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Are Winners Born or Made?

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The above question has been posed countless times and explored in many ways since the advent of talent identification in professional sport (and other domains for that matter e.g. music). Many early theorists believed that talent was innate, you either have an inborn 'gift' or you don't. This, on its own, is a dangerous viewpoint to take. It would suggest that a 'gifted' athlete needs only to show up to competitions with no training and be able to perform. Research into motor learning (acquiring skill) has shown that this is not the case and thousands of hours of practice are required to perform to your peak. However, that is not to say that nature doesn't have some say in the matter and those that believe that expertise is purely down to practice alone may need to reserve their own judgement a little. The type of sport is also a big factor – some sports require only very simple co-ordination with gross muscle movements (health-related fitness) such as running. Its very likely that genetics plays a far bigger role in these sports than those that require more complex and finer muscle movements e.g. soccer or tennis. A recent Channel 4 (UK) programme featuring the ex-athlete Michael Johnson explored the premise that slavery actually had a positive long-term impact on sprinters in the Caribbean area (a massive proportion of black sprint champions have ancestors that were slaves).

The idea was that only the fittest survived the long and tortuous journey from Africa, with the weaker dying out. This meant that the gene pool of slaves was already stronger by the time they arrived in the West Indies. There is also another (tenuous) theory that the slaves that were sold in Jamaica (the last stop on the journey) were the most difficult ones to handle. This may have been because they had higher levels of testosterone, linked to aggression and also to higher levels of muscle mass – important in sprinting – Jamaica is now the hotbed of sprinting in the world. Another theory is that stress and trauma can lead to genetic change being incredibly speeded up – over the course of a single generation rather than several – in the form of increased production of type 2 (fast twitch) muscle fibres – another essential for sprinting. Other genetic factors that may be important in determining success in a sport may include body type (ecto/endo/mesomorph), height and aerobic capacity for example. These may be important factors in some sports where complex movements are not required. However, it would be

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impossible for anyone to be the best without being in the correct environment in terms of coaching and possibly even factors influenced by luck.

So, onto nurture. Many recent publications have championed the effects of nurture over nature. Some of the better titles include the Talent Code (Daniel Coyle) and Mindset (Carol Dweck). Sport psychology has also borrowed much of its research from neuroscience (the study of the brain), in particular the ways in which our brain changes as we learn new skills. Our brains have been shown to be plastic (changeable) and physical changes occur as new information is stored. I have covered this previously, but in essence groups of brain cells form new connections and those connections become insulated by a substance called myelin. The more we learn, the more and thicker the connections become and the more myelin we produce. This explains how we acquire and retain more complex skills such as serving a tennis ball or dribbling a soccer ball. For these more difficult skills to work effectively we must have practiced them repeatedly. An arbitrary figure of 10,000 hours of 'deliberate' practice has been named as the magic number, although there are holes in this theory (such as individual differences in learning and being in the best learning 'environment'). In contrast to the nature theorists, this also suggests that anyone can become an expert given time and dedication. This may not be the case in certain sports i.e. an endomorph with predominantly type 1 (slow twitch) muscle fibres is highly unlikely to become 100m world champion, but genetics need not be a handicap in other sports. Spanish footballers have, over the last four years or so, proved that you don't have to be big and athletic to be successful: many small and technically excellent players have been produced (Iniesta, Xavi, Silva). Arguably the best player in the world at the time of writing is the diminutive Lionel Messi. Access to the best coaches and facilities may also be a factor, but these can be classed as being 'lucky' (luck type number 2 - see below).



One of the most influential authors in the area has been Carol Dweck who publicised her research in the book Mindset. She showed that people who had a 'fixed' mindset (believing that talent was something natural) tended not to try as hard when faced with challenges, whereas those with a 'growth' mindset believed that you could eventually achieve anything with repeated hard work and learning from failure. This would again back up the

nurture against nature argument. Other environmental (family) factors that have been shown to be strongly correlated with success in sport come from Bailey and Morley:

- · Parents achieved high standards in domain
- Relatively high socioeconomic status
- · Ability and willingness to financially support participation and specialist support
- Ability and willingness to invest high amounts of time to support the child's engagement in the activity
- Parents as car owners
- Relatively small family size
- · Two-parent/carer family
- Attendance at independent school

Many of these family factors are related in turn to luck (type number 4 – see below) – another important (and often overlooked) factor in success. Statman identified types of luck that may influence success:

- "1) Resultant Luck the outcomes of our actions are affected by luck e.g. training to be a philosopher of sport just prior to the sudden creation of a number of appointments in the area;
- 2) Circumstantial luck the circumstances in which one acts introduces luck e.g.by chance, a

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young athlete finds himself attending a club run by an expert coach for a certain sport, and his career benefits as a result of this.

