Worksheet

Professional Version | US English

Behavioral Experiment

Description

Behavioural experimentation is widely regarded as the single most powerful way of changing cognitions.

Waller (2009)

The value of behavioural experiments transcends mere exposure; such experiments allow patient and therapist to collaborate in the gathering of new information assessing the validity of non-threatening explanations of anxiety and associated symptoms.

Salkovskis (1991)

Beliefs rarely change as a result of intellectual challenge, but only through engaging emotions and behaving in new ways that produce evidence that confirms new beliefs.

Chadwick, Birchwood, Trower (1996)

Behavioral experiments are planned experiential activities to test the validity of a belief. They are an information gathering exercise, the purpose of which is to test the accuracy of an individual's beliefs (about themselves, others, and the world) or to test new, more adaptive beliefs (Bennett-Levy et al., 2004). The use of behavioral experiments in cognitive behavioral therapy mirrors the role that experiments play in other branches of science: experiments are used to gather evidence with which to test a theory.

There are strong theoretical grounds for believing that behavioral experiments are capable of promoting greater cognitive, affective, and behavioral change than purely verbal cognitive techniques.

- Teasdale's Interacting Cognitive Subsystems (ICS) model proposes that people process information using multiple systems: a propositional system which is rational, verbal, & logical; and an implicational system which is holistic, non-linguistic, and which has strong links to emotional systems. Some have argued that behavioral experiments are more likely than purely cognitive tasks to result in changes at the level of the non-linguistic 'felt sense' (Bennett-Levy, 2003).
- Wells' metacognitive theory (2000) distinguishes between declarative memory (factual information) and procedural memory (often implicit and automatic). One argument given as an advantage for behavioral experiments is that they promote the development of procedural knowledge as well as declarative memory.
- Theories explaining how people learn have emphasized the importance of personal experience and reflection, both of which are core components of behavioral experiments (Kolb, 1984).
- Behavioral experiments frequently involve some form of exposure to a feared stimulus which typically makes any subsequent learning emotionally 'hot'. Some authors have proposed that the particular effectiveness of behavioral experiments is due to the combination of physiological arousal and inhibitory learning (Herbert & Dugas, 2018; Craske et al, 2014).

Description

Behavioral experiments take different forms, often broken down in to 'hypothesis testing' and 'observational' forms.

- **Testing hypothesis A:** testing an existing (unhelpful) belief. For example, testing a belief about the catastrophic nature of particular body sensations by practicing interoceptive exposure exercises. This is often done in the treatment of panic disorder.
- **Testing hypothesis B:** testing a new belief. For example, a client with low self-esteem might test a new belief "I deserve to be treated in the same way as other people" by being assertive and saying 'no'.
- **Testing hypothesis A vs. hypothesis B:** testing whether the original (threatening) belief or a newly constructed (less threatening) belief better accounts for the evidence. For example, resisting the urge to perform my compulsions to test whether "my family will die" (hypothesis A) or "my intrusive thoughts don't affect whether people die" (hypothesis B). This is often done after formulating a client's difficulties using the Theory A vs. Theory B technique.
- **Discovery experiments:** where the individual does not have a clear hypothesis about what might happen. For example, a client who has successfully avoided their feared situation for a long time might be unclear about specifically what might happen except that it will be 'bad'.
- **Surveys:** used where an individual has a belief about what other people think. For example, doing an anonymous survey of ten people to find out the worst intrusive thought they have ever had, and asking them to rate how disgusting they would think a person was for having 'my' intrusive thought.
- **Direct observation:** where an individual has a hypothesis about what might happen, but does not feel capable of testing it directly for themselves. For example, a person who holds the belief that nobody would help them if they were in trouble might watch their therapist pretend to collapse in the street to test whether people offer help or not.
- **Information gathering from other sources:** such as gathering information from the internet. For example, a person who holds the belief that they are permanently contaminated after experiencing abuse might be encouraged to research how quickly the body replaces and renews all of its cells.

Instructions

Step 1: Identify the target cognition

The first step in carrying out a behavioral experiment is to identify the target cognition. It is essential to identify these as precisely as possible, and to assess how strongly the individual believes in this prediction or outcome at the outset.

- Beliefs might take the form of an "if… then…" statement, such as "If I make eye contact with people they will attack me".
- It can be helpful to explore what safety behaviors clients use to prevent negative outcomes. These can then be used to explore underlying beliefs. It can be helpful to ask "What would happen if you were in that situation and didn't use that safety behavior?".
- An essential step is to rate the client's degree of conviction in the belief. This allows for later assessment of change in belief. Conviction ratings can be taken on a 0–10 or 0–100 scale.

Step 2: Design an experiment

Once a target cognition has been established the next step is to design an experiment which will allow the belief to be tested.

- Consider what type of experiment might best test the belief. For example, a direct hypothesis testing experiment, a survey, or an observational experiment.
- Consider whether the experiment can be conducted in the therapy office, or outside. Quick in-office experiments can help to generate momentum for more substantial out-of-office experiments.
- Consider **where** the experiment can be conducted, **when** it will take place, **how** it is to be conducted (consider what data will need to be recorded: own thoughts, feelings, body sensations, and behavior; other's behavior; the environment), and **who** will need to be present.
- Therapists should consider: safety, client readiness, and additional practicalities.
- Some thought should be given to preparing for problems. Helpful questions can include "What problems might arise?" and "How would you deal with that?".
- Have you identified client safety behaviors and agreed to forego them for the experiment? (Or agreed to minimize or monitor their use).

Step 3: Outcome & learning

Take time to understand the meaning of the experiment and the data. What sense has the individual made of it? What does the result say about you? About other people? Encourage reflection on what has been achieved, and what has been learned.

