

SPECIALIZATION IN SPORT: AN OVERVIEW AND SOME UNSOLVED QUESTIONS

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Abstract: The Deliberate Practice Theory postulates that experts are always made, not born. This theory translated to the youth sport domain means that if an athlete wants to be a real high level performer, he/she needs a deliberate engagement in practice during the specialization years, spending time wisely and always focusing on tasks that challenge the current performance.

However, literature suggests that the sport promoting strategies are being maintained despite of the increased demands in the anthropometric characteristics of professional players and demands of the actual professional soccer competitions. On the other hand, the task of the researchers to identify biological variables that can predict performance turned almost impossible.

Persistence in activity seems to represent a complex process of conciliation between personal expectations and the climate fostered by others with a progressive reduction of sources of conflict.

This underlines the importance of the social environment and of the athletes' long-term membership in their clubs. Mutual perceptions from coaches and athletes have a crucial role in fostering motivation for athletes to stay in sport and are linked to satisfaction with the sport.

Key words: youth sport, talent, specialization, enjoyment, predictive models

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INTRODUCTION

Excellent performance in sport has a strong positive relationship with the accumulated number of hours of practice, and the specialization years are seen as a decisive moment to lift an

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athlete's skill level, readiness and commitment (De Bruin et al., 2007; Gonçalves et al., 2009). The assumption behind the argument is that experts are always made, not born (Ericsson et al., 2007). This theory translated to the youth sport domain means that if an athlete wants to be a real high level performer, he/she needs a deliberate engagement in practice during the specialization years, spending time wisely and always focusing on tasks that challenge the current performance.

Early specialization and accurate observation by expert coaches or scouts remain the only tools to find a potential excellent athlete among a great number of participants. In the present study we present two of the problems raised by talent search and the risks of such search. Growth and maturation are two important concepts to better understand the identification, selection, and development processes of young athletes.

However, literature suggests that the sport promoting strategies are being maintained despite of the increased demands in the anthropometric characteristics of professional players and demands of the actual professional soccer competitions. On the other hand, the task of the researchers to identify biological variables that can predict performance turned almost impossible.

Sport can foster positive personal and social development in young people (Côté, Strachan, & Fraser-Thomas, 2009; Light, 2010a) with environment playing a crucial role in shaping their beliefs about sport through their perceptions of the practice and competition climate (Krebs, 2009). However, as Light (2008) suggests, sport must be enjoyable, have meaning, and be relevant enough to attract and keep children and young people involved long enough for positive developments to occur. If sport experiences are enjoyable for individuals, it seems reasonable to expect that participation in activity will continue for a long period.

Smith, Ntoumanis, and Duda's (2007) study on British athletes found that autonomous goal motives positively predicted effort, which is linked to well-being. These findings suggest that autonomy in goal setting plays a positive role in the athletes' satisfaction with their sport and it is not reducible to goal difficulty. This sense of autonomy is strongly dependent upon the training climate fostered by coaches and peers (Vazou, Ntoumanis, & Duda, 2006). At the same time, sport and physical education literature points toward the importance of fun in engaging young people in sport and for their persistence in it (Siedentop, 2002; Smoll & Smith, 2002; Bengoechea, Streat, & Williams, 2004), but declines in importance as young people move into specializing and investment phases from around age 13 (Côté & Hay 2002; Helsen, Hodges, Van Winckel, &

Starkes, 2000). It is, however, generally accepted that coaches must promote a practice environment in which young athletes can experience pleasure and fun and these seem to be of particular importance up to early adolescence.

However, the pursuit of expertise in sport means that progress in performance must be constantly evaluated and the most efficient kind of evaluation is competition, with its wins-losses record. If practice is oriented to improve performance, it is reasonable to expect that athletes show a strong interest in competitive outcomes and see victory as an important moment of the process. Gould, Dieffenbach and Moffett (2002), in a study with Olympic champions found that they are very competitive and self-confident. Harwood et al., (2004) in a study with young performers showed that they express a high task-/ego orientation, and argue that elite athletes cope better with competitive stress when their achievement orientations are both high.

Hence, the decision to engage in such programs should be founded on a clear orientation towards competitive success and on a strong will to become an expert player, ready to practice at the standards of volume and intensity required by excellent performance. Although the athletes are first of all adolescents, the characteristics we expect to discriminate elite players from their peers playing at a lower level are achievement orientations and the will to become experts through deliberate practice. We argue that it would be useful for coaches and families who carry the responsibility of choice and lead the young performers to have better information about important non biological variables when making decisions that can influence all the youngsters' life.

