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VISUAL OBSERVATION: GET A REAL (AND NOT REPORTED) UNDERSTANDING

> Observing behaviour in its natural settings helps to capture a more accurate version of events.
>
> - Julia Carins

This guide is written to provide step-by-step directions on how to successfully conduct visual observation within your behaviour change research. Following these 6 easy steps, you will gain a better understanding of the specific behaviours that contribute to the social issue you are tackling. As well as, discover ways to capture more accurate behavioural data.

> Humans are unpredictable and often say one thing, yet do another. Observation gives you the chance to see exactly what consumers are doing when confronted with an array of choices.
>
> - The Upfront Analytics Team

Table of contents

Background

Researchers need to ensure their findings are as accurate as possible. Formative research digs deeper to understand how people behave and what might motivate them to do so. For years academics have debated the pro and cons of different methods of collecting data for formative research. Consider self-report methods as an example.

> ‘Social marketing formative research does not often include observations of behaviour. Instead relies on self-reports of behaviour.’

The Self-report method

Self-report methods ask participants in the study to reflect on their own behaviour. This may be completed through surveys, questionnaires, interviews and focus groups. These methods rely heavily on participants' awareness of their own behaviour. Including their ability to recall information about these behaviours in detail.

Essentially, when individuals draw upon reflections about their past behaviours, they may only share what they will admit to doing and what they can remember doing. In some cases, people may have the tendency to only report things that reflect a positive self-image. For example, in surveys, focus groups and interviews.

Figure 1: A popular example of a self-report method is focus groups.

Observation Techniques

Visual observation is 'directly' allowing researchers to witness the behaviour firsthand in its natural setting. However, numerous studies reveal that visual observation techniques have rarely been used.

Observation gathers data through visual or technological means. For example, by sitting and watching and taking notes, filming, photography, or through a computer that records behaviour (such as journeys on public transport or purchases in supermarkets).

Figure 2: A visual Observation method may be filming.

> 'Numerous studies reveal that visual observation techniques have rarely been used by researchers.'

Self-Report vs Visual Observation

	Self-report	Visual Observation
Data Collection:	Researchers ask participants to provide data	Data gathered by researchers directly through visual or technological means
Methods:	◆ Surveys ◆ Questionnaires ◆ Focus groups ◆ Interviews	◆ Note taking ◆ Filming ◆ Photography ◆ Computer recorded behaviour
Pros:	◆ Quick, easy and cost-effective method especially for large samples / different groups of people ◆ Simple ◆ Equipment used is inexpensive ◆ Ability to ask opinions, reflect on memories and attitudes	Accurate account of behaviour: ◆ How common ◆ What, where, when and how a behaviour occurs ◆ Real life situations ◆ Provides measures of actual behaviour ◆ In-depth understanding of how behaviour occurs in a setting
Cons:	◆ Difference between reported behaviour and actual behaviour ◆ Relies on individuals to 'tell more than they may know' ◆ Social desirability bias ◆ Inability to recall past behaviour ◆ Responses may portray a positive self-image ◆ Potential to misinterpret questions	◆ Can be time consuming ◆ Attitudes, memories or opinions aren't expressed ◆ Requires equipment which may be costly for example – DSLR camera ◆ Observation can be difficult in busy settings ◆ People may change their behaviour if they think they are being watched

Figure 3: Pros and Cons of both self-report and visual observation methods.

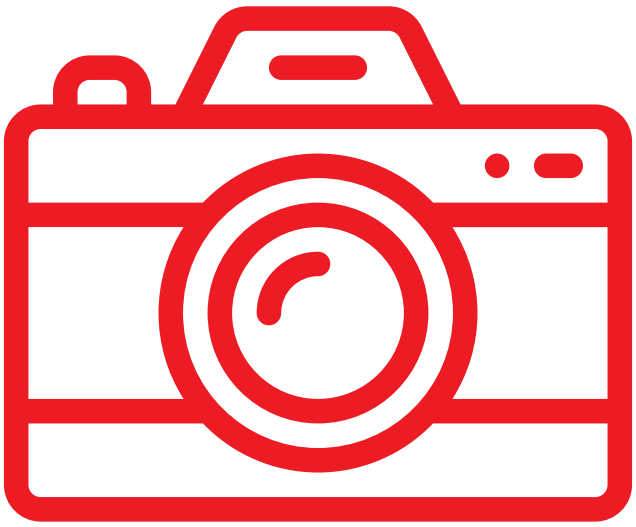
Khatri, 2015; Upfront Analytics, 2015; Kubacki and Rundle- Thiele, 2017

