbon).

From this circle draw out the number of different co-creation projects you are undertaking. Typical examples, from BigPicnic, might include:

- An exhibition about a food security topic.
- A series of workshops bringing together different groups of people to create something around the topic of food security.
- A resource that can be given to teachers to use with school groups to teach the subject of food security, using the idea of a picnic basket as a metaphor.
- An activity that addresses the issue of food security with staff members within your own institution.



Fig. 4: Example of mapping a co-creation mission statement/goal

1.7 Activity: Placing your co-creation project in time

A question that comes up frequently in co-creation sessions is “do I have to evaluate every activity we undertake?”. The answer to this question is no, such an approach would be beyond even the most well-resourced evaluation team. You therefore need to be strategic, choosing the key moments within a project to create your own TBI cycle. A useful activity to help you do this is to draw your co-creation activity as a timeline, so that you know when your co-creation workshops are taking place and when your output will be produced. You can then strategically plan evaluation activities to run at key moments along this timeline. Below is an example of a timeline for the co-creation of an activity undertaken by the Juan Carlos I Royal Botanic Gardens, Alcalá de Henares University, in Spain, (Figure 5).

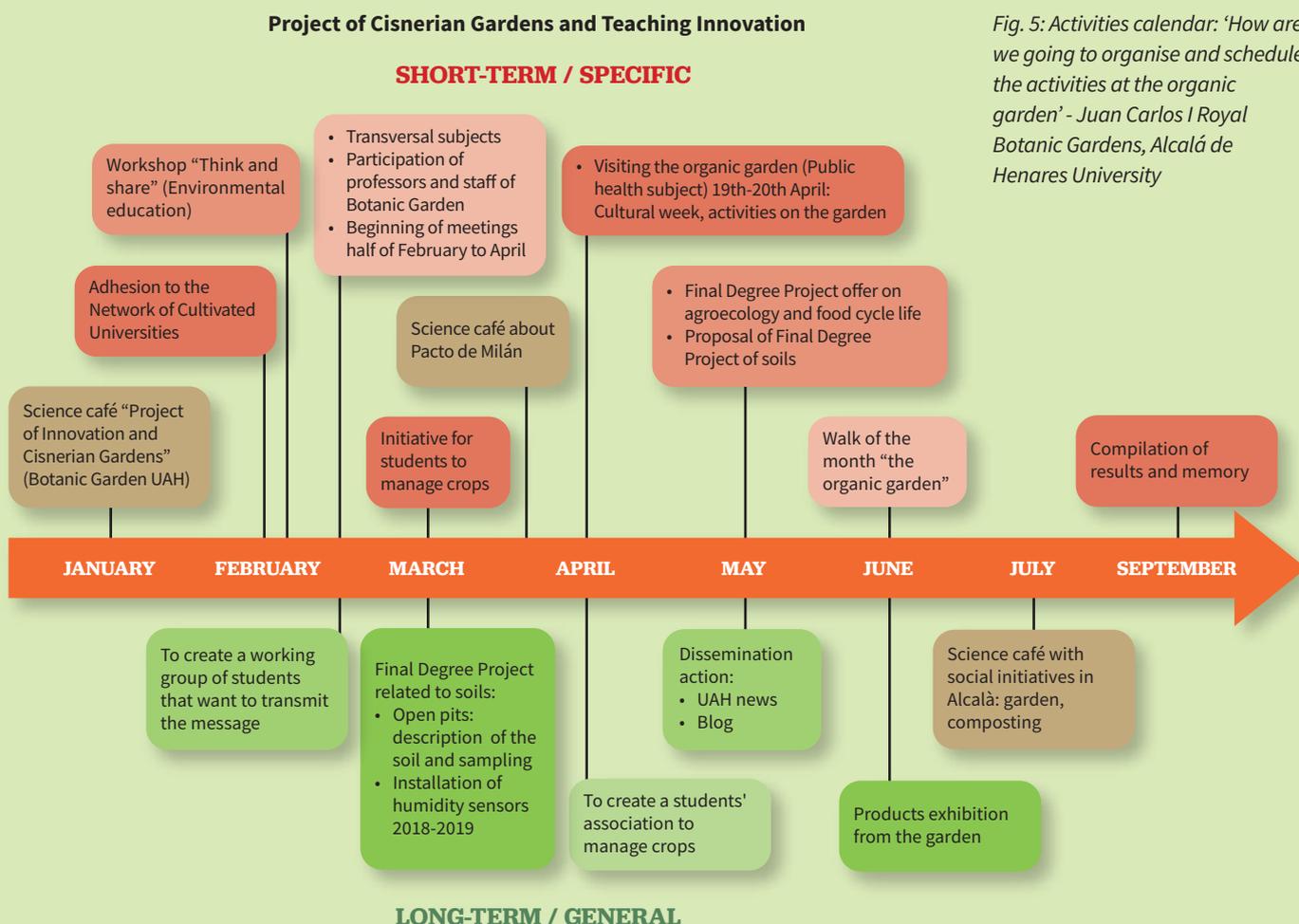
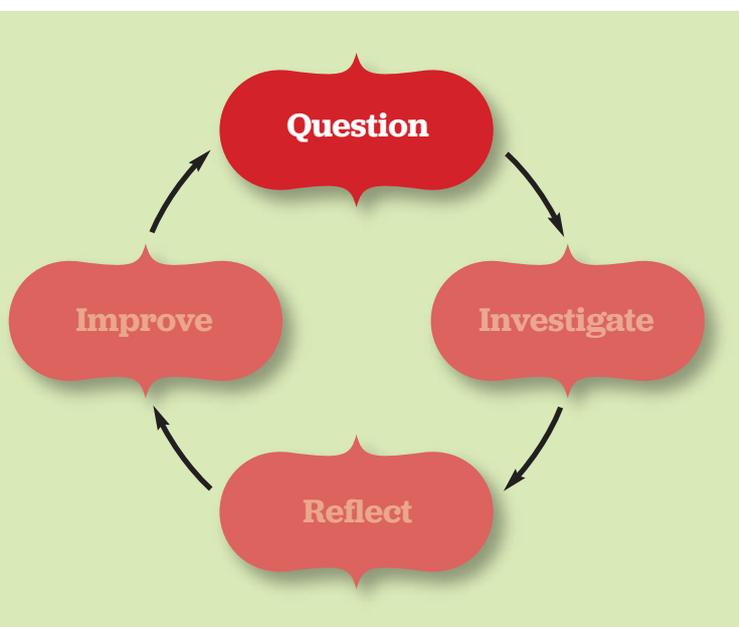


Fig. 5: Activities calendar: ‘How are we going to organise and schedule the activities at the organic garden’ - Juan Carlos I Royal Botanic Gardens, Alcalá de Henares University

Section 2: Asking TBI questions



2.1 Introduction

A TBI question is something that helps you move forward with your work, clarifies your project gaps and potentials and is too big to ask just one person. Although TBI is cyclical and over the course of a project many questions will be generated, you should only tackle one, two or three questions at a time.

A good question is one which you don't already know the answer to, there's no point in spending time and resources on researching something which you already know. At the same time you shouldn't attempt to answer a question that is beyond your resources and time constraints – attempting to capture whether your project has changed your country's attitude to eco foods is probably beyond the scope of what you are able to measure.

Finally, a good question should focus on either useful or actionable information, something that influences and shapes the outputs you are creating. Examples of questions used in BigPicnic are listed on this page.

2.2 Types of questions

1) Questions about shaping the form of a workshop or activity

Some of the most frequent questions asked by BigPicnic partners are in relation to how to shape their products:

- What material/resources should the picnic basket include to make it useful to teachers/pupils? (School Biology Centre Hannover)
- Did the participants find the workshops useful? Did they find them fun? Would they participate again? (Balkan Botanic Garden of Kroussia)
- Is the format of the workshop attractive for our target audience? (Botanic Garden and Museum, Freie Universität Berlin)
- What kind of activities are more appropriate for our school group sessions? (National Museum of Natural History and Science, University of Lisbon)
- How should we design our travelling exhibition on traditional or little known edible plants in order to catch visitors attention? (University Botanic Gardens of Sofia University “St. Kliment Ohridski”)
- How are we going to organise and schedule the activities at the organic garden? (Juan Carlos I Royal Botanic Gardens, Alcalá de Henares University)

2) Questions about the topic of food security

Other questions might be those that investigate particular information about food security, which you can then use to shape your product.

