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Effective Talent Development: The Elite Coach Perspective in UK Sport

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Abstract

Research to effectively inform the design and conduct of talent development environments (TDEs) is sparse, especially relating to the goals and systems involved. Accordingly, this paper provides a detailed picture of effective goals and systems within TDEs in a UK context. A thorough examination of the goals, nature and systems of 16 coaches with significant expertise in talent development was carried out across 13 different sports. Inductive and deductive analysis revealed support for 5 main generic characteristics of effective TDEs: 1) Long-term aims and methods; 2) Wide-ranging coherent messages and support; 3) Emphasis on appropriate development not early success; 4) Individualized and ongoing development; and 5) Integrated, holistic and systematic development. Implications for applied practitioners, policy makers and researchers are explored.

Effective Talent Development: The Elite Coach Perspective in UK Sport

Talent identification and development (TID) is currently big business. Undoubtedly, effective systems will help enhance the quality and sustainability of our elite level teams, bringing with it large financial rewards and recognition. First class TID systems capable of delivering highly able and prepared athletes to the senior level are particularly important against the backdrop of ever-increasing professionalism and standard of world-class performance in the modern era.

Research has already explored the characteristics and influences of those who succeed in developing to, and staying at, the top level of international sport. So we have some depth of knowledge about the characteristics that need to be engendered. For example, work has been carried out to identify the characteristics of elite level performers (Bloom, 1985; Gould, Dieffenbach, & Moffett, 2002; Talbot-Honeck & Orlick, 1998), the characteristics of successful developers (Abbott & Collins, 2004), and the range of influences on the development of Olympic champions (Gould et al., 2002). However, the higher-order goals and systems for coaching and talent development environments (TDEs) that optimally develop these characteristics are less clear. To date, coaching research has mainly focused on participation promotion in sport (Dodge & Hastie, 1993), and perhaps surprisingly, there is little consideration of effective TDEs, which essentially drive the TID process.

Of course, it is important to remember that there are many more factors involved in the development of talent than just the direct process of coaching itself (Bloom, 1985; Gould, et al., 2002). We must recognize and incorporate a whole range of influential factors, some of which are crucial for influencing young people directly (e.g., parents), and some that have more over-arching and systematic influence on the whole process, such as our culture and sporting policies. However, the TDE is certainly the most consistent and immediately controllable factor in the life of a developing elite and, given the high levels of resource, its

important and central role is acknowledged by sports, institutes and governments alike. Therefore the purpose of this investigation was to examine the goals and systems that characterize effective TDE.

In fact, guidance is available for this crucial issue within current research. A review by Martindale, Collins, and Daubney (2005) looking at a broad range of relevant literature, including both theory and empirical work, yields several likely key characteristics of effective practice, which emerge consistently across the different sub-disciplines considered (see Figure 1). Interestingly, when the literature based recommendations are compared with examples of current practice, many (not all) show a significant disparity. For example, while it is clear from the literature that talent emerges with the right experience (Bloom, 1985; Simonton, 1999), many still insist on providing funding and development opportunities to only a few select youngsters, based on current performance level. As an example, the German Tennis Federation (DTB, 1992) select children as young as six from mini tournaments and motor ability tests for development training. Further, while the recognition of the need to develop fundamental movement skills at a young age is growing (Balyi, 2004; Moore, Collins, & Burwitz, 1998), there is little evidence to suggest that either sport-specific pathways or school education systems provide such a service.

The breadth and depth of literature underpinning these characteristics of good practice supports their use as a structure, which may guide further investigation. As such, prior to the examination of expert perceptions of effective TDEs, it is worth offering a brief summary of these points (for a full review see Martindale et al., 2005). First and second, the need for the promotion of long-term aims and methods and wide ranging coherent messages seems clear (Bloom, 1985; Gould et al., 2002; Siedentop, 1978). Unfortunately, operationalizing and implementing these laudable and well-justified aims has proved elusive. In a UK context for example, it has been highlighted that creating truly coherent long-term aims and methods is

difficult due to the incoherent structure and strategy behind sport as a whole (Cooke, 1995). This is apparent in a variety of challenges faced by sports; for example, consider the following quote: “Elite junior to elite senior is very poor, we have a massive drop out rate and a large talent pool wasted” (UK Athletics Website, 2003).