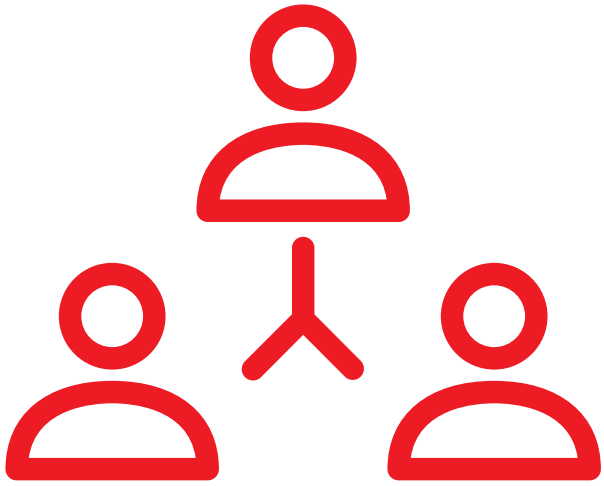
Visual Observation: Go Food

This guide is written to provide step-by-step directions on how to successfully conduct visual observation within your behaviour change research. Following these 6 easy steps, you will gain a better understanding of the specific behaviours that contribute to the social issue you are tackling. As well as, discover ways to capture more accurate behavioural data.

Figure 3: Go Food study at the military dining facility.

Previous studies had shown that military personnel often made food selections that were not healthy which lead to poor health and performance. Here, we will guide you through our own study, 'Go Food' (conducted in 2014). This example shows you how we applied visual observation to understand food selections made by people in a military dining facility.





6 steps: How-to conduct your own visual observation research

Step One

Research: Defining the objective

To start, you need to establish the purpose of the study being conducted, and how you plan to obtain the 'right' type of data.

How we did it with Go Food

The purpose was to understand what food choices personnel make when given a number of options in a dining room. We had already interviewed participants in the study to discuss their eating preferences and behaviours.

In addition, we had examined their food environment to understand the opportunities and barriers for healthful eating. We considered that using self-report methods would be subject to social desirability (everyone says they eat well!) and would also risk asking individuals to recall behaviours they may not have been fully aware of or did not memorise (did I put beans on my plate?).

Figure 4: An example of a healthy meal which may vary from each person.

> People may have the tendency to only report things that reflect a positive self-image.

Step Two

Measuring behaviour:
What type is best captured

Many different behaviours can be happening in any given scenario. This step requires you to establish what specific behaviour you plan to measure and how. Here we have listed 6 key dimensions of behaviour that are measurable by direct visual observation.

Figure 5: An example of multiple different behaviours occurring in one area.

Six Behavioural Dimensions

1. Presence and Occurence

Dimension:	**Presence**
Type:	**Occurence**
Behaviour:	◆ Whether an individual displays a behaviour (or not) over a period of time. ◆ Establishes how prevalent a particular behaviour may be.
Example:	Monaghan et al. (2012) recorded how many citrus workers wore protective eye glasses during visits to fruit groves. Researchers recorded whether each person was wearing glasses or not. Less than 2% of workers wore glasses even though most employers provided them. A program was designed to increase the usage of protective eyewear in order to reduce eye injuries during citrus harvesting.

2. Frequency and Repetition

Dimension:	Frequency
Type:	**Repetition**
Behaviour:	◆ Concerned with repetition of a behaviour by an individual ◆ Important when repetition of behaviour creates a health or social issue, rather than a single instance of behaviour.
Example:	Sharyn Rundle-Thiele (2009) observed alcohol consumption in licenced premises. Observers began by manually recording details of the setting (diagram or photo). Followed by recording details of each drinking episode. Individuals were visually tracked from when they first entered the facility and until the time they left. Observers recorded each drink that was ordered, drink type and other factors such as whether they drank water or ate a meal. The data was then used to calculate the number of standard drinks consumed, enabling comparison with guidelines for safe alcohol consumption.