EMPIRICAL EVIDENCES

Social environment issues

De Bruin et al. (2007), in a study with young chess players, designed an instrument, called Deliberate Practice Motivation Questionnaire (DPMQ), to assess the individuals' will to become an excellent performer and to improve in competition. The DPMQ was adapted to basketball, soccer and volleyball. The questionnaire addresses both long time goals ("I want to be a professional basketball/soccer/volleyball player"), and specific changing situations ("I like tough drills in practice because they help me to improve my skills" or "I prefer to play with my friends rather than practicing hard"). In a study with basketball young players (Gonçalves, Coelho e Silva, Carvalho and Gonçalves, 2011), we found that will to excel and will to compete represent variables that can discriminate players by elite and non-elite level (figure 1).

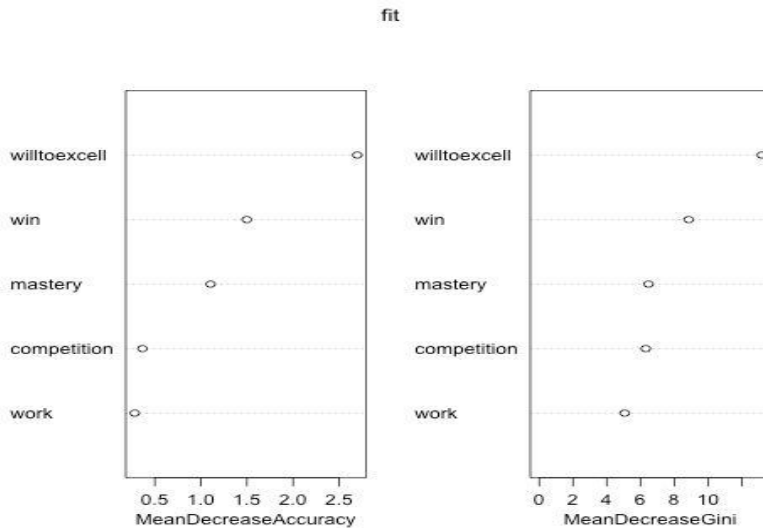


Figure 1. Random forest obtained from the WOFO and DPMQ factors.

It is known that the effects of sport participation depend of the years of exposure to training environments (Stephens, 2000; Visek & Watson, 2005). Therefore, longitudinal designs should explore the potential effects of a multi-seasons-long participation in practices and competitions on the constructs under analysis, and indirectly, on the way young athletes deal with the complexity of personal interactions provided by sport and how they shape their own vision about sport. To this purpose, the multilevel approaches are deemed suited to evaluate the effects of training in diverse settings, with diverse interactions, on all kinds of variables (Papaioannou, Marsh & Theodorakis, 2004).

Because these particular assets or constraints affect young people in a time when they are searching their own identities and roles, their contribution to a rewarding sport experience in a group of peers is a very important one. Creating a supportive environment by providing encouragement and a positive climate can enable young people to enjoy their experience. Findings indicate that the relations between sports participation and enjoyment or positive attitudes are not to be direct and may be influenced by contextual factors. The quality of the athlete-coach relational context is one potential factor that might moderate the relations between sport participation and self-esteem (Conroy & Coatsworth, 2006).

Various studies show that sport engagement causes effects that are never neutral. The youngsters enter the practices with their own personal assets that are to be confronted with the climate, rules and social interactions inside the team. The dialogue, sometimes the contrast, between these two realities is going to build and shape an experience that is going to last for the rest of the participants' life. How far can the environment interact with personal dispositions is a question still open. The answers are possible through longitudinal studies designed to monitor the evolution of the observed variables during years of sport participation. Holt (2009) argues that time limitations are the main obstacle to observe positive adaptations with experimental groups.

The perceptions of "doing well" are closely related to environment and practice climate as shaped by peers and the coach. The importance of the interaction between dispositional and situational variables has

been stressed in various studies (Whitehead, Andrée & Lee, 2004; Sage & Kavussanu, 2007) indicating that outcomes are perceived as being positive by the athletes when achievement perspectives have the same meaning for them, for their families, for their coaches, and for their peers. According to the athletes' responses this convergence of meaning between their achievement orientations and the environment is perceived as clear especially when reaching adulthood. Persistence in activity seems to represent a complex process of conciliation between personal expectations and the climate fostered by others with a progressive reduction of sources of conflict.

