

The Role of Psychological Characteristics in Facilitating the Pathway to Elite Performance

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Introduction

Given the complexity of the talent development process, it seems likely that a range of psychological factors underpin an athlete's ability to translate potential into top-class performance. Therefore, the purpose of this two-part investigation was to explore the attributes that facilitate the successful development of athletes from initial involvement to achieving and maintaining world-class status. Data were content analyzed using a grounded theory approach. Although sporting achievement was conceptualized as being multidimensional, psychological factors were highlighted as the key determinants of those who emerged as talented and maintained excellence. Accordingly, we suggest that talent identification and development programs should place greater emphasis on the advancement and application of psychological behaviours at an early stage to optimize both the development and performance of athletes.

Considerable research evidence shows the role of psychological factors in determining elite performance. Orlick and Partington (1998), for example, identified psychological "success factors" (e.g., high level of commitment, long and short term goals, imagery, focus, pre- and in-competition plans) that distinguished successful athletes from their less successful counterparts. Supporting these findings, Gould and colleagues found that successful Olympic athletes were more committed and focused, and engaged in more extensive mental preparation than less successful performers (Gould, Diefenbach, & Moffett, 2002). Further support for this contention comes from Durand-Bush and Salmela's work (2002) with Olympic and World champions. They identified, among others, self-confidence and motivation as salient psychological characteristics of these elite athletes. In addition, these champions employed imagery and self-talk to both prepare for competition and to remain focused during high-level performances.

Accordingly, the purpose of this investigation was to examine the careers of successful athletes to identify the attributes perceived to have contributed to their development into successful and consistent world-class performers. The first examination was facilitated through retrospective interviews with world-class athletes and their parents, to gain an insight into the factors perceived to have enabled their own success against the challenges they had to overcome. In a follow up study (MacNamara, Button, & Collins, 2010), we then examined the specificity of these factors and their deployment, with regard to performance domain and timing relative to the pathway to excellence.

Results & Discussion

A total of 31 elite performers (and parents) were interviewed for between 60 and 90 minutes about their development and career progression. The majority of performers were either World or Olympic champions at a range of individual (rowing, track and field) and team sports (rugby, hockey).

Their thoughts on the importance of mental factors to their success are arranged along Cote's (2001a) path of development from the Sampling stage (FUNdamentals) to the Specialising (Practice) to the Investment stage (Competition).

Sampling (Appx. 5-11 years)

Key themes given by athletes

- Multisport – enjoyed a range of activities
- Competitive nature from early on

Multisport – participated in a range of activities

All the athletes participated in a range of activities from an early age and this multisport activity was perceived to have contributed to their successful development within their ultimate sports:

I just look at the guys who play with me, and there's no one who I couldn't point at and say, he's an all- round sportsman. The guys that I play with are very very sport minded, they've all had a very broad background in sport . . . they've all got very good hand-eye co-ordination. You could put them into any sport and they will be better than average, even if they haven't played the sport before. And you could just bet your life on that because you know, they've been cricketers, badminton players, footballers – they've all excelled at something as well as curling. [Team player]

The varied early sport involvement reported by these athletes mirrors research suggesting that positive early experiences were perceived to significantly contribute to the capacity an individual has to excel within a specialist sport (cf. Barynina & Vaitsekhovskii, 1992; Côté, Baker, & Abernethy, 2007).

Competitive nature from early on

The findings support considerable evidence in the literature that families appear to play a crucial role in socializing individuals into sport (cf. Baker & Horton, 2004). In addition, the early signs of a *competitive nature* for all the participants were stressed with athletes suggesting that sibling rivalry had contributed to the early development of this characteristic.

I love competing. I've got an older brother and my dad, you know, used to encourage me to beat my older brother. . . . So it was never, you know, it was never easy. So yeah, from a sort of athletic perspective and on a needs basis, you know, there was lot of sequence of events through those early days [in my life] that created in a way my sort of personality now, and it's ideal for a

javelin thrower. [Javelin thrower]

If his older brother, nearly 2 years older than him, if they did press ups, when his older brother did 20, [he] would do 21, you know he was that type of kid and he was a competitor, he wanted to do one better. [Javelin thrower's father]

Specialisation (Appx. 12-16s)

- Required a lot more dedication
- Self-direction and goal-setting
- Prioritised sport over other activities
- Physical attributes no longer enough to succeed
- Ability to deal with setbacks

Required a lot more dedication

Rugby participants highlighted that they *committed* to their sport at around 15 years of age (later than the case with football), coinciding with selection to representative teams:

It was all fairly easy going when I was young and then when I made the breakthrough to the senior set up it all changed and I had to start to take it much more seriously . . . so much more is expected once you make it to that level . . . the standard really rockets and you have to really become dedicated. [Rugby player]

