
Title	Discovering the causes of behaviour: A workshop on functional assessment
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Discovering the Causes of Behaviour:

A workshop on Functional Assessment¹

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Abstract

Functional assessment is a process of understanding the factors that influence, or cause, a person's problem behaviours. The purpose of functional assessment is to gain information that will improve the effectiveness of interventions to change problem behaviour. It is not like providing a medical diagnosis where there is often a simple match between a problem and a clinical intervention. Functional assessment is a process to redesign environments so that people with problem behaviours are able to meet their needs and wants by using appropriate behaviour.

Workshop participants will first be introduced to a general framework for understanding behaviour. They will then learn how to gather information using informants, direct observation methods and functional analysis. Finally they will learn to generate explanations for behaviour and begin to plan ways to change it.

¹ Workshop presented at the MINDS Millenium Symposium on Intellectual Disability, Singapore, 28 November - 2 December, 2000

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Human behaviour is perplexing. For no obvious reason, people sometimes behave in self-destructive or bizarre ways. People who desperately wish to lose weight eat "forbidden foods" and people who wish to express love sometimes make hurtful remarks. People with disabilities sometimes inexplicably make intense efforts to avoid simple tasks, are destructive, violent towards others, or exhibit self-injurious behaviour.

There is no shortage of potential explanations. Among the suggested causes for problem behaviours are the subconscious, interrupted development, hereditary, drugs, poor parenting, complexes, urges, needs, the alignment of the planets, evil spirits, stubbornness, and willfulness.

Some of these may indeed be part of the picture. It is difficult to say. We cannot measure most of them. What we can measure is behaviour and the environmental factors that influence behaviour. Scientists who do this have discovered that behaviour is largely rational and is strongly affected by events that precede it and events that follow it.

This workshop will teach you how to identify behaviour and the factors that affect it. The workshop is based on a number of sources but the primary reference is O'Neill, Horner, Albin, Sprague, Storey and Newton (1997). This text provides a thorough treatment of the topic and also has interview and observation forms that may be used. Meyer and Evans (1989) and Carr et al. (1994) are also useful.

The purposes of Functional Assessment are to:

1. Provide a clear **description** of problem behaviours,
2. Identify the events, times, and situations that **predict** when problem behaviours **will** and **will not** occur,
3. Identify the **consequences that maintain** problem behaviours,
4. Develop **hypotheses** that describe problem behaviours and their likely causes (i.e., the situations in which they occur and do not occur and the consequences that maintain them), and
5. **Test** those hypotheses by manipulating the antecedents and consequences previously identified and observing their effects on problem behaviour.

Factors that precede behaviour³

Two main types of factors precede behaviour: **setting events** and **immediate antecedents**.

Setting events are aspects of a person's environment that affect behaviour, even though they may not occur just before or during a behaviour. They are background events or conditions. Behaviour is influenced by factors specific to the individual. They are influenced by the medicine that they take, their medical condition or physical problems that they have, their sleep cycle and matters related to their diet and exercise. They are also affected by external factors such as the weather and temperature, their daily schedule, interactions with others, staffing patterns, numbers of people and what those people are doing. Each person's history of interactions also influences their future behaviour. For example, worry about a recent event or another person, or anticipating a future event may influence behaviour.

³ The next two sections are a brief but incomplete description of variables that influence behaviour. For example, establishing operations and positive and negative reinforcement are not discussed. Nevertheless, the information should be sufficient to allow participants to formulate hypotheses about causes of behaviour.

Immediate antecedents events often combine with setting events to predict a behaviour's occurrence. Behaviour may be more likely to occur at particular times of day, in certain places, when certain people are present (or are not present), or during certain activities.

Factors that follow behaviour

Events that immediately follow a behaviour are called **consequences**. They often tell us the **function** of a behaviour; that is the purpose of the behaviour. We assume that any behaviour that occurs repeatedly does so because it serves a function or produces some type of consequence (reinforcement). Behaviours serve two main types of functions: to **obtain** something desirable or to **avoid** (or escape) something undesirable.

Desired events that problem behaviours may obtain may include internal stimulation (such as visual stimulation) or endorphin release. Problem behaviours may also have the function of obtaining attention (smiles, hugs, frowns, scolding) or activities or objects.

Undesired events that problem behaviours may function to avoid or escape include internal stimulation, such as pain, itching, or hunger. Problem behaviours may also have the function of avoiding or escaping attention or activities or tasks.

Conducting a functional assessment

There are three main steps:

1. Gather information from an informant.
2. Direct observation.
3. Functional analysis (systematically manipulating specific variables that are associated with the problem behaviour).

Gather information from an informant

Important information can be gained by talking to the person with problem behaviours and to those people who have direct contact with him. This may involve talking to yourself! The goal of the conversation is to identify which factors, of hundreds of environmental factors, may be linked with the person's behaviour. It is important to consider the daily routine of the individual and variations in problem behaviours across different parts of the routine.

The main questions to be answered are:

1. What behaviours cause concern? Precisely what does the person do? How often do they occur? How intensely? What is their duration?
2. What events or other physical conditions that occur significantly earlier in time prior to the behaviour make it more (or less) likely that the behaviour will occur? These include medication, medical or physical problems, sleep cycles, eating routines and diet, daily schedule, numbers of people, and staffing patterns and interactions,
3. What events and situations that occur just prior to the problem behaviours reliably predict their occurrence (or non-occurrence)? These include the time of day, physical settings, particular people or activities and any other events that occur immediately prior to a problem behaviour.
4. What consequences appear to maintain the problem behaviour?
5. What appropriate behaviours (if any) could produce the same consequences that appear to maintain the problem behaviour?

