CHIP-2

Concepts and history in psychology

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http://www.psy.gla.ac.uk/~steve/courses/chip.html

Part 0:

Recap of lecture 1

What types of explanation and data does psychology use?

Kinds of data / evidence in psychology

A. Our intrinsic mental schemas e.g. seeing some-thing/one as i) an intentional being ii) an object iii) an agent with a different viewpoint iv) an agent with whom we have history.

B. Internal mental inconsistencies e.g. predict / explain / behave

C. Kinds of data: behaviour, internal experience, physiology

What kinds of data must psychology explain?

A third angle is to ask what kinds of data should be explained?
I.e. before psychology began, what areas (and questions) would we expect it to explain?
(Just as for physics, we'd expect it to predict the weather, predict the properties of wood and stone, …)

In particular, what types of data or observation?

From a prior, outside, view we might expect:

A. Behaviour: What people do.
B. Internal experience: What people think, feel, are aware of. Experiential.
C. Physiology: What their bodies do (physiology) related to this.

D. Functional: what any organism must do
E. Social: requires analysing a group, not an individual

Lecture 2: part 1:

Psychology and personal experience: elaborating on type B data (internal experience)

Abstract vs. experiential knowledge: internal vs. external understanding

In all academic areas there is the important, if under-attended, issue of how to acquire both:

1. An understanding that is public, abstract, shared ("from the outside", "Third person perspective");

2. And personal, concrete, private ("from the inside"). E.g. linking a concept like "force" to a bodily experience like pressure on one's palms.

Theories which don't, lack something we feel we want:

If it's just behaviour then it's not psychology but ethology (animal behaviour)

If it's just feeling then it's literature, not science.

If it's just physiology then it's medicine, not psychology.

A double scoping issue: Experiential: first or second person?

In psychology, uniquely, the experiential aspect has a double bearing:

- What does it feel like to see and recognise someone else behaving like X?
- What would it feel like to experience / behave like X myself?

7

Experiential double scope (2)

In forensic work, and psychiatry, the "observing others" is often the only one of the two "links to the personal" adopted.

In contrast:
Adelbert Ames [Ames room; 50 other demos]
Ames' view was that statistics should be unnecessary: if a phenomenon was real, you should be able to build a demo so that everyone could experience it directly and personally.

Some of science's most important advances do have this character: telescopes, microscopes, engineering

Brecht's view of science and democracy

8

Experiential double scope (3)

This point, about whether the connection to personal experience has been well built, implies:

- It is a further demand on "scope" and the types of data that should be covered
- In psychology, it applies twice over (unlike other disciplines)

So, roughly:

A1 What other people's behaviour looks like.

A2 What my behaviour looks and feels like.

B1 What other people think, feel, are aware of.

B2 What I think, feel, am aware of.

C. What bodies, mine and others, do (physiology) related to this.

Experiential double scope (4)

Perception of others' emotion is a quite separate issue from the perception of one's own. Most theories presuppose there is no difference. Yet the mechanism must be quite different.

"You're getting angry about this."
[shouting] "NO I'M NOT"

This old but perceptive joke is revealing. Recognising one's own emotion and recognising other people's are clearly two quite different skills. It is also a problem (counterexample?) for the theory that emotion is about the agent switching attention: how could the agent not even notice an emotion in that case?

10

Part 2:

The Newtonian triad

11

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This lecture addresses, in very different words, ch.8 of Brysbaert & Rastle.

Brysbaert & Rastle (2009) Historical And Conceptual Issues In Psychology (Harlow : Pearson/Prentice Hall) [Lib: Psychology B351 BRY]

Although almost everything I say I "got" from someone else, I'm not an expert, I have no proof (neither do others), and you have to decide what you yourself think. Put in terms of critical thinking, you have to assess what arguments seem most coherent based on what is available to you.

12

Why talk about philosophy of physics?

Some students object to material on the philosophy of science applied to physics: why not just to psychology?

- Most philosophy of science has been about physics: that's what there is to read, mostly.
- Physics is about the oldest, most developed part of science (say 4 times as old as psychology)
- Psychology traditionally, and perhaps still, has "physics envy": it wishes to say it is based on definitive experiments, not intuition and personal experience.

On the other hand:

- Different sciences are different in their underlying methods because of their different subject matter. So it's right to challenge whether arguments developed about physics apply to psychology.

13

The meta-issue

Not which theory is true, but why should there be any theories to discover?

Why should there exist, and why should we be able to discover, general scientific laws?

The essentially irrational or religious underpinning of Newton's programme, and hence of science. [Michael White, 1997]

Even if some kind of understanding is possible for an area, what kind of understanding is possible / best?

(For me, by far the biggest intellectual contributions are those that establish the answer to this for each discipline or area.)