I suppose once I started to make national teams at around 16 years of age, I noticed that the level of expectations changed...and I suppose that environment soon taught me that there were times that I needed to buckle down and really think about what I was doing . . . no one is there to do it for you so you have to do it yourself. [Rugby Player]

Self-direction and goal-setting

Once 'committed' to the pursuit of excellence (recognizing that this commitment occurred at different times within the different performance contexts), the importance of mental skills (e.g., *goal setting, focus and distraction control, self-belief, engaging in quality practice*) as developmental mechanisms was emphasized by all participants:

I didn't want to give people an excuse for not playing me again . . . I was determined to give it my best shot and if I still didn't get picked, I still didn't, but I didn't want there to be any excuses so I focused completely on what I had to do to meet those goals, to achieve what I knew I was capable of doing. [Team Player]

You have to have goals, and having short term goals is as important as having long term goals because you have to have short term goals to reach the long term goals don't you? So long term goal is the Olympics but obviously there are other championships before that so they are my goals as well, so it just having something every 6 or 7 weeks to aim for, and then re-evaluating where you are and setting more goals for the next stage and it helps to map out your progress like that. [Track and Field Athlete]

Once you get older you have to be very self-motivating and set out where you wanted to get to and I used to do that . . . once I started getting selected for international teams I knew I just wanted to get better . . . get more of that! So I used to set myself targets . . . goals that I wanted to achieve in a training session or for a season, and I used to have a sort of self administered reward and penalty system to get myself together and if things weren't going to plan, I would sit down and think what I had to do differently . . . what else did I need to aim for . . . [Team Player]

The father of the javelin thrower also suggested that a willingness to move out of his comfort zone and *pursue excellence* was a useful early indicator of his son's potential:

He wanted to be better all the time. He chased coaches, I mean I coached him only until he was English School Champion and verging on International and then he was looking for something better and although at the time it was a little bit tearful, I'd been at athletics all me life, it was obviously for the best [Javelin thrower's father]

While also experiencing success in other sports, the judo player relished the structure of judo which enabled him to monitor progress and be *self-determined* as he advanced through belt grades. This experience was in contrast to his other sport at that time, rugby, whose outcome was greatly influenced by the performance of team-mates:

I got instant gratification – 3 months I was orange belt, 6 months I was blue belt and I think when I was 15 I was a black belt. I was very young. In terms of success I was always being rewarded for the effort I was putting in. I was never taking a step backwards. Through my whole career it has always been an upward curve. There has never been a dip. . . . I never won anything in rugby. It is a team event . . . you are relying on other folk. Invariably no matter how good I played at rugby the other guys weren't playing as hard as I was and it could get frustrating. [Judo player]

One implication here is that a system needs to be developed within a team sports that allows an individual to monitor personal as well as team performances. The early development of effective goal setting principles that enables an individual to monitor progress may facilitate this process. To encourage the athletes to engage in this behaviour the coach should, in turn, reinforce its use by providing individualized feedback to the athletes.

Prioritising their sport over other activities

The ability to *prioritize their sport* set them apart from their less successful peers, and placed them at an advantage to those unable to cope with the development pathway and its demands:

Yeah at 17, 18 people start socialising and I wasn't really able to do that because I had to get up in the morning and train. So I thought, I can carry on with rugby and do well, and it was always a mindset that I can always go and do those things later on in my life but I was going to give sport everything

while I could. [Team Player]

Physical attributes no longer enough to succeed

A consistent finding throughout the interviews was the extent to which psychological attributes were highlighted as a, if not the, crucial factor underpinning successful development. Further, as well as stressing psychological characteristics, all athletes de-emphasized the *significance of physical attributes* in attaining excellence. In fact, all of the athletes highlighted physical weaknesses they had for their sport, and/or individuals they perceived had better physical/technical talent but failed to excel:

I played with a guy, [name], when I was young and he was a guy who was really big for his age and he could just barge his way down the pitch. And he was a guy all the way up that everyone knew about, was watching out for and any opposition that you came up against knew and feared him. But I think that as guys got older and bigger they caught up and he didn't stand out as much. And then other guys made the break through at senior level and you could see it was because they really wanted it, worked hard at it and just didn't give up. [Team Player]

You come across players who are very physically gifted. Genetically they are 'ideal specimens' but I suppose it goes down to what they are prepared to put themselves through to gain . . . it is very easy to rely on your physical attributes and not work other things. [Judo player]

The sculler emphasized this point and showed an *awareness of what is required to excel at the highest level* that went beyond the physical characteristics toward a consideration of the desire and commitment that underpinned their successful development:

I look at people and I think that some of them think 'I'm big and all I have to do is follow this training program and I'm going to be good!' That's dangerous because they haven't paid their dues in whatever it is, you know they are not putting in a 110%, they are only putting in 100%. I think it's because people tell them if they are big they will be good . . . I think the reason these big girls don't do it is because it takes more than just size and ergo scores, it takes the desire to win and the desire you know at all costs. . . .[Sculler].

