

# There's No Such Thing as a Sport Science

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The paper that I wish to present today is entitled, 'There's No Such Thing as a Sport Science'. As I wrote in my abstract, this title was purloined from Hutchinson's, Sharrock's and Read's recent publication, 'There's No Such Thing as a Social Science' which provides an excellent elucidatory account of Peter Winch's influential work 'The Idea of a Social Science and its Relation to Philosophy' (Winch, 2008).'

I wish to say at the outset that this is still a work in progress and I am aware that I might not explain the jumps between my points fully but I'm sure that these will be identified at the end. I am also confident that nothing I say today will be particularly novel in the light of many contemporary and self-cognisant perspectives in today's social sciences – although Hutchinson *et al.* maintain that Winch's critique still applies to much of the social sciences today; my intention is to overlay Winch's ideas on to those disciplines regarded as sport sciences; areas of investigation which I believe to be woefully blind as to the type of discipline that they are. This I suspect is due to a combination of the low value that the study of sport is given in academic circles, as well as a desperation of many of those working in this area to generate respect and credibility through emulating the methods and tangible results that appear to be displayed by the so-called 'hard sciences'.

Here I wish to appropriate Nassim Taleb's condemnation of the methods used in the human sciences. Although he specifically directs his attack towards economists and game theorists, he states that the compulsion to reduce human behaviour to scientific laws, limits our understanding "...by reducing it from the intellectual and reflective discipline that it [that is social science] was becoming to an attempt at an 'exact science'. By 'exact science' I mean a second-rate engineering problem for those who want to pretend that they are in the physics department – so-called physics envy. In other words, an intellectual fraud." (p184) Taleb's attack is uncompromising but I support his condemnation and I would apply his term – 'intellectual fraud' - equally to that which goes on in much of the so-called sport sciences.

There are already a number of areas already given for criticism in the sports sciences. Tim Noakes, for example, has heavily attacked the domination of Vo<sub>2</sub> max as a model for prediction of performance. He maintains that physiologists' infatuation with the use of Vo<sub>2</sub> max as scientific tool stems from the foundational myth of the plateau phenomenon in oxygen uptake. This developed from an initial and speculative hypothesis that turned into a 'truth' through subsequent generations of teaching.

But it is not this form of criticism that I intend to follow today. Essentially what I wish to do here is to demonstrate that sport science is a misnomer and that apart from some very specific and delineated aspects of study that could be brought under the banner of science, the majority of those studying sport are at worst doing nothing of merit and at best, doing bad philosophy. Why 'bad philosophy'? - The reason being, that philosophy is uncommitted enquiry – it is aiming to make sense of various forms of life, and that includes the form of life of what might be termed scientific investigation, but in doing so it is also willing to critique itself. In that sense, it is self-conscious. In contrast, the sport sciences are already committed to a position, that being, one that justifies the use of the term 'science'.

I wish to attack the notion of a sport science on two fronts. First by taking the main thrust of Winch's argument, in that the study of human behaviour only makes sense when conducted from a human perspective; that is, we are already within that form of being, and so we inherently adopt a notion of meaning and understanding of concepts already contained within that perspective. Thus rendering the perspective occupied by physical scientists absolutely unobtainable. And second; by highlighting that failing to take account of individual differences and attempting to construct general principles of human minds and behaviour is to bypass the very rationale we give in making such generalisations in the first place, namely, to make some sense or gain some understanding of what that individual is doing.

Hutchinson, Sharrock, and Read's criticism of the social sciences is also on two similar fronts. First, the methodological one: that there is an identifiable scientific method which *ought* to be employed in scientific endeavours and this method is appropriate for research in the human sciences. Second, the substantive claim that the findings of research in the social sciences are reducible to the findings of the natural sciences.

Obviously an initial question that needs to be addressed here is whether it is appropriate to coalesce sport science into that of a social science. I can almost hear the cries of indignation coming from biomechanists and physiologists. To this, I will concede that there are a few areas in the study of

sport which cannot be conflated to that of a social science, and these are areas where one is not in effect studying humans *qua* humans but rather some detached biological process. But I will argue that these are a very specific type of investigation that do not fully cover those areas of sport science that are considered the 'hard sciences' such as biomechanics and physiology. For my argument, I will include the study of humans and human behaviour - research that is dependent on mental states for its success - into the remit of what Winch was criticising when he spoke of the social sciences. But if you are still unconvinced, then perhaps it is better to substitute the term 'human science' for 'social science'.

If I am to maintain that there is no such thing as a sport science then I may be charged with the necessity of providing some articulation of what constitutes 'science', and particularly that of 'good science'. Debates as to what the scientific method actually *is* continue to this day, but in many senses whether scientists follow positivistic routes, adhere to Popper's falsificationist ideals, or even accept the existence of Kuhnian paradigms, it has little bearing on the argument I wish to make, since one of my basic tenets is that humans, simply by being human, are not open to the same kind of study as other phenomena.