- What role do children play in cooking and food purchase decisions at home? (Hortus Botanicus Leiden)
- How do people understand the topic of “food poverty”? Do they consider themselves “food rich” or “food poor”? (Royal Botanic Garden Edinburgh)
- How do people/consumers relate to sustainability when buying vegetables? (Natural History Museum, University of Oslo)
- What are the perceptions of poverty in Bergamo, its connection to everyday food and what is the city doing? (Bergamo Botanical Garden)
- Do communities get enough and safe food? (Tooro Botanical Gardens)
- How can you guarantee that producers are not using fertilizers, pesticides or other agrochemicals? (Royal Botanic Garden of Madrid)

3) Questions about capturing impact with your co-creation participants or your audiences

Alternatively, a question might attempt to measure the impact of a project. Often such questions are related to the wider overall goals of the project. For example:

- Has our food security board game successfully engaged audiences? (Hortus Botanicus Leiden)
- Has our audience improved their *Wertschätzung* (attitudes and approaches) to food? (School Biology Centre Hannover)
- Have participants appreciated the health and economic benefits of using Greek plants for food? Has it resulted in behavioural change? Has it resulted in the sharing of this information with others? (Balkan Botanic Garden of Kroussia)
- Did the project get people to make better food choices? (University of Warsaw Botanic Garden)
- Have the workshops strengthened our relationship with the African diaspora community in a sustainable way? (Botanic Garden Meise)
- How can we reach out to visitors and keep them interested in the topic, so they will take part in a series of events? (Botanical Garden of the University Vienna)
- Have the attitudes and behaviours of workshop participants to a Mediterranean diet changed? (National Museum of Natural History and Science, University of Lisbon)

4) Questions about capturing the impact of your project on your institution

- Have we broadened our audiences through the Big Picnic Project? (Royal Botanic Garden Edinburgh)
- Has management become more audience focussed? (Royal Botanic Garden Edinburgh)
- How can we get a better - rich, fair and clean - diet for members of the university community? (Juan Carlos I Royal Botanic Gardens, Alcalá de Henares University)
- How can we develop/change the garden during the project? (University of Warsaw Botanic Garden)
- What do the garden staff want to eat and why? (Botanic Garden Meise)

5) Questions which reflect on the co-creation process and the impact on the team itself?

- How can we achieve good results from the co-creation process faster? (Botanic Garden and Museum, Freie Universität Berlin)
- How can we overcome obstacles that prevent us from making changes to the system? (Botanic Garden Meise)

2.3 Activity: Deciding on your questions

Write down all the questions you have about the project on post-it notes. Group together those that are similar into topics. For example, questions about the development of a product, questions about capturing impact, and questions about the impact on staff, or your organisation. Choose 2 to 3 questions from this selection to define further. You may want to redraft and combine some of the questions from the same topic.

2.4 Activity: Question worksheet

The Question worksheet (see Worksheet 1) provides a means of reflection on and honing your questions. It asks the following questions:

1. Why is this question important to your team?
2. What types of information would you need to answer this question (e.g., visitor comments, programme observations)?
3. What resources would you need to answer this question (e.g., staff, time, expertise, data collection forms)?
4. What changes might you be able to make if you answer this question?
5. Based on all of this, how high of a priority is this question (H=High, M=Medium, L=Low)?



Exploring citizen's ideas about the nutritional value of cereals at the Eat, Feed, Take Care Science café, Bergamo Botanical Garden, Italy

Project title: Science café: *What about sustainable food?*

Project goals: To promote healthy and sustainable habits in relation to food and the use of local, native and seasonal species, avoiding waste. To enhance the engagement between general public, researchers and political agents and resources to encourage action.

INQUIRY QUESTION	What are the perceptions of general Portuguese public (adults) about healthy meals?
Why is the question important to your team?	We want to make sure we achieve the project goals in terms of promoting healthy and sustainable habits about food by targeting and evaluating different groups (age, locality, professional context and academic history). Moreover, we want to promote discussion between public and guests in order to bring society closer to researchers.
What types of information would you need to answer this question?	We will use as an evaluation tool, a game-based mind map called the <i>Mind plate</i> , to collect basic demographic data and the people’s perceptions about healthy and sustainable food to examine changes during and after the activity.
What resources would you need to answer this question?	Staff to hand out materials and assist in completion of <i>Mind plate</i> activity.
What changes might you be able to make if you answered this question?	Public feedback would produce data that can be reported to national agents within the attending organisations.
Based on all of this, how high of a priority is this question? H=High, M=Medium, L=Low	<div style="display: flex; justify-content: space-around; align-items: center;"> <div style="border: 1px solid black; border-radius: 50%; width: 40px; height: 40px; display: flex; align-items: center; justify-content: center; background-color: #92d050;">H</div> <div style="border: 1px solid black; border-radius: 50%; width: 40px; height: 40px; display: flex; align-items: center; justify-content: center; background-color: #fff;">M</div> <div style="border: 1px solid black; border-radius: 50%; width: 40px; height: 40px; display: flex; align-items: center; justify-content: center; background-color: #fff;">L</div> </div>

Worksheet 1: Example of completed Question worksheet from BigPicnic

2.5 Finalising questions

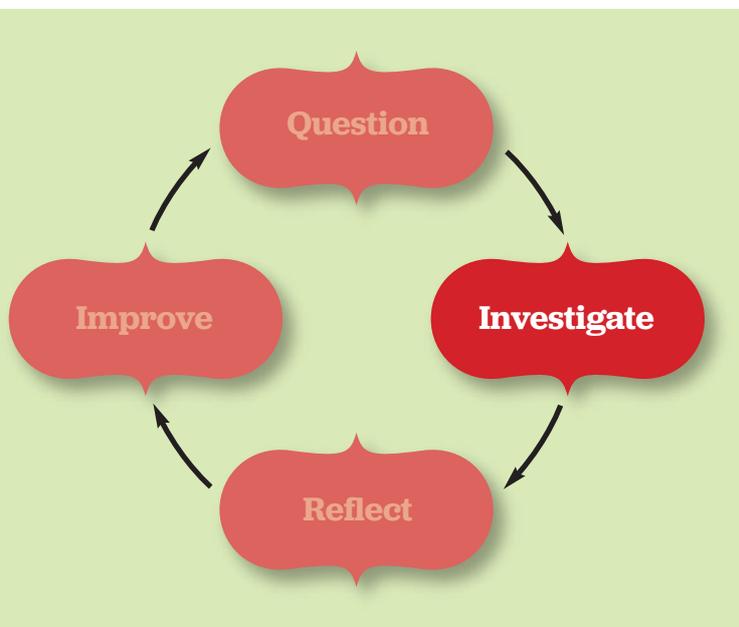
After completing the Question worksheet you should be left with around two to three questions that you will investigate throughout the course of the project. Some of these questions, particularly those around capturing the impact of a project, will operate on a macro-level and remain the same throughout the project, such as “Did we change the attitudes and behaviours of workshop participants to a Mediterranean diet?” (National Museum of Natural History and Science, University of Lisbon).

Others, particularly around the testing and development of a workshop or product will be adjusted each time you trial them. For example, the question “What material/resources should the picnic basket include to make it useful to teachers/pupils?” (School Biology Centre Hannover) will consist of a cycle of micro-questions as different resources that make up the picnic basket are tested, trialed and refined throughout the co-creation process.



Members of a co-creation group sharing food, University Botanic Garden, Sofia, Bulgaria

Section 3: Investigating TBI questions



3.1 Introduction

This section of the manual helps you identify the appropriate methods to answer the questions that you developed in stage two. There are two principle methods by which this can be accomplished: through asking people what they think and by observing how they behave. Section 3 provides a basic interview format and a basic observation format, and then provides a guide to more advanced methods to achieve this.

3.2 Activity: Methods worksheet

Now that you have selected the questions you want to investigate it's time to decide on what are the best methods to investigate them. To do this, fill in the Methods worksheet (Worksheet 2) for each of your questions. Things to consider are:

1. What important information could you collect with this method?
2. What important information could you NOT collect with this method?
3. What resources would you need to conduct this method to answer your question?
4. What other methods could you use to collect some of this information?

Based on your answers, determine with your team, whether each method is high, medium or low priority for addressing your TBI question?

3.3 Interviews

Interviews focus on what people think and feel, they let you dig into conversations, provide opportunities to probe deeper, and can produce open-ended qualitative data. An ideal feedback interview to evaluate an activity could consist of three basic questions (see also example in Worksheet 3a):

1. What did you like most about this activity? Why is that?
2. What are some activities that could be improved? Why is that?
3. In your own words, what would you say the activity is about?

These three questions form the basic tenants of evaluation, providing a means of determining what works about an activity (event, exhibit or workshop), what doesn't and whether the activity is effectively communicating its messages. Make sure you also gather the relevant demographic data for your project, audience and question. Worksheet 3a presents a variation of these three questions employed by Juan Carlos I Royal Botanic Gardens, Alcalá de Henares University. In addition, Worksheet 3b presents an example of a set of questions used by the Botanic Garden and Museum, Freie Universität Berlin, that was used to interview their co-creation team.

An interesting example of an interviewing technique was used by Hortus Botanicus Leiden, in the Netherlands. They organised a science café on vanilla, which was set up as a market place. In order to conduct interviews, a volunteer set up a table next to the exit with a display of knitting and craft related materials. While she was working on a vanilla themed piece of knitwear, a sock, people approached her with questions on what she was doing and/or the materials on display. The 'knitting interview' involved the volunteer engaging people in conversation about the topic of the science café. Once trust was established, she would then invite people to participate in an informal interview and ask their permission to record their conversation. The goal of this set-up was to put people at ease, as crafting created a very homely setting.



