

RUNNING HEAD: An ethological perspective

An ethological perspective on how to define and study behaviour

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Abstract

While Furr (this issue) makes many important contributions to the study of behaviour, his definition of behaviour is somewhat questionable and also lacks a broader theoretical frame. I provide some historical and theoretical background on the study of behaviour in psychology and biology, from which I conclude that a general definition of behaviour might be out of reach. However, psychological research can gain from adding a functional perspective on behaviour in the tradition of Tinbergens's four questions, which takes long-term outcomes and fitness consequences of behaviours into account.

(88 words)

Furr (this issue) puts his finger on an important topic: The neglect of behaviour in psychology. The most valuable part of his target article is certainly the systematic evaluation of different ways to assess behaviour. Such a practical guideline is sorely needed, since way too often strong inferences are drawn from studies that report what Furr fittingly refers to as “weak behavioural data”. Indeed, Furr’s differentiation between “weak” and “strong” behavioural data should become part of the standard vocabulary in personality psychology, as should his differentiation of “behavioural data” on the manifest level and “actual behaviour” on the latent level. Further, the distinction between observable behaviours, behavioural tendencies (personality traits and motivations that predispose individuals to show a certain behaviour) and behavioural intentions (attitudes on or preferences for showing a certain behaviour) is a worthy pursuit. With regard to the latter, my colleagues and I provided evidence for analogue distinctions in the area of mate choice and sexual behaviour (Penke & Asendorpf, 2008; Todd, Penke, Fasolo, & Lenton, 2007).

A part of Furr’s article that I found less convincing is his definition of behaviour: “*verbal utterances or movements that are potentially available to careful observers using normal sensory processes*”. First of all, why do utterances necessarily have to be verbal? What about affirmative or deprecatory mumbles and grumbles, laughing, teeth grinding, humming a melody or all the other sounds people can produce (often without much observable movements, I should add)? If we exclude them from a definition of behaviour, don’t we miss something important? And what else should they be, if not behaviours? Similarly, do behaviours that are not verbal utterances really need to include movements? As an example, Furr explicitly excludes blushing from his definition, even though it is an integral component of displaying emotional states like shame. People will also certainly notice (and most often get

irritated) if somebody suddenly ceases to move, maybe because he or she freezes in panic, or if an interaction partner shows no facial movements whatsoever. In the end, there is something to Watzlawick's (Watzlawick, Beavin, & Jackson, 1967) famous quote "One cannot not behave". Overall, I find Furr's definition of behaviour a bit ad hoc and operational (perhaps reflecting the strong methodological focus of the article). In the following, I aim to give some broader theoretical, historical and interdisciplinary background that could be helpful to understand behaviour and how it should be defined and studied.

While I agree that behaviour does not receive the attention it deserves in psychology nowadays, this had not always been the case. In the first half of the last century, behaviourism (e.g. Watson, 1925) focused almost exclusively on behaviour as the subject of psychology, banning everything else into a securely shut "black box". The behaviouristic definition of behaviour resembles Furr's in being rather operational and atheoretical: Behaviour is what an organism observably does or says (Watson, 1925, p. 6). At roughly the same time, a new wave of interest in behaviour occurred in a different discipline, biology, and led to the formation of the new branch of ethology, which was also exclusively dedicated to the study of behaviour. Since then, ethology has developed into sociobiology and later behavioural ecology, making biology a discipline where the study of behaviour is at least as established as in psychology. Curiously, however, even landmark publications in ethology (Tinbergen, 1963; Eibl-Eibesfeld, 1989), sociobiology (Wilson, 1975) and behavioural ecology (Krebs & Davies, 1997) failed to provide an explicit definition of behaviour, and modern standard biology textbooks also give only vague definitions like "what an animal does and how it does it" (Campbell, 2008). Part of the reason for a general lack of a clear definition of behaviour might be that it is more a lay concept from

everyday language than a scientific construct, helpful mainly to draw rather artificial lines between movements outside and inside the body (e.g. gut motility), or between body movements and physiological reactions (like blushing or sweating), or movements in animals and reactions to environmental stimuli in plants (including locomotion in slime mould).

Instead of a mere definition, however, ethology provided something else to the study of behaviour that turned out to be even more important - and has since become an integral part of the biology of behaviour: Tinbergen's (1963) four questions that he suggested should be asked about any behavioural phenomenon. Two of them concern the underlying proximate mechanism that causes behaviour (the content of the behaviourists' black box) and its ontogenetic development, and both are all too familiar to psychologists. The other two, however, are not generally acknowledged by all psychologists. They concern the effects that a behaviour ultimately has on evolutionary fitness and the behaviour's phylogenetic history. The advantage of asking all four questions about any behaviour is that proximate, mechanistic and ultimate, functional answers to any "why?"- and "how?"-questions are explicitly separated. It reminds researchers that insight into the *function* of behaviour can only be gained from an evolutionary perspective (Krebs & Davies, 1997).

From such an evolutionary, functional perspective, behaviour can be understood as a way how individuals adjust more or less instantaneously to their current environment (Penke, 2009). Behavioural adjustments can be fitness-increasing if they are conditional to adaptively relevant environmental aspects and if they are guided by evolved adaptations as well as stable behavioural tendencies and intentions (as reflected in personality traits) that have been under balancing selection (Penke, in press; Penke, Denissen & Miller, 2007). Put differently, behaviour is not merely a

function of the situation (i.e., the environment) and the person (Funder, 2006), but a way how persons can fit themselves to situations. Depending on how well such fits are achieved in different stages of the lifespan, behaviours contribute to more or less favourable life outcomes and ultimately fitness differences (Penke, in press). Thus, behaviours are important mediators between person-environment interactions and fitness consequences, and they should be studied as such.

To sum up, Furr's definition does not seem to capture the whole phenomenon that is behaviour, but a more general and conclusive one may be out of reach. Thus, a slightly modified version that allows for non-verbal utterances and certain non-movements might serve practical purposes and measurement discussions quite well. However, research on behaviour is well advised to take a broader perspective and attempt to answer all four of Tinbergen's (1963) questions for any behaviour under study.

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