3. Time and Duration

Dimension:	Time
Type:	Duration
Behaviour:	• The length of time an individual engages in behaviour.
Example:	Garus-Pakowska et al. (2013) observed handwashing behaviours in a hospital to determine whether physicians and nurses adhered to the safety requirements for the prevention of the spread of diseases. A researcher accompanied a medical staff member and recorded all tasks undertaken over a 1 hour period. A stop-watch enabled the researcher to calculate the duration of events. Researchers observed whether or not handwashing occurred, the length of time spent handwashing, and if alternatives (such as gloves) were used. Results revealed that correct procedures were adhered to on 5.2% of occasions, and the time spent washing hands was significantly below recommended time lengths.

4. Pattern and Related Behaviours

Dimension:	Pattern
Type:	Related Behaviours
Behaviour:	• When related behaviours indicate a pattern that may contribute to a social issue.
Example:	Bernado et al. (2015) used observation to explore nutrition and diet quality. The study took place in a self-service buffet, where diners chose from a large number of dishes and paid according to the weight of food chosen. Diners were approached after they had finished their final food selections. Researchers photographed the food, then classified the dishes according to the World Health Organisation (WHO) and national government criteria. Then a health scoring system was applied which allowed them to determine which selections were more or less healthful. The study showed that many diners obtained a low score indicating one or more of the recommended food types were missing.

5. Process and Path/Sequence

Dimension:	Process
Type:	Path/Sequence
Behaviour:	• The path taken to reach a particular outcome or the sequence of activities involved.
Example:	Increasing the walkability of urban neighbourhoods increases the liveability of suburbs, reduces traffic and provides more opportunity for physical activity. Kim (2015) observed 139 pedestrian journeys from train station to final destination to explore walking behaviour. Kim mapped the route taken, walking speed, distance and activities engaged in during the journey. Kim's observations showed that pedestrians often walk much further, often not taking the shortest of fastest route even when directly going home. Instead, they take main streets, or stop at shops or cafes, engage with others socially or utilise street furniture like sitting on benches. This indicates that walkability and liveability incorporates more than the shortest route.

6. Interaction: Human—Environment Human—Human

Dimension:	Interaction
Type:	Human—Environment Human—Human
Behaviour:	How individuals react to/engage with the social and physical environments that surround them, including: • Physical Environment: capturing features of physical environment and the behaviour that occurs in that proximity of those features. • Human interaction: capturing interaction between individuals to understand the social factors that may trigger a type of behaviour
Example one:	Human—Environment - Child et al. (2014) observed over 16,000 public park patrons in San Diego, noting the level of physical activity performed, the type of park area (eg. paths, courts, pools) and other environmental features such as whether the area was supervised, open, in good working order and if activities were offered. These observations helped researchers understand what features support or promote physical activity.
Example two:	Human—Human (interaction) - Townsley and Grimshaw (2013) looked at aggression and violence in a nightclub. The study involved pairs of trained observers conducting observations for 2 hours at a time in various nightclubs. Observers discretely noted details on their phones. They recorded measures of aggression or violence as well as measures of: crowding, queuing and other social variables such as the level of noise from music and voices, sexual activity, contact, competition and permissiveness. Individual accounts were compared. The study showed that crowding has an impact on the frequency of aggression, even after taking into account other factors (such as level of noise from music and contact).

How we did it with Go Food

Go Food was concerned with recording the presence or absence of a particular behaviour. The study examined food selections and selection patterns and particularly what healthful or non-healthful choices were made by participants. These 'related behaviours' contribute to participants' risk of health problems and can impact their performance.

From Behavioural Dimensions Table

Dimension: Pattern

Behaviour type: Related Behaviours

Figure 6: An example of meals comprising of multiple healthful and non-healthful food choices.

> Research shows that observation has yielded critical information that would have been difficult or impossible to obtain any other way.

Step Three

Familiarising yourself:
Understanding the environment

Initial visits to the research site will enable you to understand the features and dynamics of the environment. From these, you can devise a strategy to systematically capture data that is meaningful and feasible.

Key questions:

- What are the features and dynamics of the environment?
- Can you clearly see what is happening?
- Do you have time to record all the details you need?
- What is the best place to position yourself to record data?
- What are potential barriers that may affect data collection?