- 3) Constitutive luck luck affects the kind of person you are e.g. some longdistance runners and cyclists have freakishly low resting heart rates, and because of this, it makes sense to say that they were genetically lucky, within the context of cycling or running.
- 4) Antecedent causal luck there is luck in the way one's actions are determined by antecedent circumstances. e.g. children born into 'sporty' and supportive families are more likely to be motivated and better prepared to engage with sport than those who are not so fortunate."

So it would appear that there are a number of factors that make success occur and for all the right ones to occur at the right time in the right order is a very rare phenomenon. Nature, nurture and luck have been mentioned, but what about psychological factors? Mental strength is often cited as an essential ingredient, and indeed is thought to be the only dividing factor between success and failure at elite level where practice and genetic factors are (relatively) equal, controlling for the effects of luck. Being able to concentrate, be confident and the motivation to practice continuously are just three of the necessary psychological factors required to be a champion. Again, these factors are under scrutiny as to whether they are learned or you are born with them. As a sport psychologist I firmly believe that these skills can be taught (otherwise thats me out of work!). It may be true that there is an interaction between natural and nurtured abilities and to discount one over the other is narrow minded. In fact, nowhere near enough time is spent on this element of the performance model when training athletes, with technique, tactics and often too much of the physical element in particular being overemphasised.



All that is clear from the above is that potential success (i.e. talent ID) in a domain is multifaceted and highly complex. Existing models are insufficient at present as they tend to focus too narrowly on one area, rather than taking a more eclectic view of trait, environment, luck and psychology (and any others that are relevant). One exception to challenge this is the model by Bailey et al, in full below.

This 'bionsychosocial' model takes into account a broader

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research can be directed.

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What is evident is that those that say that you're born with talent (nature), or talent can be wholly acquired (nurture) or that its purely down to luck or mental toughness need to broaden their horizons and take into account as many of these factors as possible and the ways and degrees to which they interact. It may be that different sports are under variable influence from each factor - some may be more susceptible to genetic influence (e.g. sprinting), others may be more down to practice (e.g. soccer) and all may be governed by luck and a strong mentality. This reflects my own recent experience working in a centre of excellence (soccer) in the UK, where I was told by a fellow coach that a 12 year old would never be good enough because he lacked pace. My colleague failed to take into account the player's shin splints (where muscle and bone grow at different rates) which would slow any player down. When he grows out of this his technical ability should come to the fore and his speed improve, but to be put on the scrapheap at 12? Grossly unfair. Especially when many researchers now believe talent doesn't fully emerge until an athlete (in a late specialisation sport such as football) reaches their early twenties. Of course, there are some prodigious talents (e.g. Michael Owen, Wayne Rooney) who come to the fore earlier, but they tend to be exceptions rather than the rule.

These talents often get labelled 'geniuses'. However, there seems to be of a link between hours of practice than being 'natural gifted'. The difference between these individuals and lesser mortals may then be a motivational one - they are more motivated to practice more hours than others. This may also be correlated to high incidences of obsessive compulsive disorder (OCD) in many top sportsmen (Beckham, Gerrard, Messi, Jonny Wilkinson to name but a few) where they cannot stop practising and even the slightest error compels them to practice for many more

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hours to atone. Other antecedents have also been identified – the ability to make up your own games as a kid and learn the 'rules' of the sports' techniques through fun practice away from adult supervision (e.g. Brian Lara playing street cricket or Wayne Rooney street football). There have also been links between the top players using more visualisation than others as kids (see the article on Wayne Rooney and visualisation). So it would seem that there is no such thing as 'natural talent' alone: athletes need to be born with certain physical attributes to be able to take part in sport, but beyond that luck, mentality, environment and above all practice (physical and mental) seem just as - if not more - important.

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