These findings support a multiplicative understanding of talent development suggesting that, even if athletes have limitation in one area (e.g., height), they can compensate for it by strengths in another factor (e.g., commitment). Regrettably, however, such an individual is unlikely to be selected when physical attributes are prioritised, providing a false early indication of talent (Vaeyens, Lenoir, Williams, & Philippaerts, 2008). The quotation below clearly highlights the inefficiencies of 'once-off' and one dimensional approaches to TID:

Before Sydney, on the Gold Coast there was a project going on in Australia where they were going round the teams, measuring their physical attributes. They wanted to have your seated height and I wasn't even on the bottom of the scale so physically I wouldn't have made it [selection into rowing]. . . . You could select a lot of people who are potentially good at it [rowing] but

actually they haven't got the correct mental attributes. [Rower (who medalled at that Games)]

These findings support Simonton's (2001) assertion that there is not a single genetic endowment underlying a talent domain with neither talented nor untalented individuals emerging from genetically homogenous groups.

Ability to deal with setbacks

A crucial issue for athletes was their ability to cope with the inevitable setbacks experienced on the path to excellence. The ability to interpret these setbacks in a positive way drove the athletes forward in their sports. In particular, the importance of psychological processes such as *perseverance* was stressed:

To become a top performer in sport, you need to understand that when things are going well it's great but when things are going badly, that is when the problems are really going to arrive. Every successful Olympic gold medallist doesn't have a plain sailing ride on the way and what makes you great is what you do when things go wrong. It took me a long time to learn that. I think if I had been aware of it a lot earlier I would have achieved things quicker. [Rower]

Athletes also reported how they typically exploited these difficult times by using them as catalysts to reassess their progress and to establish goals that would enable them to improve. For example, the hockey player, although initially distraught on learning that she had been dropped from the English squad, ultimately responded by considering what she could do to improve and ensure that she would make the squad the following year:

When I got the letter [about not being selected] I think I cried for about a whole day—locked myself in the bathroom—my mum didn't know what I was doing in there but then after that I thought I should really knuckle down and do my fitness training—I didn't use to do a lot of fitness training but I thought now I've got to take it seriously and do everything I can to rise to the next level [Hockey player].

She had been dropped at under 16 level and she turned to me and said 'mum, one day I'm going to play an Olympic game' and she said 'I am never going to fail again. [Hockey player's mother]

Investment (Appx. 16+)

- Full time demands of training – hard work and total dedication
- Specific mental skills were required to cope, e.g. imagery, performance review
- Ability to deal with de-selection, performance anxiety and slumps

Full time demands of training – hard work and total dedication

People used to wonder how I was doing so well because they used to beat me when I was younger. Whether it was my hard work or whether their commitment wasn't as strong as mine I don't know. I think I might not have been as talented as others but with hard work and by pushing and pushing, I was able to make it to the top and stay there longer. So I think that I became successful as a

senior out of hard work and not just because of talent. [Track and Field Athlete]

On the other hand, the team sport participants noted that getting selected for international teams, rather than age, heralded their transition to elite sport:

I got my chance on the senior team early but I didn't nail down my place so then I did a really hard summer of training, I put in lots of work behind the scenes – weight training, fitness and I think that I was just really committed to improving and getting better and upping my level of performance so I could make it at that level. [Team Player]

Specific mental skills required to cope with competition, e.g. imagery

As well as athletes referring to an early use of *imagery for skill development*, three athletes also highlighted how their abilities to employ imagery effectively facilitated the transfer of skill to the unique competitive environment. The javelin thrower highlighted that the ability to *simulate competition environments using imagery* was essential within his sport:

That ability to sort of pre-create a scenario before you enact it is what sport is about. Hence, specifically javelin throwing is very much about this because you don't get the chance to throw the way you do in competition very often. . . . Somebody's ability to do that is obviously different from one person to the next . . . if that [the ability to use imagery to pre-create a scenario] were easily measured I'm sure that would be a good way of finding out who could be good in a skilful, technical event such as javelin throwing. [Javelin thrower]

In a similar manner, one of the athletes also reflected on how *imagery helped him effectively evaluate his performances*, a process identified as crucial to successful development within sport:

We do goal setting at the beginning of the year, we do constant reviews. Then we do it for individual games during the championship, we then review each game with mental imagery that goes down to shot level. [Team player]