Third, appropriate development must be prioritized over the all too common drive for early “success”, where selection and coaching procedures focus predominantly on winning (Abbott, Collins, Martindale, & Sowerby, 2002). It is well documented that the vast majority of those who become extremely successful adults did not start as equally talented young performers. For this reason a dominant focus on early success and all the coaching, identification and selection issues that this brings is simply not the most effective (or even ethical) way of producing senior success. Bloom (1985) highlights this by stating “even in retrospect, we do not believe that the perfecting of aptitude tests or other predictive instruments would enable us or other workers in the field to predict high level potential talent at these early ages.” (p.533). Effective processes appear to highlight the need for the systematic development of fundamental physical and movement skills, such as catching and balance (Moore et al., 1998; Schmidt & Wrisberg, 2004) and fundamental attitudes and mental skills, such as commitment and persistence (Bloom, 1985; Gould, et al., 2002; Talbot-Honeck & Orlick, 1998). These appear to be the pre-requisites for the development of more sport-specific skills and continued progress through the transitions associated with achieving excellence (Bloom, 1985; Van Rossum, 2001).

Fourth, there appears to be a need for individual and ongoing development opportunities (Abbott & Collins, 2002; Ericsson, Krampe & Tesch-Romer, 1993; Gould et al., 2002) stemming from the complex dynamic of individuals, their progress and success (Abbott Button, Pepping, & Collins, 2005; Moore et al., 1998; Simonton, 1999) and the unpredictable nature of individual development in many aspects, not least physically and

mentally (Ackland & Blanksby, 1996; Sinclair & Orlick, 1993). Indeed, individual treatment is vital for effective change in behavior in many aspects of life (Prochaska, DiClemente, & Norcross, 1992), and factors such as goal setting, review and reinforcement appear to be important to encourage this change process (Locke & Latham, 1985; Siedentop, 1978).

Finally, effective practice appears to require integrated, holistic and systematic development, (Burwitz, Moore, & Wilkinson, 1994; Saka, 2003) due to the complex, dynamic and multilayered nature of development (Abbott et al., 2005; Simonton, 1999). Some of the methods associated with these five key characteristics are apparent in Figure 1.

Insert Figure 1 About Here

In summary, given the high level of “real world” interest in the identification and development of talent, and the lack of empirical data that exists for the examination and guidance of TDEs, the first purpose of this study was to reveal experts’ perceptions of the goals and systems that are required in order to implement effective TDEs within a British context (note - these perceptions may or may not typify current practice). Subsequently, the second purpose of the study was to examine the extent to which expert opinion was consistent with the model of guidance apparent in the literature (Martindale et al., 2005), with the aim of providing a more substantial evidence base for the delivery of best practice. Indeed, if clear and consistent results emerged, guidelines for good practice may be more usefully developed and disseminated, at least within the context of the investigation (Peshkin, 1993).

Method

Participants

In order to secure an accurate picture of best practice, it was essential to recruit a representative sample that could justifiably be considered expert. Accordingly, the sample consisted of 16 elite development coaches from a variety of sports including athletics,

canoeing, curling, cycling, equestrian, (2) soccer, hockey, judo, netball, (3) rugby, shooting, swimming, and triathlon. They were identified as expert talent developers through four criteria.