Suggested Questions

- *What happened?*
- *What did you learn?*
- *How much do you believe the original belief now?*
- *How does the outcome of the experiment affect the beliefs you identified?*
- *What does the result say about <old belief>?*
- *What is a more helpful way of looking at <situation>?*
- *How does the outcome relate to your original belief? Does it fully support it? Or does it offer any contradictions?*
- *What are the implications of what you have just done? How could it affect your daily life now?*

Step 4: What next?

Reflect upon what needs to be done next to build upon what has been learned.

Suggested Questions

- *What have you learned in this experiment that could be tried again in new situations?*
- *How can we consolidate what you have learned?*
- *What other experiments could you do?*
- *What might you need to do to maintain what you have learned?*
- *What other therapy tasks could build upon the learning?*
- *Have you developed any new (perhaps tentative) perspectives, and how could they be tested?*
- *How could you put what you have learned into practice?*
- *What else needs to be explored or tested?*

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Behavioral Experiment

Target cognition What belief or assumption do you want to test? How much do you believe it now? (0-100%)	Experiment What could you do to test this belief or prediction?	Outcome & learning What happened? What did you learn? How much do you believe it now? (0-100%)	What next? How can you build on what you have just learned?
• What is your prediction? • Rate how much you believe the target cognition now (0-100%). • What do you normally do to prevent the prediction from coming true? (your safety behaviors).	• How, where, and when will you test it? • Which safety behaviors will you need to drop to make it a fair test? • What data will you need to record?	• Re-rate how much you believe the target cognition now (0-100%)	• What other experiments could you do? • Is once enough? Or do you need to try this experiment again?

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If I get on the crowded train then I'll have a panic attack – I won't be able to cope and I will have to get off the train. I believe this 90%	I will have to get on the train alone at rush hour. I will have to record whether I stay on the train (yes/no) and how anxious I get (0-100%). my normal safety behaviors are to travel with people I feel safe with, travel at less busy times, carry water, and carry my phone. I'm willing to travel alone at a busy time, but I'm not ready to let go of the water or my phone yet.	I felt anxious (about 80%) at the start, but it went down the longer I stayed on. It peaked again at a busy time but I got through it and it went down again. I didn't have to get off. I realised that I can cope with feeling anxiety, even if it is unpleasant. I believe this 60%. I believe my original belief about 60% now.	I need to try it again. I could: • go at an even busier time • go without water • not take my phone my therapist suggested that I should keep doing it, that experiments are better if I repeat them.
• What is your prediction? • Rate how much you believe the target cognition now (0-100%). • What do you normally do to prevent the prediction from coming true? (your safety behaviors).	• How, where, and when will you test it? • Which safety behaviors will you need to drop to make it a fair test? • What data will you need to record?	• Re-rate how much you believe the target cognition now (0-100%)	• What other experiments could you do? • Is once enough? Or do you need to try this experiment again?

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I look weird when I eat (100%). People will think I'm weird and disgusting because of how I look when I eat (100%). my normal safety behaviors are to avoid eating in public, cover my mouth while I eat and afterwards, and only eat 'safe' foods in public.	Take videos of me and other people eating spaghetti and then show them to people. Take an extra video of me using my safety behavior of covering my mouth while I eat. Do a survey of what people think. Would need to get ratings of: • How weird does this person look while they eat (0-10)? • How disgusting do you think this person is (0-10)? We could also ask: • Do you have any other comments? • Do you ever worry about eating in front of people?	I was rated as more weird when I did my safety behaviors: • 4/10 with safety behaviors • 0/10 without safety behaviors Other people were rated about the same as me. my belief in the original thought is 50% now.	The next steps are to: • Go and eat with my friends in the cafeteria without using my safety behaviors. • Go to a restaurant. • Have a dinner party. • Live and eat whatever I like.
• What is your prediction? • Rate how much you believe the target cognition now (0-100%). • What do you normally do to prevent the prediction from coming true? (your safety behaviors).	• How, where, and when will you test it? • Which safety behaviors will you need to drop to make it a fair test? • What data will you need to record?	• Re-rate how much you believe the target cognition now (0-100%)	• What other experiments could you do? • Is once enough? Or do you need to try this experiment again?

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If I don't work twice as hard as other people I'll fail and will be no good. I believe this 90% my safety behaviors are: • working extra hours • I have to check email when I'm not at work	Do a survey of what other people think makes a 'good enough' person. Questions: • How do you rate a person as 'good enough'? • What qualities would a 'good enough' person have? • How important is conscientiousness to you? • What are the most important qualities in a person?	We did an anonymous survey and got 23 responses. Qualities they care about were kindness, friendliness, helpfulness, and fun. I was surprised that other people don't value working as much as a priority as me. Rating now 70%	I need to try and limit overtime. I need to start to notice my positive qualities more – I could try a positive data log.
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If I have a bad thought I need to do my tapping ritual to make sure that no harm comes to the people I love. I believe it 99%	I could test it by having a bad thought and *not* tapping, but it would make me very anxious. Experiment: To deliberately have a bad thought about harm coming to my therapist and then resisting the urge to tap. Record: does my therapist die.	Therapist didn't die. I learned that it might not be tapping that protects people. I believe this new thought 30% Not sure if it's because in the experiment we did a deliberate bad thought and not a spontaneous one.	I need to try it with thoughts about people close to me. I need to resist the urge to tap when I have a spontaneous bad thought.
• What is your prediction? • Rate how much you believe the target cognition now (0-100%). • What do you normally do to prevent the prediction from coming true? (your safety behaviors).	• How, where, and when will you test it? • Which safety behaviors will you need to drop to make it a fair test? • What data will you need to record?	• Re-rate how much you believe the target cognition now (0-100%)	• What other experiments could you do? • Is once enough? Or do you need to try this experiment again?

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