6. What information do we have that tells us about strategies that have previously been effective, partly effective, or effective for a short time only?

Note that these are not interview questions. They are questions that you should be asking yourself as you engage in a conversation or informal interview. In many cases, a record of the person's daily schedule will provide valuable information.

Direct observation

The simplest form of observation is to count behaviours. If you also record the time over which you count them, you will be able to calculate the rate at which problem behaviours occur. This is useful to judge the seriousness or intensity of behaviour and also to evaluate the effectiveness of an intervention. However, it tells you nothing about the causes of behaviour. Two strategies give information about possible causes of problem behaviour: the ABC Analysis and the Functional Assessment Observation

ABC Analysis

To conduct an ABC Analysis, you should place the person to be observed in a setting where the problem behaviour occurs. If you are a usual participant in the setting, you should arrange for someone else to make the observation.

Begin the observation by recording the time that you start and then note down two things:

1. Everything that the person does or says, including periods of inactivity, and
2. Every other relevant thing that occurs that precedes the person's behaviour or is a consequence of it.

At the end of the observation (e.g., after 10 or 15 minutes) note the time again. This enables you to measure the rate of behaviour. Transcribe this onto a form with three columns, labeled ABC (Antecedent, Behaviour, Consequence).

1. Begin by writing each discrete behaviour of the person in the "B" column.
2. Next, go through the record and transcribe any consequences of each behaviour into the "C" column, just beside the behaviour they consequated.
3. Lastly, transcribe any antecedents into the "A" column, adjacent to the relevant behaviours. Quite often, the consequence for one behaviour is also the antecedent for the next. In this case you may transcribe it to both positions or simply leave it in one.

Once you have an ABC analysis (or, preferably, several) you should inspect the columns to discern any patterns. For example, you may notice that some behaviours are frequently preceded by particular antecedents.

The ABC analysis helps to identify antecedents that immediately precede problem behaviour and consequences that maintain it. It is an objective means of answering questions 3 and 4 in the preceding section.

Functional Assessment Observation

Use the Functional Assessment Observation form (O'Neill, et al., 1997, p. 116) to collect information until clear patterns become apparent. This will usually require 15 or more occurrences of targeted behaviours. Write in the behaviours of concern, add any suspected predictors and perceived functions, and list usual consequences. On the left side, write in times in blocks that designate intervals of up to an hour or for school periods.

When a problem behaviour occurs:

1. Write the number "1" in the box where that time interval and that behaviour intersect. This means that the first occurrence of that behaviour occurred at that time. Cross out the number "1" in the list of numbers beside the word "Events" at the bottom of the form.
2. Now move horizontally across the rest of the form in that time interval and place the number "1" in the appropriate boxes in the other section, indicating which **Predictors** were present, the **Perceived Functions** of that occurrence of the behaviour, and the **Actual Consequences** that followed the behaviour. If a comment is appropriate, record it in the right column.

Once you have recorded 15 or 20 occurrences, you should be able to discern patterns of which predictors do (or do not) predict a particular behaviour and the functions and consequences that maintain it.

Once you have collected and analyzed enough information, you should be able to make a statement about the causes of the behaviours. You should consider:

1. Which behaviours occur together and which are most frequent,
2. Which behaviours occur at particular times and not at other times, and whether other predictors are consistently related to their occurrence.
3. The perceived functions and other consequences that may be maintaining the behaviours.

Write these as a summary statement in the form:

"(Behaviour) is more likely to occur when (time and other predictors). It has the function of (perceived function) and is maintained by (actual consequences)."

Functional analysis

Once you have a summary statement, you can test it by manipulating a variable. This should only be done after wide consultation with the person's caregivers, and with other professionals such as the psychologist, other professionals with an involvement and the doctor if medication is involved.

Manipulations of setting or antecedent events may include changes in the setting or elements of the setting, making (or no longer making) certain requests, changing materials, task difficulty or length, etc. Manipulations of consequences might be the introduction of new consequences or the removal of old consequences. Other features such as the reinforcement schedule and the strength of a reinforcer may also be manipulated.

It is important to consider other ways in which the person can achieve the perceived function. For example, if the perceived function is to gain attention, what other appropriate ways might the person use to gain attention? Teaching these and reinforcing their use might be a useful manipulation. If the perceived function is task avoidance, breaking tasks into smaller and simpler steps might change the behaviour.

It is important that only one variable is manipulated at a time and that data continues to be taken. In this way, the effect of the manipulation can be measured. It is useful to transform the data into a graph showing frequency over days.

Sometimes behaviour worsens immediately after a manipulation. This shows that the behaviour is responsive to this change in setting event, antecedent or consequence. It is common for the behaviour to get worse before it gets better,

especially when the consequence is changed. In this case, you should persevere with the manipulation to test whether the behaviour will then change.

Summary

Most behaviour is rational. It is usually caused by factors such as the setting events, its immediate antecedents, and its consequences. Altering behaviour is simpler when we discover which setting events, immediate antecedents, and consequences are maintaining the behaviour. This requires careful thought and considerable time, but it is necessary when our usual strategies do not succeed.

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