Fig. 6: The knitting interviewer at work - interview conducted at the Hortus Botanicus Leiden

Hortus Botanicus Leiden					
Project title: Science café on Vanilla					
Team-Based Inquiry question: How can the science café content and format be improved to meet its goals as well as visitor needs?					
METHOD	What important information could you collect with this method?	What important information could you NOT collect with this method?	What resources would you need to conduct this method to answer your question?	What other methods could you use to collect some of this information?	Based on all of this, how high of a priority is this method? H=High, M=Medium, L=Low
Questionnaire/survey	Visitor responses to the activity	Visitor conversations during the activity	<ul style="list-style-type: none"> - Facilitators - Time: train facilitators, facilitate activity & collect data - Data collectors - Means of recording data 	Interview	<input checked="" type="radio"/> H <input type="radio"/> M <input type="radio"/> L
Interview	Visitor responses to the activity	Visitor conversations during the activity	Same as above	Questionnaire/survey	<input type="radio"/> H <input checked="" type="radio"/> M <input type="radio"/> L
Observation	Visitor conversations and behaviour during the activity	Visitors personal opinions related to the activity	Same as above	Facilitator reflections	<input type="radio"/> H <input checked="" type="radio"/> M <input type="radio"/> L

Worksheet 2: Example of a completed Methods worksheet developed by Hortus Botanicus Leiden

Juan Carlos I Royal Botanic Gardens, Alcalá de Henares University, 21/10/2017

First outreach exhibition aiming to engage people with the BigPicnic project and food security issues.

Workshop questionnaire:

Q1. What do you like most about this activity? Why?

Q2. What are some of the ways in which this activity could be improved? Why?

Q3. In your opinion, what was the BigPicnic project about?

Q4. Rate, please, from 1 to 5 your degree of satisfaction with the activity carried out, being 1 the lowest level and 5 the highest level.

Worksheet 3a: Sample participant interview questions

Botanic Garden and Museum, Freie Universität Berlin, 04/09/2017

We want to find out if and how well co-creation works with the practiced methods and what can be improved. These interview questions were addressed to members of the co-creation team.

Questions about involvement and support

1. Do you feel that the time available for the meetings is sufficient to work with the co-creation team?
2. Are you motivated by receiving a volunteer card from the BGBM?
3. Are you satisfied with the information provided?
4. Would you have liked more background information about food security?
5. Are there any questions or topics that have not been discussed or not adequately dealt with by the co-creation team?
6. Do you feel that you are well informed about the progress of the project?
7. How does the atmosphere during co-creation sessions make you feel?
8. Have you experienced any personal learning through participating in the project?
9. Do you feel motivated to continue working on the project?
10. What have you liked so far?
11. What else would you wish for?

Worksheet 3b: Sample participant interview questions

3.4 Focused observations

Focus observation provides an opportunity to focus attention on visitor behaviour at particular exhibits or activities. It can also determine how a visitor/participant responds about an activity or exhibit. Rather than asking what the visitor/participant thinks about the particular activity or exhibit the researcher observes and records their behaviour. The researcher begins by writing down the start time of the project, the group characteristics (e.g. gender, estimated age, number of people) and then describes what occurs during the activity (quotes/remarks). Worksheet 4 offers an example from Hortus Botanicus Leiden.

In effect, focused observations can provide the same type of information as the previous method of interviewing: what worked well, what needed to be improved, and information that might be useful in relation to the topic or content. However, they rely much more strongly on the observer's own interpretation of what is occurring. Whereas dealing with analysis of interviews is fairly straightforward, observations produce a vast variety of qualitative data and require more subtle interpretation.

Hortus Botanicus Leiden, Netherlands					
Science café on Vanilla, 28/04/2017.					
Place of observation: Table of spices					
	Gender M/F	Estimated age	Number of people	Composition of the group	Wears a sticker with approving photo's, disapproving photo's or unknown
Observation 1 14:39 – 14:42	M	36-50 years	2	Family	-
Observation 2 16:13 – 16:21	F	> 50 years	1	-	-
Observation 3 16:22 – 16:26	F	36-50 years	1	-	-
Observation 4 16:27 - 16:31	M	> 50 years	1	-	✓
Other quotes/remarks:					
<ul style="list-style-type: none"> - Observation 1 - visitor asks a lot of questions. He is very interested in the cocoa bean, which Carla gives him some extra information about. Person takes photo with the bean! He also wants to know the subjects of the upcoming presentations and how long the programs will take. Doesn't take the book of spices. - Observation 2 - visitor seems to know about spices and herbs and asks a lot of questions. Takes her time to examine everything. Interacts even more when touching the products on the table. - Observation 3 - visitor knows about a special kind of spice from Indonesia and starts a conversation with Carla about it. - Observation 4 - visitor does not talk much but feels and smells the spices for quite some time, which makes him look interested. 					

Worksheet 4: Example of an observation form used at Hortus Botanicus Leiden

3.5 Numbers or words? – Other methods

Moving beyond the basic survey and observation data we can look at more complex ways of determining what people think or feel about an activity/exhibition, how they behave when they engage with it and what materials they produce while they visit/engage. At this point researchers face an epistemological question: does evidence for visitor engagement exist in numbers, which can be statistically analysed? Or does evidence exist in the form of language, from which patterns can be found and conclusions drawn? This manual provides options for both approaches.

As well as the epistemological position of the researcher, different projects and objectives favour different techniques by which to evaluate them. For example, a series of workshops with a small group of people might favour qualitative group interviews, while an evaluation of a finished exhibition might focus on visitor tracking, which yields quantitative numerical data such as dwell time or number of stops.

3.6 Visitor tracking

Visitor tracking is a method of observing visitor routes within the entire exhibition space and can be conducted obtrusively with the visitor aware they are being tracked or unobtrusively with visitors not being aware that they are being watched by a researcher. It is strongly advised that researchers provide a sign at the entrance to the exhibition, informing visitors that observations are taking place giving visitors the opportunity to opt out if they want to. The following wording can be used to act as a guide:

Observations are being carried out in the exhibition space today. If you don't wish to participate please let a member of staff know. If you have any questions please contact xxxx [Add name & email address of member of staff responsible for the study]

Instructions for visitor tracking

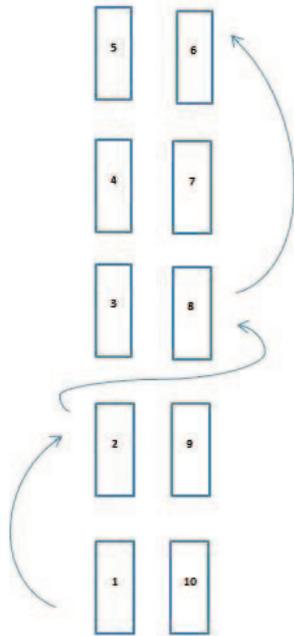
As Figures 7 and 8 show, visitor tracking involves drawing a visitor's route as they move through a gallery space, marking down what they stop at and recording the time. This yields information such as the overall dwell time in the gallery and the number of stops visitors make in the space. This can then be used to determine the success of an exhibition by comparing with other similar exhibitions, by conducting visitor tracking before and after changes have been made to the gallery, or simply yield information about what works in an exhibition and what doesn't.

Key things to remember when visitor tracking

- To achieve a “random” selection of visitors, draw an imaginary line in the exhibition and wait for a visitor to cross it. That visitor is then the visitor you are tracking. If the visitor is part of a group track the first member of that group that makes a definitive movement into the exhibition.
- As soon as the visitor enters the gallery start the stopwatch, only stop it once they have left the gallery.
- Only track one visitor at a time, if another visitor enters the exhibition do not try and track them as well.
- Depending on the aims and objectives you can also record demographic information about gender, age, group size, and who they are with. This can then be used to see if different demographics are behaving differently within the gallery.
- Tracking can also be combined with a follow-up questionnaire so that you can probe about particular visitor behaviour in the gallery or motivation for visiting.



