LOOKING AHEAD

The future of experimental psychology

Alan Costall engages in some presentist futurology

When the centenary of Gustav Fechner's publication of *Elemente der Psychophysik* occurred in 1960, the place of experimental research within psychology seemed secure. By 1979, the centenary of Wilhelm Wundt's founding of a psychological laboratory in Leipzig had also arrived. But by this time the future of experimental psychology had become extremely precarious. Social psychologists criticised its artificiality and irrelevance. Radical psychologists were protesting against its objectification of human subjects, and its sinister funding links with the military. In a less strident way, even the new cognitive psychology was drawing attention to a range of alternative methodologies, such as computer simulation, Piagetian case studies, and even the Chomskyan appeal to speakers' intuitions to determine the proper usage of language. Given all this dissent, the celebration of the Wundt centenary promised to put experimental psychology back on track, by providing a timely reminder of psychology's true destiny as an experimental science.

Despite the upheavals of the 1970s, experimental psychology now has a dominant and seemingly insurmountable place within academic psychology. Unlike the other contributors to this historical issue of *The Psychologist*, I have been given the task of looking to the future. The following commentary will not, however, be an exercise in prediction but in presentist futurology – some indications of where experimental psychology could be going, given where it is now. This will not be celebratory futurology, however, because experimental psychology, in its current form, is not the best of places to be starting from. The problem is not experimentation as such, but experimentalism, the way that experimentation in modern psychology has settled into a rigid set of practices, rituals, and unexamined assumptions.

Beyond experimentalism

The experiment has taken a wide diversity of forms within psychology, ranging from the highly controlled, single-subject research in operant psychology, to Brunswik's 'representative design', and to the field of experimental phenomenology where the participant acts as a co-researcher with the investigator (Thinès et al., 1991). There is no such thing as the experimental method, any more than there is just one scientific method. Nevertheless, a single experimental paradigm has come to dominate modern psychology. In the execution of the actual experiment, this paradigm is based upon the hypothetico-deductive method, the use of large groups of subjects, and almost exclusively laboratory-based studies. And in the treatment of the results, there is an almost exclusive focus upon averages, a disregard of other potentially important aspects of the data, and a ritual of statistical significance testing (see Gigerenzer, 2004; Neisser, 1997).

To a remarkable extent, the current experimental 'paradigm' was established long ago, by the neobehaviourists. It is actually at odds with important aspects of the philosophy of the new cognitivism, not least, its emphasis upon the 'active mind'. The standard experimental paradigm, with its imposition of experimental conditions, involves a fundamental, if implicit, commitment to stimulus–response thinking. This has led to a distorted image of 'the active mind' as involving no more than subcutaneous 'responses' to imposed external conditions – as though people were not also active, whenever possible, in selecting and shaping their circumstances! Similarly, the important claim of cognitive psychologists that individual differences under the 'same' conditions may reflect distinctly different 'cognitive strategies' is at odds with statistical techniques that treat such 'within-condition' variation as meaningless noise. Thus a good deal of important theory has already been built into the prevailing experimental methodologies, often by long-dead researchers with different, conflicting, and even confused scientific agendas. Researchers need to be alert to this tacit theory, if scientific problems, experimental methods, and psychological theory, are not to keep passing one another by.

Experiments as the real thing

I have been an assessor for a large number of experimental articles and grant submissions in recent years, and I have become very concerned by the way experimenters exclude any references to research conducted in real situations or conducted with non-experimental methods. More importantly, they seldom make any attempt to justify the claimed relationship between the experiments themselves and the actual phenomena they claim to be investigating.

Take, for example, theory of mind. According to this approach, true social and communicative interactions entail intellectual or quasi-intellectual

references

Cohn, S. (2008). Making objective facts from intimate relations: The case of neuroscience and its entanglements with volunteers. *History of the Human Sciences, 21*(4), 86–103.

Daston, L. (1992). Objectivity and the escape from perspective. *Social Studies of Science, 22*, 597–618.

Gigerenzer, G. (2004). Mindless statistics. *Journal of Socio-Economics, 33*, 587–606.

Jung, J. (1971). *The experimenter's dilemma*. New York: Harper Row.

Koch, S. (1999). *Psychology in human context: Essays in dissidence and reconstruction*. [Edited and with a preface by D. Finkelman & F. Kessel] Chicago: University of Chicago Press.

Koenderink, J.J. (1998). Pictorial relief. *Philosophical Transactions of the Royal Society of London, A, 36*, 1071–1086.

Leudar, I. & Costall, A. (Eds.) (2009). *Against theory of mind*. London: Palgrave Macmillan.

Neisser, U. (1997). The future of cognitive science: An ecological analysis. In D.M. Johnson & C.E. Erneling (Eds.) *The future of the cognitive revolution* (pp.247–260). New York: Oxford University Press.

Rommetveit, R. (2003). On the role of 'a psychology of the second person' in studies of meaning, language, and mind. *Mind, Culture & Activity, 10*, 205–218.

Thinès, G., Costall, A. & Butterworth, G.E. (1991). *Michotte's experimental phenomenology of perception*. Hillsdale, NJ: Lawrence Erlbaum.