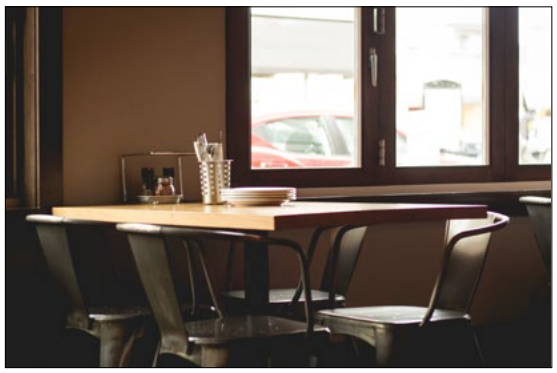


Figure 7: Visiting the dining facility enabled better understanding of the features of the environment.

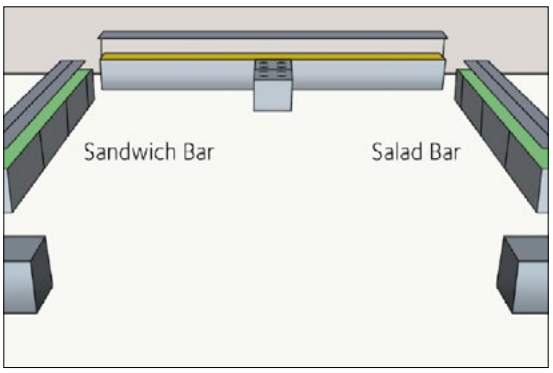


Figure 8: Illustrated design of the military dining facility from the Go Food program.

How we did it with Go Food

Researchers visited the military dining facility prior to the observations and noted the layout and sequence of activities involved in meal selection: diners walk in, pay on entry and then select a range of dishes to make a meal. Because this was such a quick process, researchers had to ensure they had enough 'time' to record the choices being made.

Step Four

Plan & Prepare:
Recording data

After visiting the research site, you must identify what recording method will be most suitable – will it be manual, technological or both? It is important to organise the most appropriate recording method to ensure it captures data clearly and efficiently. Additionally, you will need to organise key people that may be required to assist with the data collection and define each of their roles clearly.

Key questions:

- How many participants will I need to observe?
- How many helpers will I need to get the job done?
- Should this be done manually or with the help of technology?

Key insight: It is important to check that there are no potential biases that could affect the data. Important factors to keep in mind: validity, reliability and feasibility.

How we did it with Go Food

Photographic data collection

The photographic method involved a researcher positioned at the end of the food selection area of the dining facility, who would intercept individual diners and ask if a photograph could be taken of their plate of food. The researcher would then repeat the process with as many diners as possible.

Figure 9: An example of manual data collection is using a camera to photograph.

Manual surveying

The manual data collection involved 8 researchers positioned around the dining room, with a recording sheet containing a diagram of all food dishes in their area of the buffet. Once the meal selection commenced, observers would record 'one count' for each time a diner made a selection from any one of those dishes, until all diners had finished. Researchers could correlate the two data sets to ensure that the individual patterns (in the photographs) were typical of the larger group (as captured by the manual data collection).

Figure 10: An example of manual data collection is manual surveys.

Step Five

Observe:
Note down key insights

Once the research has commenced, it is important that all data is noted in a clear and concise manner.

Figure 11: It is important to note down as much information observerd as possible

Key Insights:

- Following time frames or number of participants.
- Noting down as much information observed as possible.

How we did it with Go Food

We developed scoring resources assisting us with the efficiency and time constraints we were under. We also used a high quality DSLR camera to capture photographs of meals quickly and in high definition/quality, leaving the more time consuming counting of what was chosen for later.

> While knowledge can be measured using a written exam, the only way to assess manual skill is by watching someone perform a task.

Step Six

Analyse findings

The final stage requires analysing behavioural occurrences, interactions, responses and patterns. Behavioural dimensions should be accounted for when assessing the data. For example:

- **Frequency (repetitiveness):**

How frequent was a particular behaviour?

- **Process (path/ sequence):**

What path was the most time effective and most common?

- **Time (duration):**

What activity took the longest amount of time?

How we did it with Go Food

Each of the dishes offered was classified into one of three groups based on the Australian Dietary Guidelines. The choices on each plate photograph were then counted. The study revealed that the main choices were often the least healthful (red) category and side dishes mostly the most healthful (green). Diners always chose a main dish, but didn't always choose many sides. From this, it was suggested that providing more healthful options for main dishes would assist diners in making healthy choices.