Testing exhibit ideas with visitors, Royal Botanic Garden Edinburgh, UK



Sampling for visitors' interest (TBI & RRI)

Systematic sampling (n=28)

Duration: Sunday 11 - 13,30 AM (2,5 hours)

Visitor characteristics

- Gender
- Age
- Number of persons in group
- Group type: family, family & friends, school group, working colleagues

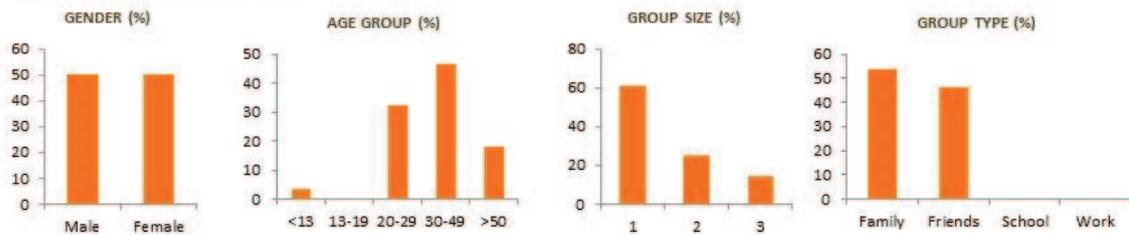
Tracking

- Time
- Walking direction
- Degree of attention paid per panel
 - 0: stops and scans quickly
 - 1: scans with attention
 - 2: shows signs of directed attention (e.g. pointing)
 - 3: shows high attention and interest (e.g. commenting)

Fig. 7: Example of tracking sheet: visitor engagement with exhibition panels (Royal Botanic Garden of Madrid)

Results

About the visitors:



About their behaviour:

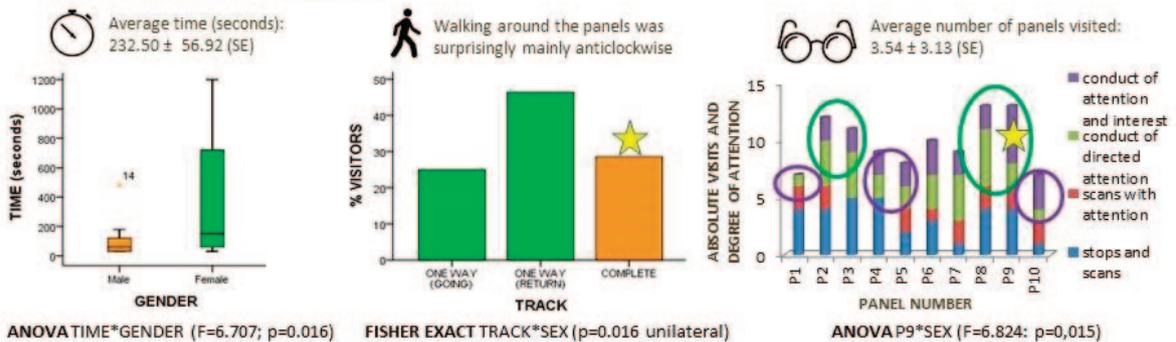


Fig. 8: Example of information derived from tracking sheet: tracking visitor engagement with exhibition panels (Royal Botanic Garden of Madrid)

3.7 Self-administered questionnaires

If you are of a positivist persuasion, one of your key questions might be “how can I convert questionnaire responses into numerical data that I can run statistical tests on?” One approach for this is to provide a series of statements for participants, which visitors can then agree with or disagree with.

For example, the Bergamo Botanical Garden, in Italy, provided visitors with a series of statements related to the concept of food security (Figure 9). Visitors were first asked whether they were aware of what food security is (Yes/No answers). Subsequently they were offered a series of statements grouped into three themes: “In terms of food security, which of these ideas do you think are most important?”; “Which of these daily activities do you consider to have the most to do with food security?”; “Which of the following do you think has the most impact on food security?”.

Bergamo Botanical Garden

FOOD SECURITY

Please complete
this questionnaire
Your support is
valuable
Thank you

Have you ever heard of FOOD SECURITY?

No, I haven't

Yes, I have

In terms of food security, which of these ideas do you think are most important?
(Chose a maximum of 3 answers and number them according to importance)

Physical, social and economic access to food

Contamination and preservation of food products

Excessive soil exploitation

Combatting world hunger

The prevention of obesity

Chemical content of food

Remedies to climate change

Which of these daily activities do you consider to have the most to do with FOOD SECURITY?
(Chose a maximum of 5 answers)

Buying unpackaged food

Buying directly from the producer

Buying organic products

Buying branded products

Buying phytochemically treated fruits and vegetables before eating

Perfectly clean/washing of fruits and vegetables before eating

Washing one's hands before meals

Careful reading of food labels

Eating ethnic food

Eating local food

Eating hermetically sealed packed products

Eating fresh fruit and vegetables

Participating in ethical purchasing groups

Supporting similar networks of local producers

Having a varied and balanced diet

Which of the following do you think has the most impact on food security?
(Chose 1 answer only)

Farm

local agricultural market

Neighbourhood shop

Organic supermarket

Traditional supermarket

Date:/...../..... Age: Male: Female: Occupation:

Fig. 9: Example of questionnaire used by the Botanical Botanic Garden

Like dwell time, these statements can be used to compare changes within a co-creation group's attitude over the course of a project.

Statements need not always take the form of a written questionnaire. They can be included in an interactive game involving voting, which embeds evaluation in the activity and maximizes visitor engagement. For example, the Balkan Botanic Garden of Kroussia, in Greece, organised a reverse science café pilot activity in the city of Thessaloniki where participants could use the Kahoot application (belonging to the homonymous game-based learning platform). As a result, participants offered their feedback through a learning game with multiple-choice quizzes (Figure 10). In other cases, as in a science café on apples organised by the Natural History Museum of the University of Oslo, in Norway, the audience had the opportunity to vote about the most important factors influencing their purchase of fruit and vegetables (Figure 11).

3.8 Quantitative approaches to questionnaires: Leichardt scales

An increasing level of complexity can be added to questionnaires through the use of the Leichardt scale. Rather than simply answer yes or no to a question, participants are asked to numerically express their agreement with a particular topic from 1–5, with a score of 1 expressing extreme negativity, a score of 5 expressing extreme positivity and 3 a position of neutrality. An example of how this worked in practice in the BigPicnic project is



Fig. 10: Participants of a reverse science café activity in Thessaloniki, Greece, using the Kahoot application (event organised by the Balkan Botanic Garden of Kroussia)

the global survey. This was a self-administered questionnaire, used at gardens and online, which focused on the food choices people make. The survey included a set of 36 statements associated with seven main motivation categories: Traditional Eating, Natural Concern, Sociability, Social Norms, Social Image, Migration and Weight Control. Participants were asked to indicate for all of these 36 statements whether they: 'strongly disagree', 'disagree', 'agree', 'strongly agree' or 'don't know' (Figure 12).



Fig. 11: Voting in jars at a science café on apples in September 2018 - Natural History Museum, University of Oslo

BigPicnic Questionnaire

Thank you for taking time to fill in this questionnaire! We really value your answers which will help our garden better understand the role food plays in your life.

Please tick only 1 box from the multiple-choice questions below

I eat what I eat, ...	strongly disagree	disagree	agree	strongly agree	don't know
because it makes a social gathering more enjoyable	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
because my family/partner thinks that it is good for me	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
because it contains no harmful substance (e.g. pesticides, pollutants, antibiotics)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
because it would be impolite not to eat it	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
because it is considered to be special	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
because others like it	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
because it is pleasant to eat with others	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
because my own food habits changed since moving to the country I currently live	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
because it makes me look good in front of others	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
because it is fair trade (a fair price has been paid to producers)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
to stand out from the crowd	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
because it makes social gathering more comfortable	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
because it is natural (e.g. additives or preservatives)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
to avoid disappointing someone who is trying to make me happy	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
because it is organic (hasn't been farmed using synthetic pesticides or fertilizers)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
because it facilitates contact with others (e.g. business meals, events)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
because it is trendy	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
because I am overweight	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
because I grew up with it	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
because it is seasonal	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
because the lifestyle in the country I currently live is different to the one I come from	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
because it is environmentally friendly (e.g. production, packing, transport)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
because it is social	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
because I watch my weight	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
so that I can spend time with other people	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
because I do not know how to prepare the food I used to eat when I was a child	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
because I want to lose weight	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
because I am supposed to eat it	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
because it is low in fat	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
because my doctor says I should eat it	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
because it suits any other special day (e.g. graduation, last day of school)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
because it is low in calories	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
because it is traditional (e.g. cultural, family or religious traditions)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
because other people (my colleagues, friends, family) eat it	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
because I do not have time to prepare the food that I used to eat when I was a child	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
because I cannot buy the ingredients I need in the country I currently live	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Fig. 12: The first page of the BigPicnic global survey questionnaire including a Leichardt scale

3.9 Qualitative approaches to collecting data: Visual tools

Concept mapping

Concept mapping provides a simple and engaging way of capturing visitors' attitudes, opinions and associations about a particular topic or key word. They can be used as the basis to ask visitors further questions based on what they have written. This approach is more responsive to visitor interests and values as it uses their own ideas and words to frame the interview questions and can generate very rich qualitative data. Visitors are asked to write down any ideas, thoughts, feelings, and images that come to mind in relation to the key word on their concept map (see Figure 13). The University of Warsaw Botanic Garden, for example, found that bio-foods was a particularly divisive topic. This information can then be used to shape the content of an exhibition or an activity. Concept mapping can also be used to capture change in participants' attitudes over time. This can be

done by beginning a concept map at the start of a session and then by adding to it at the end. Or by repeating concept mapping over several sessions and making comparisons between attitudes at the beginning of a series of workshops and at the end.