Watson, J.B. (1914). *Behavior: An introduction to comparative psychology*. New York: Holt.

inferences based upon the observed behaviour of the other person. In real-life situations, 'context' or else conditioned habitual reactions may create the appearance of real social interaction by children who are too young (according to the background theory) to be capable of such feats; but this (according to the theory) is, of course, the mere appearance of communication, and not the real thing. And so, it is only by paring down the experimental situation to eliminate the 'irrelevant' context that true communication can be distilled and isolated and hence investigated. But, in relation to the theory motivating the research, this is not empirical science, but a self-fulfilling fix. Once entrenched in such reasoning, how could we ever discover whether the supposed 'extraneous' factors were not, after all, part of the heart of the matter? Experimentation of this kind is stipulative. It does not study the phenomenon as such, but its own theoretical definition of that phenomenon as already embodied in the experimental design and controls.

This is precisely what happened in the field of perceptual psychology for many decades:

> ...using the scientifically respectable paradigm of stimulus reduction one easily shows that humans are quite unable to perceive depth relations... Although the literature is especially rich in such reports, it remains the case that even monocular humans are hardly handicapped in the normal environment. An embarrassment indeed. We believe that the best scientific intentions have led to sterile and indeed largely irrelevant knowledge here. (Koenderink, 1998, p.1073)

Self-confirmatory experimentation of this kind is not new, nor is it unique to psychology. And it is not necessarily vicious. But to the extent that such experimentation is regarded as the sole, or at least superior, source of scientific knowledge, it is no longer subject to scientific correction and will simply perpetuate its initial theoretical assumptions whether they are right or wrong. For example, if a study is carefully designed to ensure that communication could only occur through an intellectual or quasi-intellectual process of inference then, of course, that is what the experiment will inevitably confirm communication to be (see Leudar & Costall, 2009).

Rethinking 'objectivity'

Unlike most other psychological researchers, experimenters try to keep a distance from their subjects, so that they can study them in a scientifically detached way. They do not 'mix' with them. And yet, once we consider how experiments actually get done, it is obvious that the psychological experiment is inevitably an inter-subjective situation. There is a necessary meeting of minds between the experimenter and their participants in order to enlist them and transform them into compliant experimental subjects (Cohn, 2008; Jung, 1971; Rommetveit, 2003). Experimenters, however, have short memories. Once the experiment begins, they forget that the participants remain fellow subjects who are trying to make sense of the social situation they have managed to get themselves into.

"Science is not just an accumulated body of facts and theories, but a human project"

Alan Costall *is Professor of Theoretical Psychology at the University of Portsmouth*
alan.costall@port.ac.uk

The claim that the psychological experiment is 'uniquely objective' is, I think, tied to a particular, and relatively modern, notion of objectivity. As Lorraine Daston has argued, the ideal of objectivity has taken a variety of forms within science. 'Aperspectival objectivity', as Daston has called it, aspires to standardisation, and the minimisation, if not elimination, of 'subjectivity' – of engagement with the object of study, of judgement, and even of exceptional technical skill. It is a notion of objectivity that would have been unthinkable to Newton or Darwin:

> Aperspectival objectivity was the ethos of the interchangeable and therefore featureless observer – unmarked by nationality, by sensory dullness or acuity, by training or tradition, by quirky apparatus, by colourful writing style, or by any other idiosyncrasy that might interfere with the communication, comparison and accumulation of results. (Daston, 1992, p.609)

Science is not just an accumulated body of facts and theories, but a human project, and, once we acknowledge this, any opposition of objectivity and subjectivity is untenable. Even the arch-behaviourist, J.B. Watson, was prepared to concede that consciousness is 'the instrument or tool with which all scientists work' (Watson, 1914, p.176). And yet many of the major figures in recent evolutionary psychology and brain science, are deeply confused about the place of subjectivity in objective, experimental research. As researchers, they find no problem in determining the true nature of reality. But, as theorists, they feel obliged, in the name of science, to saw through the branch they are sitting on. They insist that their findings demonstrate that we are all trapped within our subjectivity, incapable of distinguishing reality from illusion. But if this were true, all science would be impossible.

As far as I can see, the dualism of objectivity versus subjectivity (where any acknowledgement of subjectivity is supposed to undermine any claim to objectivity) is shared by many qualitative researchers. Rethinking this would open the way to an important reconciliation of experimental psychology and alternative qualitative approaches.

The future of psychology

I am not denying an important place for experimentation in the human sciences. I have just attended a fascinating conference in Swansea on experimental archaeology. I am sure that experimentation of various kinds has a secure future. I do not think the same can be said for psychology. Psychology, as we now know it, was very much an institutional invention of the 'new' university system of the late 19th century (Koch, 1999, p.125). It has already suffered important divisions, for example between 'pure' and 'applied', or around the establishment of centres of 'cognitive science'. Many academic psychologists now see the close identification of experimental psychology with neuroscience as their best bet in the forthcoming round of research assessment. Politically, they may be right. But, in the longer term, by going along with an unexamined notion of what is supposed to count as 'hard' scientific psychology, many aspects of modern psychology could be left extremely vulnerable. These would include important areas of social psychology, qualitative research, and perhaps even those fields of experimental psychology that have not fallen for the current highly fashionable displacement activity of brain localisation.