Dish name	Dish Type	Classification
Grilled Steak	Main	Green
Steamed Fish	Main	Green
Chunky beef pies	Main	Red
Battered Pork with chilli (plum) sauce	Main	Red
Plain pasta	Side	Green
Steamed Broccoli	Side	Green
Green Salad	Side	Green
Potato salad	Side	Orange
Roasted potato salad with cheese	Side	Red
Cauliflower with cheese sauce	Side	Red

Figure 12: The dishes served at the dining area classified by healthfulness.

This paragraph describes other key insights related to the dining room layout and food selection process. Patterns showed participants walked directly to the hot food counters (least healthful dishes) first and then to the vegetable, salad and fruit counters (most healthful). This suggested that the process and way individuals interacted with elements of the dining room could influence food selection.

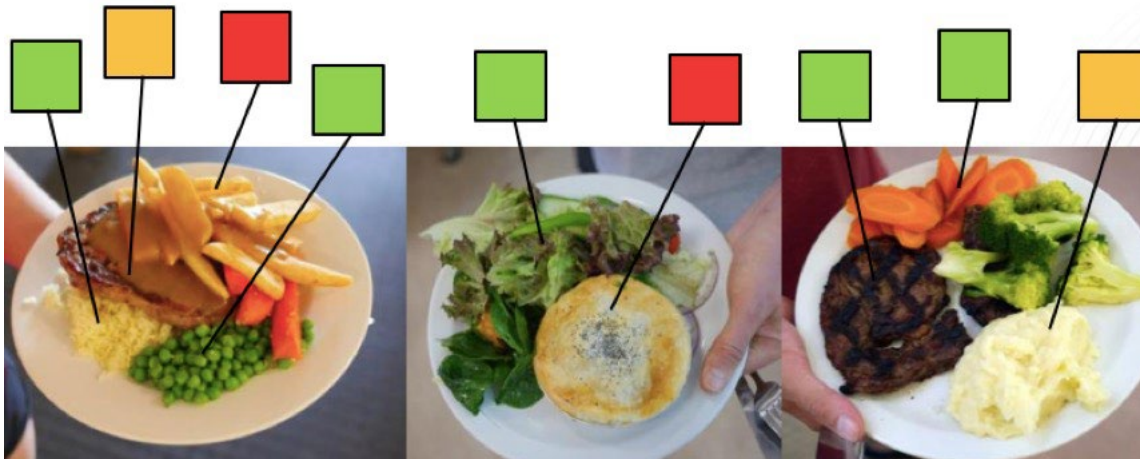


Figure 13: Meal choices from various diners classified as most healthful to least healthful.

Takeaway Message

Visual observation captures actual behaviour and a more in-depth and accurate understanding of behaviour can be gained through this process. From this process we are able to see where, when and how specific behaviours occur. This understanding allows us to create better behaviour change programs. Need some help with this process? Feel free to **reach out to us**.

Gain Expertise

Formative Research in Social Marketing book

Read more about visual observation techniques written by one of our Social Marketing @ Griffith experts, Julia Carins. The purpose of this chapter is to explain how visual observation techniques can give an accurate portrayal of behaviour when collecting data for research.

The Visual Communication Guy

This resource explores formal and informal visual observation techniques and goes into detail about how to conduct visual observation.

Queensland Curriculum & Assessment Authority

This resource provides free templates, recording methods and real-life examples. This can be helpful when trying to find time efficient methods to record data.

Observations guide to decision making

Observation samples 1–5 demonstrate how teachers record and analyse observations and use them to inform future planning for learning.

The Empowered educator- Understanding Observations, Reflection and Linking in Early Childhood Settings.

A free downloadable resource is available for viewers interested in how a childhood educator uses visual observation within her educational research and program planning. Useful templates is also available, allowing viewers to see how she conducted this method.

Functional Vision Evaluation (FVE) Observations- Carmen Willings

Carmen Willings takes you step-by-step through visual observation methods used to study students visions and senses to learn.

Looking for help?

To learn more about applying formative research: visual observation techniques to your organisation, please email Dr Julia Carins.

Dr Julia Carins

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Working under a collaborative research agreement between Griffith University and the Defence Science & Technology Group, Julia is continuing her research investigating the application of social marketing to improve eating behaviour for the individual and societal benefit.

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