Concept mapping tip: Concept mapping doesn't only have to include words but can also comprise drawings. In fact, when working with young children often concept maps can comprise almost entirely of drawings. Drawings can then be coded to capture an increased understanding of a particular concept (see Figure 13). Concept maps can also provide the basis for a semi-structured interview, as discussed in section 3.10 below.

The National Museum of Natural History and Science of the University of Lisbon employed an adaptation of the concept map called the Mind plate, in order to explore people's perceptions about healthy and sustainable food and in order to examine changes during and after the relevant activity (Figure 14).

Identification of a topic for School Biology Centre Hannover by co-creation workshops Factors influencing eating and consumer behaviour (and food security)

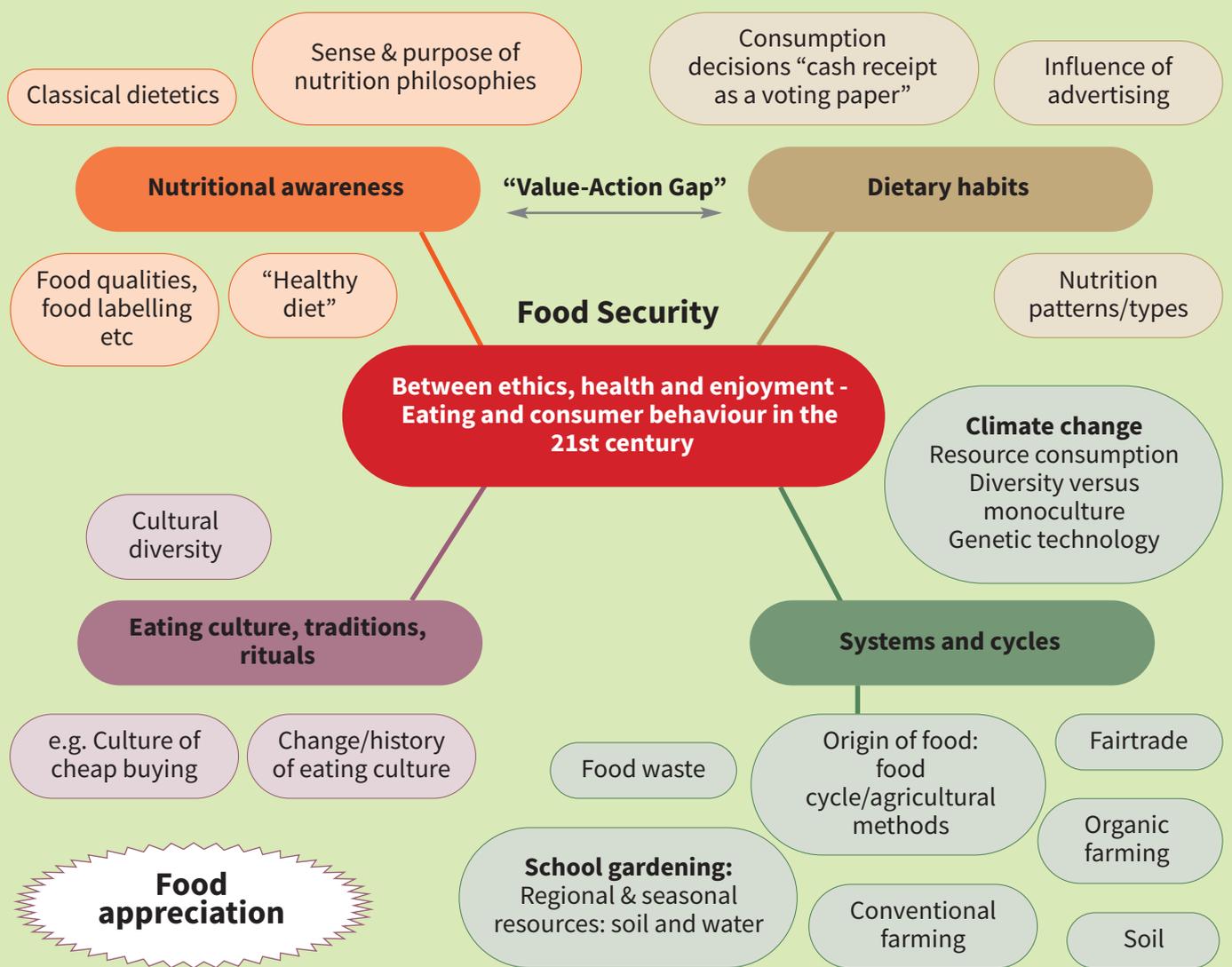


Fig. 13: Example of a concept map drawn by the School Biology Centre Hannover

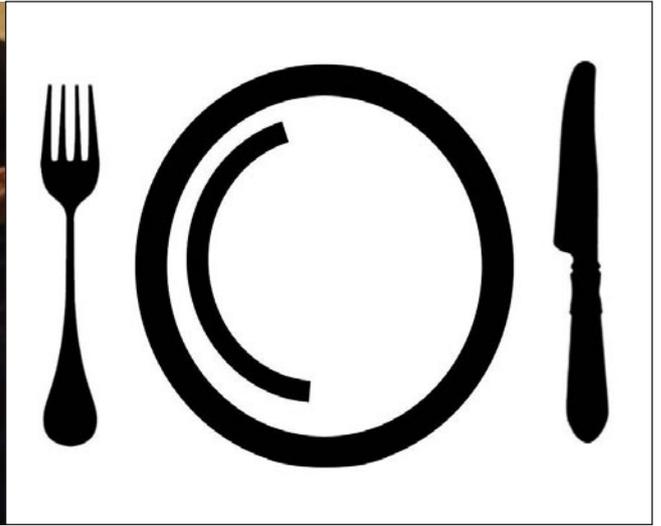


Fig. 14: Participants filling in the Mind plate – a tool used by the National Museum of Natural History and Science, University of Lisbon

3.10 Qualitative methods: Semi-structured interviews

Concept maps allow you to capture some of the key associations around a particular topic, but if you want to go into further depth about a particular topic then semi-structured interviews provide a means of doing this. Rather than having totally predetermined questions as with a basic interview, semi-structured interviews allow space for the participant to dictate the direction of the interview. An example of this is provided by the Royal Botanic Garden Edinburgh which had five key questions providing the interview with its spine. The questions were the following:

Five key questions that guided the interview

1. What worked well for you in this project?
2. What could be improved?
3. Has this project changed your approach to food?
4. What might improve your access to food in Edinburgh?
5. Thinking about access to food, do you see a role for the botanic garden?

During the interviewing process, however, the interviewer and the interviewee had the opportunity to talk through several other issues that emerged spontaneously. Rather than a formal questionnaire, semi-structured interviews more closely resemble a conversation and offer the opportunity to explore complex subject matters in more depth. Typically these interviews are recorded via a dictaphone or a camera to prevent the interviewer being constantly inhibited by having to write down the details, as well as providing a way to capture the richness of the verbal expression of the interview participants. The researchers at the Royal Botanic Garden of Edinburgh indeed managed to digitally record all of the interviews.

Semi-structured interviews can also be used to capture individual or group reactions to a session, by using a focus group format.



Fig. 15: Open question: What else should we include in our BigPicnic exhibition? - University Botanic Gardens of Sofia University "St. Kliment Ohridski"



Fig. 16: Post-it notes activity at a science café organised by Juan Carlos I Royal Botanic Gardens, Alcalá de Henares University

Semi-structured interviews and coding

Semi-structured interviews can generate vast amounts of data. A way of dealing with this is to code the data - classifying particular parts of an interview according to a key topic. These topics may be predetermined by the interviewer, for example anything relating to positive or negative attitudes to bio foods. Alternatively, they may arise from the data itself, in which case they are described as being grounded in the data. More information about coding interview data is presented in section 4.3 below.

Other methods for gathering visitor feedback

There are several other methods that can also generate visitor feedback on specific concepts or themes and for evaluating specific activities. The botanic garden partners of BigPicnic employed various methods such as encouraging their visitors to write their thoughts on flipchart easels (Figures 15 and 17), to leave messages on post-its (Figure 16) or sticker walls (Figure 18) or to use tablets for providing feedback electronically (Figure 19).