As well as highlighting the importance of psychological factors for excelling at major championships, all athletes highlighted pressures they perceived to be unique when striving to retain a major title (maintenance stage; Durand-Bush & Salmela, 2001) and the role of psychological processes in coping with the unique pressures of '*staying there*':

I remember Steve Redgrave saying 'there is one thing harder than winning. Winning is easy. It is keeping winning that is really hard.' I was like 'it is all right for you to say that isn't it!' but actually winning the world championships in '99 (after winning in 1998) was just so difficult [after winning in 1998]

The perceived importance of psychological processes in successfully remaining at the top of one's sport is consistent with previous research that has looked at the additional pressures experienced by elite athletes (Gould, Jackson, & Finch, 1993). An issue that reoccurred across interviews was the ability to *cope with being*

chased (rather than doing the chasing) and to respond to this pressure by raising your own game:

I think from the ambition side you always want to be the best, want to be the best, want to be the best and I think once you're there everyone wants to beat you. And there's a massive difference in staying at the top, you have to be visibly better than the next guy. To get to the top you only just have to be better to get there. To stay there you have to be visibly better than him. Because everyone raises their game against you...so you bring out the best in your opposition. Subsequently you have to be better than their best. And that has to be your norm. [Team player]

The ability to *retain realistic expectations* and to accept that world beating performances cannot be produced during every competition was also highlighted as crucial for four of the athletes:

You are not infallible, everybody can be beaten. What is important is that when it comes to the big tournaments you just remember that all the times you get beaten they were for a purpose. They were training. It doesn't matter. Or when you get beat in competitions you just put it down to experience. It is about developing again. Constantly trying to justify all that you are doing. . . . [Team player]

Ability to deal with de-selection, performance anxiety and slumps

Participants identified an interestingly common series of micro stages and transitions along the pathway to excellence (e.g., injury, selection, de-selection, change of coach / teacher, performance slumps) that appeared to have significant consequences on future participation:

I was gutted about not getting selected for that tournament but in the end of the day what I really wanted to do was play for [name of country]. I was still young so I knew that if I stuck with it, worked harder that I would be able to challenge for a spot. So I suppose that setback there really made me even more determined to do everything possible to achieve my goals. (Team Player)

I was in great shape . . . was ready to really do well and then I got injured so I couldn't compete during that season . . . and it is so frustrating but I think that I dealt with it well and worked hard to make sure I got myself in that position again where I could compete and you have got to dig deep and it makes you stronger and as corny as it sounds that is what happened, that motivation made me stronger and made me want to go back and show everyone again what I was capable of. [Track and Field Athlete]

I was always told as a kid that you couldn't win everything. So I always tried to learn from a defeat as well a win. So when I lost something I would sit down and think why did I lose, what can I do to fix that the next time around, so I would go away and think about it and put it back into my training and then come back again and hopefully do a lot better the next time . . . [Track and Field Athlete]

I make myself think that one defeat is two successes so every time that I got defeated I could go back home and train a bit harder, work out why I got

defeated and learn from it, learn from your mistakes more than anything else.
[Team Player]

In response to these challenges, participants outlined how *confidence*, *self-belief*, and commitment behaviors allowed them to maximize these development opportunities and maintain an upward progression:

I had a huge belief that I was able to do it, that I would become Olympic champion, a huge belief that I could medal, and a huge belief that I could run as quick and quicker as anyone else. I knew that I didn't want to be an athlete that was making up the numbers, so I had this confidence that I belonged in that group . . . that I had the ability to compete at that level. [Track and Field Athlete]

It was having the determination and the willingness to get up and brush yourself off and go AHHHH, and just go again...and just take the beating and think 'how do I get faster?' 'What do I need to be able to do to compete at this level?' I know that that when some people lose they just think 'ah ****', I am never going to be good enough, and they just walk away from the sport . . . But not me! [Team Player]

I always try to turn the negatives into positives . . . I ran in the Commonwealth Games and made the final but then I tore my hamstring . . . I mean I was on the verge of winning. . . . So I could have walked away and thought that I didn't want to do athletics any more because that was a big disappointment but I sat down and I thought that I had got so close and I can do this again which I did. I went out and ran a personal best this year, and I got myself back into a situation where I was ready to perform at the top, mentally, and physically.
[Track and Field Athlete]

Conclusion

This line of research has important implications for talent identification and development. Instead of the traditional focus on environmental (e.g., early specialization, enrichment programs), physical, and/or anthropometric factors, we should consider, monitor, and develop all the components that underpin the *capacity* to develop. To this end, Dweck (2008) suggested that growth *mindsets* can be induced with messages from the environment that *talent can be developed over time with effort*.

By recognizing the multiple factors that influence development, the efficiency of talent development models is increased by neither excluding 'potential' through inappropriate early identification measures, nor ignoring crucial psychological variables that contribute toward the fulfilment of potential.