This underlines the importance of the social environment and of the athletes' long-term membership in their clubs. Mutual perceptions from coaches and athletes have a crucial role in fostering motivation for athletes to stay in sport and are linked to satisfaction with the sport (Lorimer & Jowett, 2009). Previous studies with elite and adolescent athletes (Jackson, Knapp, & Beauchamp, 2009; Fraser-Thomas & Côté, 2009) underlined the importance of that interaction and how sport experiences can be positive or negative, depending of the ecology of the practice environment. The complex relationship between coaches and athletes as a social grouping is strongly influenced by context within which the coach assumes a leading role (Fraser-Thomas & Côté, 2009).

The search for a biological model

From a biological point of view, sports scientists never gave up the goal of identifying young talents for specific sports and of building a predicting model for success in adult competitions, but the obstacles are multiple and apparently without a satisfactory solution. The multidimensionality of sport performance and the variability of competences needed to be a top athlete mean that the number of variables able to fit an explanatory model of future performance is enormous. Sports like team games, with open game situations demanding complex abilities in confrontation with different opponents, demand a tactical excellence to succeed in competition, making impossible the task of the researchers to identify biological variables that can predict performance. It seems plausible that in less complex sports, like track and field, swimming or rowing, it would be easier to establish a consensus about the key biological variables able to predict potential success.

Several attempts were done aiming to explain the performance and select the most predictive traits or states in young athletes. As an example, in a longitudinal study with a large group of Portuguese young swimmers (494 boys and girls aged 13 to 16 years and 12 to 14 years respectively), the only parameter that showed to be correlated with performance and predict it in competition was the ability to maintain a fast velocity over 30 minutes. As one could easily interpret, a test like this is strongly dependent of training load (meters swum and number of training sessions). Despite the several algorithms used to the regression models the expected prediction was under 65%. Hence there is space for a lot of unexplained factors that could affect the performance capacity in a determined moment in every athlete and sport. The role of heritability assumes a new interest in talent identification. However due to his complexity, it is not yet possible to identify consistent models taking into account the large phenotypic variance that can explain future performance.

CONCLUSIONS

Some findings contradict the research suggesting that fun and enjoyment are essential for persistence in sport per se. Bengoechea, Strean, and Williams (2004) qualify this contention by arguing that what constitutes fun and enjoyment varies between individuals and that they are strongly related to achievement orientations, perceptions of the climate, and relevant information from significant others. Once again, fun seems to be related to a good practice, a good competition, and a sense of accomplishment among the young athletes and across the various sports in which they are involved. As Long and Carless (2010) suggest, fun means little without skill acquisition and competence development. This contention is evident in other research on youth sport (Light, 2010b).

This sense of accomplishment, of serious effort and things well done appears to be linked with a sense of autonomy. The athletes' answers in qualitative researches reveal the need to be in control of their own choices and personal schedules. This perception of agency becomes stronger with age, with the athletes feeling less and less dependent upon their families. Looking retrospectively, as young adults, they all link their present satisfaction with sport to a sense of autonomy in sport when younger. These results are similar to the findings of Smith, Ntoumanis, and Duda (2007) whose study also suggested the importance of autonomy in goal setting for the athletes' satisfaction with sport independently of goal difficulty. The importance of the role the coach plays in making sport a positive experience is suggested by the participants when they refer to the importance of a relaxed environment, free of pressure and the need to have clear goals that can be monitored through competition (Vazou, Ntoumanis, & Duda, 2006).

Recent studies showed that motivation is a more important variable to differentiate elite young athletes from non-elite ones than athletic readiness or skill proficiency (Elferink-Gemser et al., 2007; Figueiredo et al., 2009; Gonçalves et al., 2009; Gonçalves et al., 2011). From an anthropological point of view, Malina showed that readiness for sport performance is a matter of right time, demanding years of adaptation to higher intensities, volumes and stressful situations. Hence, talent identification is a long process, and the earlier a decision is taken, the bigger are the uncertainty about the final outcomes. Recent trends to start the specialized training before puberty raise the risks of injury and are no guarantee of success.

Human performance in sport showed a constant improvement in recent decades, despite the lack of a reliable model to identify the fittest at lower ages. It seems that a good sport and educational system, providing opportunities for all and the necessary autonomy to choose our own way at the right time continues to be the best talent identification model of all.

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