Fig. 17: Visitor leaving notes/comments on the 'exit poll' (Hortus Botanicus Leiden, Netherlands)

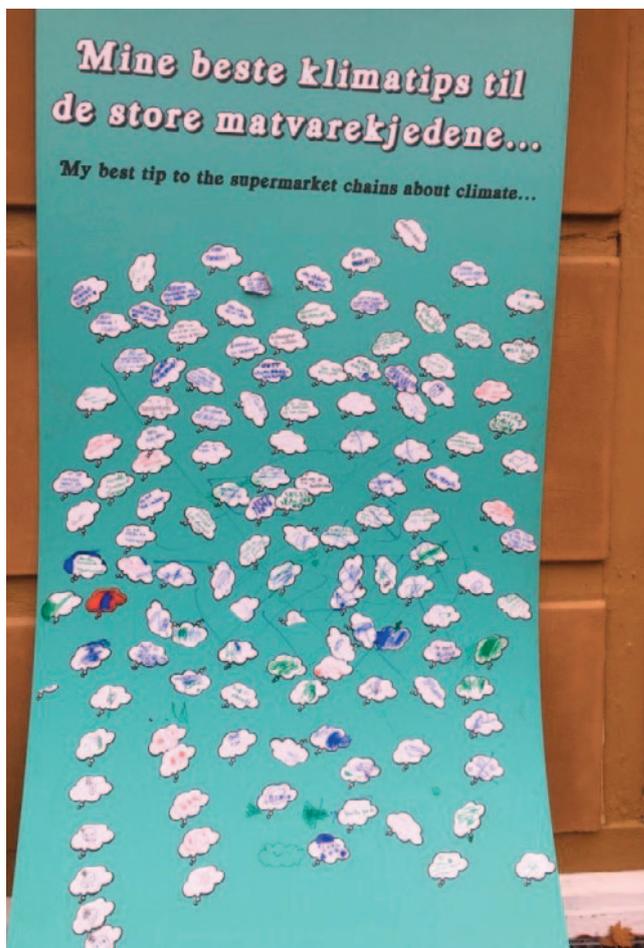
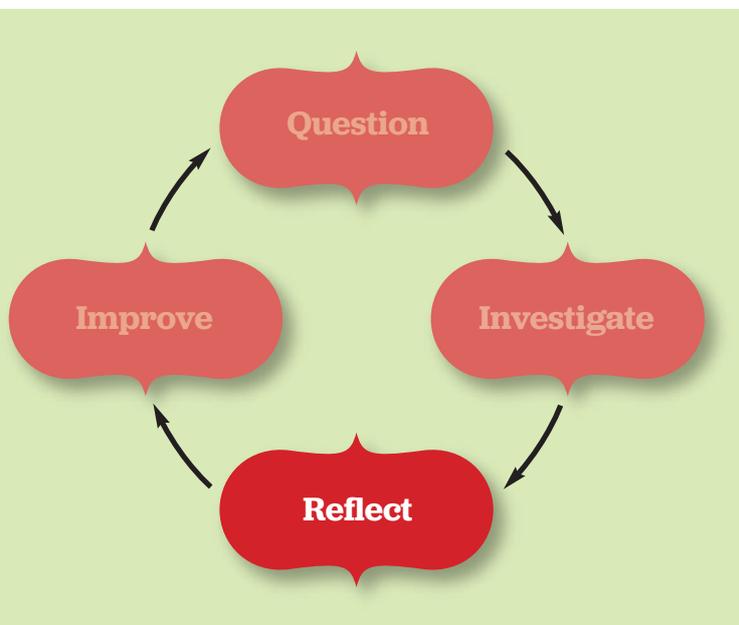


Fig. 18: Sticker wall with visitor comments to an exhibition - Natural History Museum, University of Oslo



Fig. 19: Gathering feedback from digital storytelling with a short questionnaire – Royal Botanic Garden Edinburgh

Section 4: Reflecting on data



4.1 Introduction

During the *Reflect* stage of the cycle the information that has been collected is organised, analysed and interpreted. The information gathered can vary a lot in terms of length, depth, content, etc and therefore the analysis of the relevant data should be adjusted accordingly. Overall, it is very common to have data that is either more easily measurable (numerical) or qualitative and/or categorical (e.g. derived from open-ended responses).

The data that has been generated through a TBI study can be lengthy and can correspond to a great variety of participants and, at this stage, it is essential to identify potential patterns and themes. The analysis process therefore should be ideally a collaborative effort, conducted by a team rather than an individual. Reflecting in this way allows the team to exchange their thoughts and discuss their views and their potentially different interpretations of the same data.

4.2 Analysing data

Data analysis takes a long time to complete so allow plenty of time for it. It will roughly take almost double the time it takes to collect the data. To do this, you can begin individually or as a team. Each team member, for example, takes one of the TBI questions and looks at the data from this perspective.

1. Describe and clarify

The facilitator reminds the team of the inquiry and data discussion goals. The group asks questions as needed.

2. Observe and discuss

The group spends time reviewing the data. Afterwards, each team member mentions one unique piece of data that he or she feels is particularly interesting or important.

3. Immerse and notice

Each team member suggests a unique theme or pattern he or she notices in the data related to the goal of the data reflection.

4. Categorise and explain

After exhausting potential themes, the team sorts the data by theme, writes down the patterns, creates a short description of what each pattern means, including which data points are covered by the pattern, counting the number of data points in each category and discussing possible explanations.



A graphic story image created at the Securing Food for the Future science café, School Biology Centre Hannover, Germany

4.3 Coding interview data: The process

The process of coding semi-structured interviews could be broken down into a series of steps: (1) Questions, (2) Categorising the data, (3) Key findings, (4) Discussion and reflection.

Step 1: Questions

TBI questions determine how you code and organise data. You are effectively grouping data according to the direction the questions provide. TBI questions for semi-structured interviews should be determined in the same manner as regular TBI questions for other forms of evaluation.

The following example is derived from the digital storytelling project conducted by Royal Botanic Garden Edinburgh. The transcript of the interview was initially divided according to the following questions:

Question 1: What does the participant get out of the digital storytelling workshop process?

Question 2: What are some of the possible constraints imposed by the social, cultural and personal economic environment on choosing a healthy diet specific to Edinburgh?

Sections of the interview that related to ‘what does the participant get out of the digital storytelling workshop process?’ were coded as ‘Outcomes’ whereas sections that related to the possible constraints imposed by the (social, cultural and personal economic) environment on choosing a healthy diet specific to Edinburgh were coded with the term ‘Limitations’. Initially this was all the coding that was done (Figure 20). However, as the researchers read through the interview it became clear that these two groupings could be further subdivided into smaller categories. For example, Outcomes were divided into ‘Health’ and ‘Social interaction’. Health was further subdivided into ‘Vegetarianism’, ‘Diabetes’ and ‘Reflecting on diet’. Through these subdivisions a three-level hierarchy of categorisation was created.

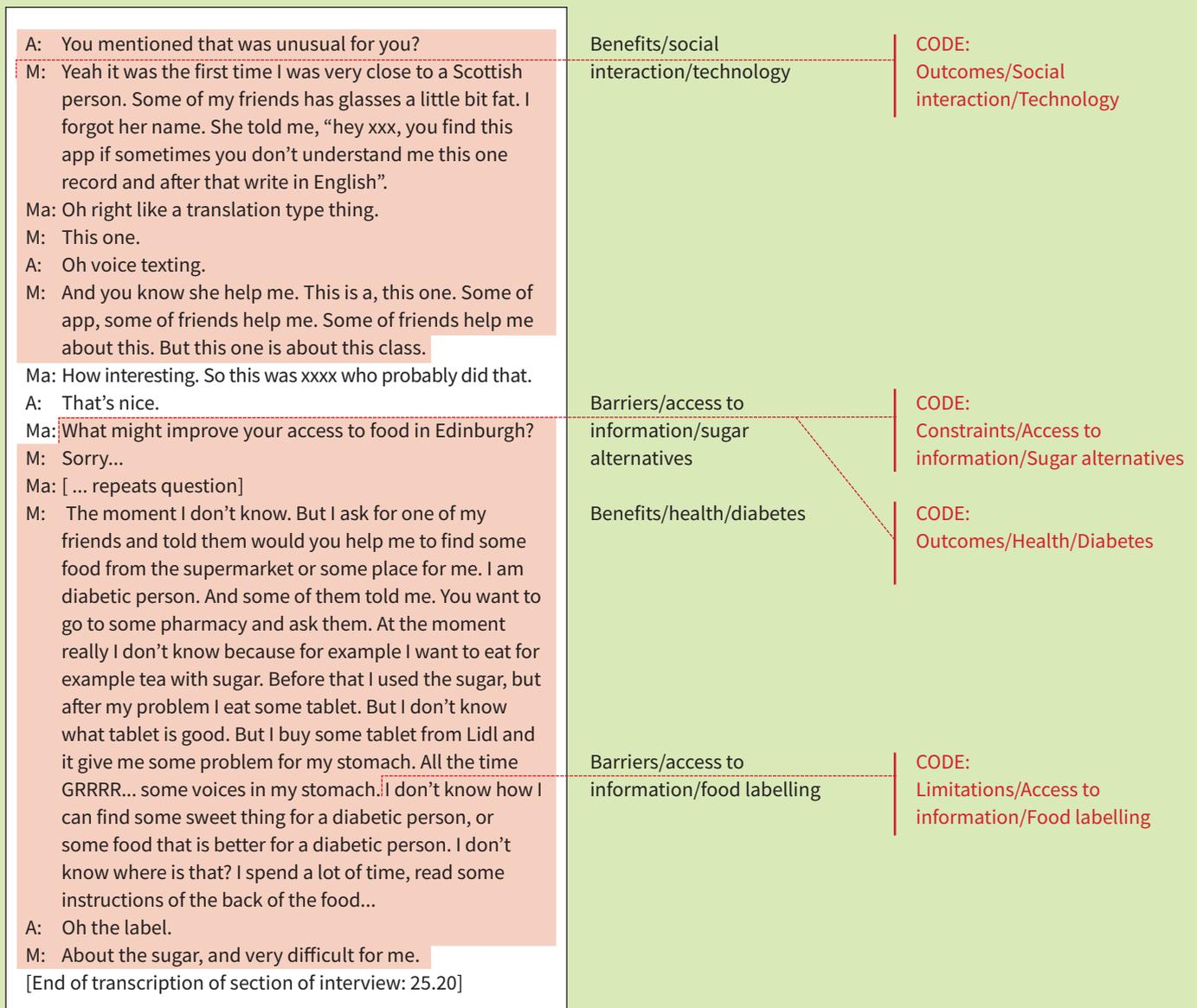


Fig. 20: Section of interview transcript with coding applied (example from the digital storytelling project of Royal Botanic Garden Edinburgh)