14

Isaac Newton's schema for science

1. A theory
2. Calculation / prediction: generate testable consequences from the theory. (A theory that can explain anything implies we shouldn't think any more, or learn any more.)
   (Intuitions about explanation: Kieras & Bovair 1984.)
3. Observation, experiment

There are many questions about what does and doesn't count as cases of each of those.
But still more important: How do they relate to each other, how do you go from one to another?

15

Induction

Recipe 1: collect cases, invent a theory ("induction") that generalises and covers all of them (and excludes known cases that should be excluded). Observation —> Theory

Popper-1: a single counterexample defeats a theory.
So a theory can never be proven.
So recipe-1 can't be the whole story.
Implies: induction —> theory —> collect new cases as tests

N.B. in sciences such as zoology, astronomy, observing cases and discovering novelties is still the most important activity.

16

Falsifiability

Primacy of (grand) theory.
Theories that can explain anything, or are continuously adjusted to cover any new case, don't really add value
(they are just a self-abuse of our feeling of understanding).

Popper-2: it isn't a scientific theory unless it is falsifiable

This puts weight on the 2nd leg of the Newtonian triad: making "predictions" I.e. calculating new consequences of the theory.

Prediction: future or consequences? Predicting the past.

(Evolutionary psychology)

17

Part 3:

Experiments

18

Why experiment? (1)

The triad only requires observation, data, empirical studies for its 3rd leg. Why do some people (especially in psychology) think experiments are strongly preferred for the role of observation?

Aristotle's biology. Everything but the experiment (spontaneous generation of flies) [Armand Leroi]

Expt. does 2 things:
A] Isolates one factor from all others
B] Establishes causal direction.

19

Why experiment? (2)

A] Isolating one factor from all others

Expt. isolates one factor and varies it independently [the independent variable], and shows the links of that factor independently of others.
For these purposes, demonstrating causation is only useful as one means to the end.
If you have established what factors are independently active, then you can consider creating new combinations which haven't occurred naturally (at least in your samples).

We never know all the factors.

Does this work even if it is not you manipulating, but pre-selecting subsets of people? [Homework 2]

20

Why experiment? (3)

B] Demonstrating causal direction.

Correlation vs. experiment.
Fixes the direction of causation.

BUT:
Bertrand Russell: the most advanced science does NOT talk about causes but relationships.

Causation (apart from establishing the independence of factors) is for applied projects.

21

Why experiment? (4)

How important is experiment? [ethology, spontaneous generation]

But: there are few experiments in astrophysics, or evolution, or epidemiology. So there is a lot of science that doesn't use expt.

Bertrand Russell: the most advanced science does NOT talk about causes but relationships. So arguably, causation is what engineers need to know, but isn't important in most pure science.

Homework: in what areas does psychology NOT use experiment? Is this OK?

22

Part 4:

Kuhn, critical thinking, RMS

23

Kuhn

Thomas Kuhn "The structure of scientific revolutions"
Buzzword "Paradigms"

In fact in real life scientists can be very slow to abandon disproved theories. Why?
- Personal vanity, inability to change ideas, …
- Science as sociology, anthropology [Read Bruno Latour] Kuhn was vastly more important to social scientists than to physicists

But perhaps there is a different angle on this: CT, RMS ….

24

"Reason maintainence systems"

A little considered everyday mental activity, which is also a version of critical thinking aimed at decision making under uncertainty, is "RMS": maintaining provisional knowledge as a network of linked ideas. When contradiction is detected, this is adjusted by finding an assumption that can be abandoned to retain the maximum overall probability of the revised network.

We do it to understand everyday stories.
In CT we do it to give our best overall judgement on balance.
In science, it would lead to what Kuhn described: it takes more than one little data point usually to abandon a big network that explains a lot.

25

Part 5:

Research questions for homework

26

Research questions for homework

1. What are the cases (the kinds of cases) where experiment is not used in psychology.
   How do the objections apply to each or not?
2. Does experiment have the same power if you don't manipulate causality, but just select different types of people for the two groups (e.g. different personality types)?
3. What examples can you think of or find, where statistics act like a telescope: to see things that otherwise we could never know.

27

A place to finish the main part

28

Audio-tagging facility

There is for my lectures a facility for adding tags (labels, pointers) to the recordings of these lectures ("podcasts").

And to share these tags with the rest of the class, thus making the recordings increasingly useful by providing an index into them.

Pointers to this facility:
http://www.astro.gla.ac.uk/podcasting/track/chip

You can also get there from:
http://www.psy.gla.ac.uk/~steve/courses/chip.html

29

A place to stop

For the slides, handout etc. see:

http://www.psy.gla.ac.uk/~steve/courses/chip.html

30