Yet I will attempt to provide some clarity over what one is doing or wishes to do when one talks of the 'social sciences'. There are three approaches we could take. First, do we mean that we are abiding by a kind of scientific spirit that pervades any type of enquiry about the world, so that one could possibly talk about a science of ethics or a science theology? Second, do we mean that there is a particular method utilised in science that is appropriate to the social sciences? Or, finally, do we mean that the questions of the social sciences can be reduced to questions in the natural sciences?

I would certainly not want to accept the initial definition of the term 'science' on the grounds that it is too broad and does not use the term in the way that we normally apply it. A priest attempting to understand God's will is not doing what we recognise as scientific enquiry. For this reason, I won't spend any longer on this conception of 'science'.

I am more interested with the second and third uses of the term, which are the ones with which we're most familiar, and the ones that are traditionally defended. These form the two prongs of attack in both Hutchinson's, Sharrock's and Read's work, and in my own criticism today.

Let me quickly say something about the third use of the term in particular, for the bulk of my criticism will deal with the second and third uses of the term more generally. I am tempted, or at least was in my undergraduate days (for I believe I am much more able to resist the temptation nowadays), to believe that questions raised in the social and human sciences can be reduced to

those found in the natural sciences. That is, questions about altruistic acts, for example, can be explained through evolutionary psychology. In this, I found the notion of reductive materialism very appealing. And to a certain extent I still believe that it *may* be possible to reduce the human to electro-chemical reactions in the neuro-synapses. But - and this is what Wittgenstein meant when he said, "We feel that even when all possible scientific questions have been answered, the problems of life remain completely untouched,"<sup>1</sup> - this neglects a huge swathe of important questions about being human and part of human society. This is arguably what Winch was getting at when he criticised the social sciences for essentially conducting 'bad' philosophy, for these questions are not scientific questions at all. The very rationale behind the human sciences is to give an account of human phenomena in general. Yet the misconception and mistreatment of such problems as a facet of science is, Winch labels, misbegotten epistemology.

The question as to whether it is appropriate to utilise scientific methods in the study of humans is fundamental. Yet Winch's criticism is that such issues, he says, are not empirical ones but conceptual. To quote,

"It is not a question of what empirical research may show to be the case, but of what philosophical analysis reveals about *what it makes sense to say*. I want to show that the notion of a human society involves a scheme of concepts which is logically incompatible with the kinds of explanation offered in the natural sciences." (p67-8)

Let me sketch the main points of Winch's thesis. Winch essentially attacked the assumption held by those studying human behaviour and interaction that it was possible to uncover fundamental laws governing their behaviour. In that causes can be reduced to generalisations expressed in theoretical terms as they are in the physical sciences. Yet it is not the generalisation that is particularly problematic, for such generalisations *may* provide an accurate prediction of behaviour, but rather that simply by believing that a generalisation is an appropriate tool, is to misdirect one's attention. As Raimond Gaita notes in his introduction to Winch's work, "To redescribe human actions in ways that made them plausible candidates of a kind that might one day achieve the status of causal laws, is not to deepen understanding of the subject matter with which one began, but to lose it altogether."<sup>2</sup> For Winch, an understanding of human behaviour is gained not through an application of causal processes but rather through an appreciation of reasons, and this is only recognised through the meaning and concepts understood in relation to that community.

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<sup>1</sup> Wittgenstein, T-LP. 6.52.

<sup>2</sup> Winch, P. (2008) *The Idea of a Social Science and its Relation to Philosophy*. (Introduction to the Routledge Classics edition by Raimond Gaita). London: Routledge. p xxiv

Let me demonstrate how this criticism can be applied to the sport sciences. BASES – the British Association for Sport and Exercise Science – explicitly states “Sport and exercise science is the application of scientific principles to sport and exercise...” and that it is specifically concerned with the general areas of biomechanics, physiology and psychology. Additionally it claims that biomechanics is “...an examination of the causes and consequences of human movement...” and that psychology is “...the branch of sport and exercise science that seeks to provide answers to questions about human behaviour...” Arguably this type of study; that necessarily involves mental states and human relations, falls directly into the arena where Winch is attacking. This is where it is of absolutely necessity to recognise the distinction between reasons and causes. Causes can be ascribed to physical phenomena by a detached observer: and that observer is not contained within the world, or rather form of life that is being observed. Reasons on the other hand, are provided as justification of action. That is, they are ascribed by the phenomena being studied themselves and is part of an ongoing dialogue between the observed and the observer. It is contained within that form of life and only makes sense when understood as such.