Category 1	Subcategory 1	Subcategory 2	Number of responses
Outcomes of the project	Health	Vegetarianism	4
		Diabetes	2
		Reflecting on diet	2
	Social interaction	Scottish integration	1
		Technology	1
Constraints that prevent a healthy diet	Access to information	Internet	1
		Sugar alternatives	1
		Food labelling	1
		Media	1

Table 1: Illustration of an attempt to categorise the data of a transcript (example from the digital storytelling project of Royal Botanic Garden Edinburgh)

It is worth highlighting here that coding is an interpretive process and thus down to the individual to decide what section of the interview fits into which code. It is therefore often useful to code with another person to determine whether a given section of text falls within a specific coding category.

Step 2: Categorising the data

Once the data has been coded, it is useful to then go through the interview and numerically count the codes. Placing them in a table allows one to see which codes most commonly occur (Table 1), while drawing a diagram will allow the codes' relationships and hierarchy to become more visible (Figure 21).

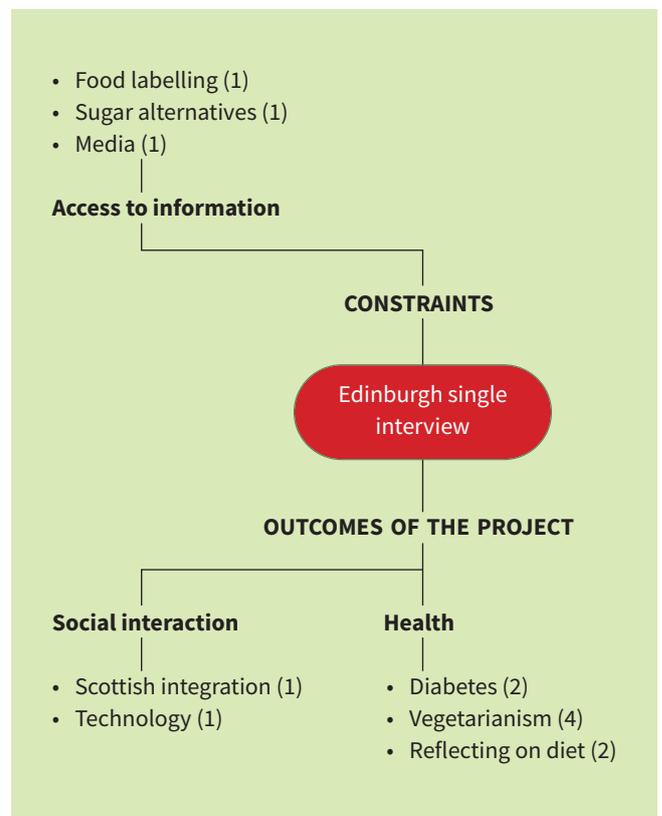


Fig. 21: Diagram illustrating the categories/themes emerging from the transcript (example from the digital storytelling project of Royal Botanic Garden Edinburgh)



Discussing sustainable food production at the Sustainable Food science café, Juan Carlos I Royal Botanic Gardens, Alcalá de Henares University, Spain

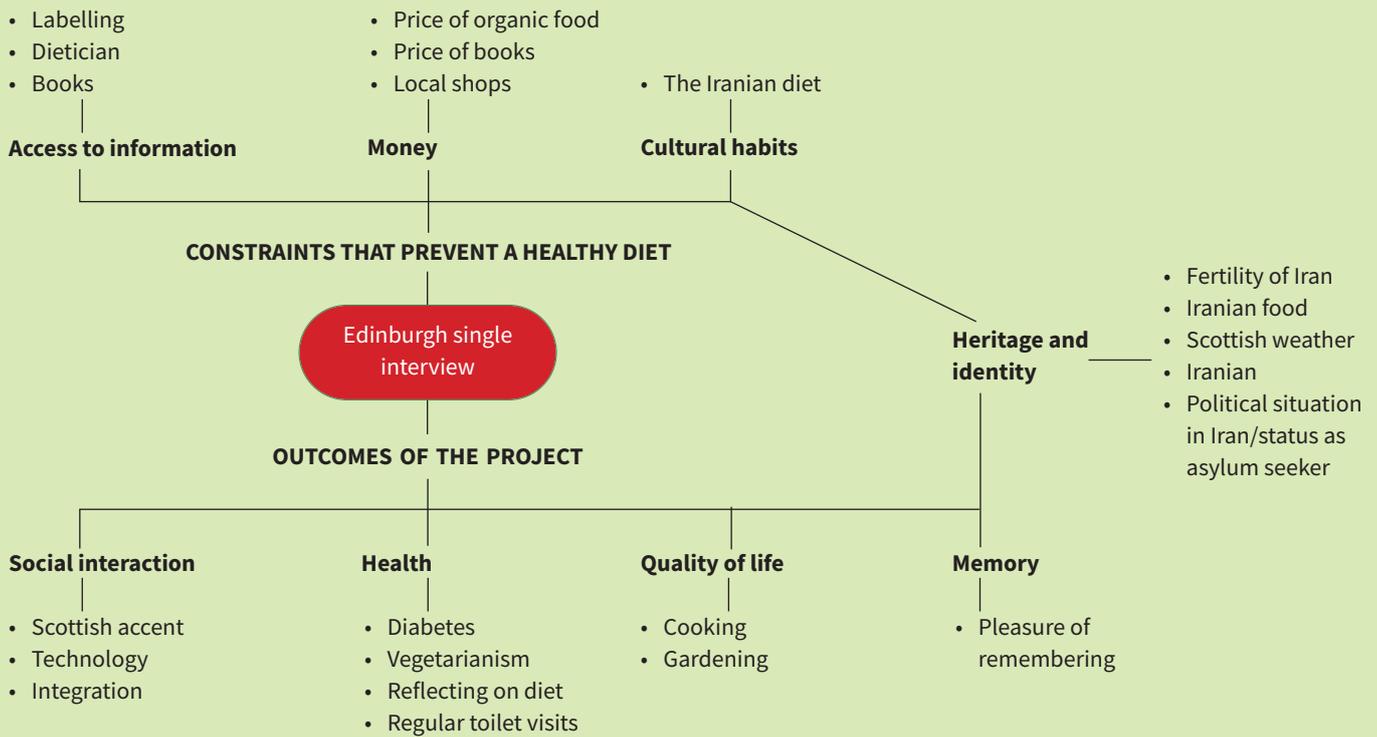


Fig. 22: A coding diagram illustrating the categories/themes emerging from the transcript and their complexity (example from the digital storytelling project of Royal Botanic Garden Edinburgh)

Step 3: Key findings

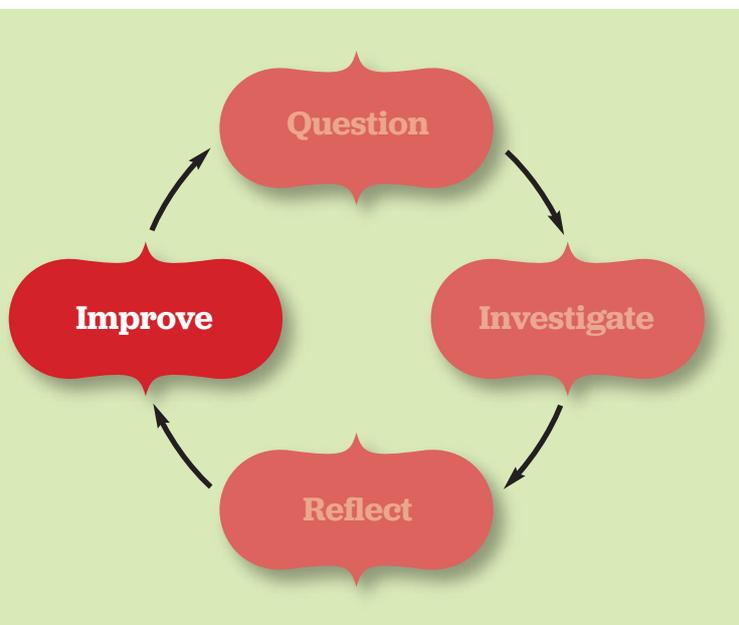
Once the team has gone through the data it is important to then pull out the key findings and use quotes to illustrate them.

For example, for the digital storytelling project at the Royal Botanic Garden Edinburgh within the brief ten minutes of the interview three constraints (Food labelling, Sugar alternatives and Information in the media) and two benefits of the project (Health and Social interactions) were identified. Following on from that, a diagram was created in order to better illustrate the scale of what a coding diagram might encompass taking a much larger section of the transcribed interview (Figure 22).

Step 4: Discussion and reflection

At this stage the researchers will discuss and reflect on the findings derived from the interview on both a micro-level and macro-level. For example, the forty-five-minute interview conducted for the afore-mentioned digital storytelling project by the Royal Botanic Garden Edinburgh revealed things about the participants and their engagement with the project that were not initially anticipated. One such aspect was the value of the social interaction that participants enjoyed as a result of the project. The interviews also enabled the researchers to tweak future iterations of the project, such as producing more written instructions to help participants for whom English was not their first language. In addition, beyond the implications for the digital storytelling project itself, one of the key issues that arose from the interviews was the prominence of people’s cultural heritage in their relationship to food and their dietary choices. This was an aspect that, for example, did not feature strongly enough in the definitions of food security that were at the basis of the whole BigPicnic project.

Section 5: Improving your co-creation project



5.1 Introduction

The Improve stage of TBI focuses on either improving the product or documenting the project.

5.2 Reporting on your TBI evaluations

In terms of documenting each of the questions asked, you should complete a TBI project summary sheet outlining the question you wanted to answer, the methods you used to investigate, the key findings that arose from reflecting on the data and how this enabled you to improve your project or led to an impact in relation to food security (Worksheet 5 provides an example of this form).

The Question section should include:

- The question(s) your group wanted to answer.
- Why it was important to answer these questions.

The Investigate section should include how you answered your questions and include the following information:

- Start and end dates of the study.
- Who data was collected from.
- How data was collected.
- Types of data collected.
- How data was analysed.

Remember to attach any data collection tools or relevant documents.

The Reflect section should include:

What you found out:

- Summary of the data (possibly including tables or graphs).
- The most important patterns and findings that emerged.

The Improve section should include:

- Changes in practice.
- Plans to respond to findings.
- Recommendations for others.
- Ideas for future TBI studies.

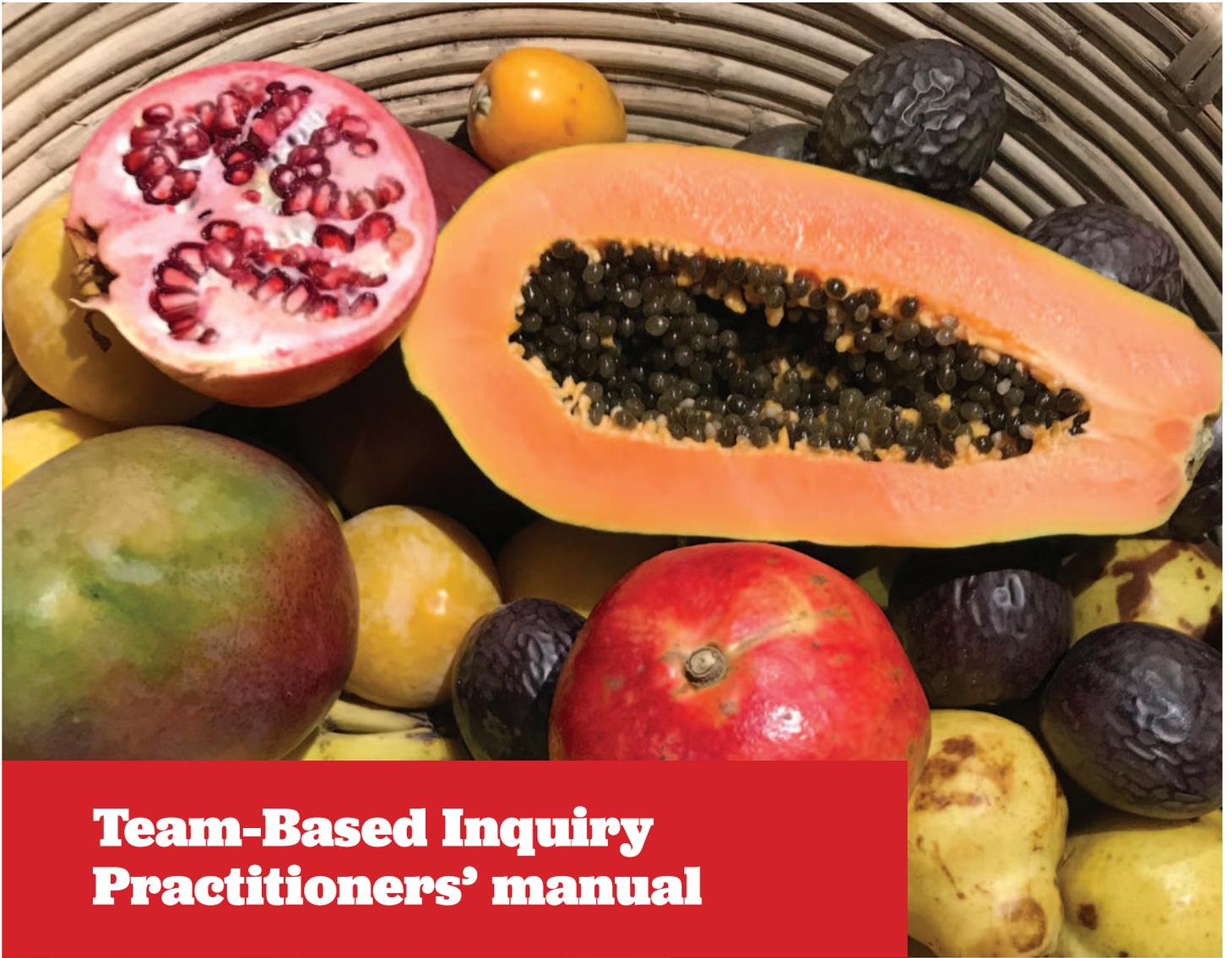


Science café on bread making, Bergamo Botanical Garden, Italy

Bergamo Botanical Garden

Activity:	World café: Food poverty, 21/10/2018
1. Question: What we hoped to learn and why it was important	<p>What is the TBI question you are trying to answer?</p> <p>What are the perceptions of poverty in Bergamo, its connection to everyday food and what is the city doing?</p>
	<p>Why was this question important?</p> <p>The theme links to the general theme of food security, since in order to fight poverty, both emergencies and local crisis situations should be addressed while social rehabilitation opportunities should be offered to vulnerable groups. On this occasion the garden had the opportunity to involve many stakeholders who are active in projects of food solidarity in the city.</p>
2. Investigate: How we answered our questions	<p>We approached policy makers, operators working for associations connected with poverty, volunteers helping disadvantaged people in terms of food, representatives of the chamber of commerce, responsible for the organic and social farmers association and citizens. Qualitative data was collected: answers given by the participants were gathered by the facilitators.</p>
3. Reflect: What we found out	<p>Key things that we learned from our data collection included:</p> <ul style="list-style-type: none"> • The people mostly affected by poverty in Bergamo are children, adults expelled from the world of work, women, retired people with minimum pensions, those affected by the economic crisis, and immigrants. • A lot of the poverty is still hidden. In terms of how those who are poor could be helped, people answered that establishing a relationship of trust is important. • The different organisations active in the city do not interact with each other and do not work in synergy. • People should focus on the issue of food availability rather than the social conditions that poverty generates. • In terms of the dynamics of food, food is an instrument of conviviality, solidarity and integration that can make people happy and the city a better place to live. • Bergamo should promote social gardens and school gardens, encourage meetings between neighbours with lunches in the common areas and encourage attendance from people in poverty. • Greater control of the fresh food chain has been suggested to better recover waste from supermarkets, this could guarantee the right to food to a larger number of citizens.
4. Improve: How we changed our practice	<p>We, as a garden, can participate in the general processes that support food security. Our working group managed to give a voice to the people involved in the supply of biodiverse food and in educational actions with attention to local social enterprises that support social inclusion. This constitutes a challenge. A potential further action would be to organise a science café on a more specific theme. With these experiences we have discovered that gardens can deal with topics that are also far from botany in the strict sense and enter into a relationship with the city's core dynamics.</p>

Worksheet 5: TBI summary sheet - Bergamo Botanical Garden



Team-Based Inquiry Practitioners' manual



BigPicnic

W: www.bigpicnic.net

E: BigPicnic@bgci.org

Twitter: [@BigPicnic_EU](https://twitter.com/BigPicnic_EU)