In what way does Winch demonstrate that human behaviour is conceptually different to the behaviour of other phenomenon? We grant humans with mental states, i.e. beliefs, thoughts and desires, etc. - all of which, I maintain, can be contained within the umbrella concept of a ‘theory of mind’. That is, we do not believe that human beings are zombies or creatures subjected to simple stimuli-responses but rather accept that humans are both self-reflective and conscious of the mental states of others. This therefore affects the way in which situations are interpreted and the behaviour that results. To illustrate this important point, Winch distinguishes between the relationship between a flash of lightning and a clap of thunder, to that of a sergeant issuing a command to his soldiers. Although on the surface there may appear to be causal relationships between the two examples, the issuing and following of a command only makes sense when those involved are aware of the meaning of the concept. In contrast, the events of thunder and lightning exist independently of the concepts themselves. In the case of response by the soldiers to the command of the sergeant, behaviour is governed by the concept, in the case of thunder and lightning, it is merely an explanation.

The mainstays of scientific enquiry are that of prediction and explanation. We have already seen that there is little room for explanation since the interpretation of human behaviour is justified through the reasons that a subject ascribes to his or her actions. In the same vein, the desire for prediction is also misguided. It may be that action can be quantified and predicted through statistical analysis but that doesn’t provide us with any real understanding of the action itself. Winch elaborates;

“The difference is precisely analogous to that between being able to formulate statistical laws about likely occurrences of words in a language and being able to understand what was being *said* by someone who spoke the language... ‘Understanding’, in situations like this, is grasping the *point* or *meaning* of what is being done or said. This is a notion far removed from the world of statistics and causal laws: it is closer to the realm of discourse and to the internal relations that link the parts of a realm of discourse. The notion of *meaning* should be carefully distinguished from that of *function*...” (p107-8)

So it may be possible to predict the effect that a particular psychological technique on the performance of an athlete but it does nothing to aid our understanding of what that athlete is really doing. As Hume said, we see two concurrent happenings and infer the relationship between them. Prediction in the social sciences has a different role to that in the natural sciences. When an observer identifies that an athlete is following a rule, it does not carry the same strength as observations in the natural sciences. Let’s say that the rule observed is one that states, “the ball must be passed backwards”, the observer knows that this rule is dependent on the athlete’s will in conforming to this rule. The rule, in this sense, is not definitive. It is dependent on the athlete’s subscription to that form of life, namely, what it means to follow a rule in itself.

As Winch identifies; if a social or human scientist were doing the same thing as a natural scientist, then there must be some criteria or set of rules that determines whether two observations are comparable in terms of being examples of the same occurrence. Yet the difficulty for the investigators of human phenomenon is that they have to conform to two sets of rules. The set that governs the investigator’s study itself, i.e. the methods that ensure validity and reliability, as well as the rules that the human subjects are abiding by. Let me provide an example to illustrate this methodological problem. When a scientist studies the effects of vitamin C on ferritin levels, the cells studied do not behave in accordance to a set of rules. It does not even make sense to say that there is nothing that a cell has to understand about the notion of what it is to follow a rule. The scientist’s interpretation of the cell’s behaviour isn’t subject to the cell’s response. Yet, let us in comparison take a common biomechanical experiment that attempts to measure of muscle torque via the use of an Isokinetic-dynamometer. For this experiment to work, it requires the participant to understand what is involved in following instructions; in this case, to exert maximal effort in a particular movement at a particular time. In contrast to the scientist studying ferritin, the interpretation of human behaviour needs to take into account the intention or reasons behind that behaviour. Yes, there may be some standardization to improve the internal validity of the experiment but even so, how is the

biomechanist to determine whether two actions essentially count as the 'doing the same kind of thing'?

The use of a Rate of Perceived Exertion scale as a tool is again, highly problematic, and yet it is still used in a belief that it enables us to discern some scientific fact or truth about the world. It is unsurprising that participant running at maximal intensity on a treadmill will perceive their exertion rate to be at a maximal level when they wish to stop. How can we possibly tell if one participant stopping at what they perceive to be maximal exertion level is doing the same thing as another? As Winch says, humans are governed by reasons not causes, and these necessarily come after the event.

In conclusion, it is not simply that the study of humans is inherently more complicated than the study of physical phenomena, but rather the activities of studying the two are conceptually different. As Winch highlights, it is more appropriate to compare the activities of a sports scientist with that of a student of a martial art – in that the student of the martial art is attempting to understand what that martial art is all about – than the activity of a sports scientist to that of a physicist.<sup>3</sup> Or to put it another way; the activity of a sports scientist is of greater similarity to the physicist's understanding of what her colleagues do as part of their day to day work, than the physicist's research of physical systems themselves.

I will finish by quoting Winch's words,

“What in fact one is showing... is that the central concepts which belong to our understanding of social life are incompatible with concepts central to the activity of scientific prediction. When we speak of the possibility of scientific prediction of social developments of this sort, we literally do not understand what we are saying. We cannot understand it, because it has no sense.” (p88)

In the same way, I maintain, the notion of a sport science also makes no sense.

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<sup>3</sup> Winch actually uses the example of engineering. Winch (p82)