Firstly, the UK Sports Institute (UKSI) recommended the coaches as exemplars of good practice at developmental and elite levels. At the time of the investigation, the UKSI Coaching Support Team were focused on the evaluation of high-level coaching nationwide, as a precursor to the development of structured support for National Governing Bodies. The audit process completed as a part of this evaluation offered them an informed perspective across sports. Second and subsequently, this view was confirmed through interviews with other elite-level coaches and senior coaching directors within each sport, who were independently (i.e., blind to the UKSI nominations) asked to provide a list of suitable candidates. In all cases, this input supported the UKSI view. Thirdly, the nominees' standard of work and criticality was recognized and rewarded within their sports through their appointment as mentors, acting as designated role models for effective practice within their respective sport's coach development structure. Finally, all participants had a record of success in the development (from a maximum age of 16) to elite status of athletes in their respective sport; additionally, and in order to confirm their current status, all were currently working with elite and/or development athletes. Demographically, 14 of the coaches were male and two were female; 12 were British, two were Australasian and two were European. Furthermore, 10 of the coaches worked with males and females, one worked with females only and five solely with males. All coaches had at least 10 years of coaching experience and had represented at high levels of performance as athletes themselves.

Design

A qualitative methodology was selected to gain an in-depth understanding of the experiential knowledge of TD experts. The qualitative process identifies that the "main goal

is to reduce the amount of data and obtain a unified picture of the phenomena under study” (Cote, Salmela, Trudel, Baria, & Russell, 1993, p.130). In order to maximize the chances of gaining a complete picture of the nature of effective TD, a semi-structured interview was developed, consisting of nine open-ended questions, carefully structured in an attempt to elicit truly open-ended responses (Patton, 1990). The questions can be seen in Figure 2.

Insert Figure 2 About Here

Pilot interviews were conducted with three international-level coaches (triathlon, rugby, basketball). Feedback obtained from these interviewees, in addition to critical appraisal by the investigators, was used to evaluate and refine the interview guide. This evaluation process, in addition to recommendations from Patton (1990), was also used to help guide the interviewers away from biasing coaches’ responses by ensuring the use of a neutral, impartial stance when probing participant responses and also to maximize rapport, comfort, recall and open responses (cf. Backstrom & Hursch-Ceasar, 1981).

Procedures

After the expert status of the coaches had been identified, they were recruited by personal contact. After informing them of the nature of the investigation, and providing assurances of anonymity, all agreed to take part. The main interview questions were sent to the coaches before the interview in order to allow the coaches to familiarize themselves with the types of questions that would be asked. All interviews lasted approximately 120 minutes and were tape recorded for later transcription. In order to ensure a full investigation into their perceptions of the nature of effective TD, each coach was asked an identical sequence of questions (as outlined above); however, in order to gain an in-depth and full understanding of the meaning of all responses, clarification and probing was used as required for each individual coach (Patton, 1990).

Data Analysis

Analysis followed the processes outlined in Edwards, Kingston, Hardy, and Gould (2002) utilizing both inductive and deductive analysis. The initial inductive approach utilized hierarchical content analysis, as outlined clearly by Cote et al. (1993) through three stages, 1) coding experience; 2) inductive inference; and 3) similarity processes. Themes and categories that emerged from the data (Patton, 1990) are represented and supported by quotes in the results section (Cohn, 1991) and are presented in the Appendix.

The subsequent, deductive analysis used a pre-determined set of themes and categories to organize the data (Patton, 1990). Specifically, within this study the deductive analysis was used to assess the extent to which the views gained supported the theoretically and empirically based model that emerged from the literature (see Figure 1). It was recognized that there are difficulties in generalizing data from any qualitative research, indeed, “it is impossible to generalize in a scientific sense at all” (Guba, 1978, p.68), even when a diversity of participants are covered, in this case, a variety of different sports. However, it is also important that “the evaluator should do what he can to establish generalizability of his findings” (Guba, 1978, p.70), and as such, it was deemed useful to examine the extent to which the findings supported more widely developed TDE criteria, as emerging from the literature. Perhaps, if consistent support was clearly apparent, the user generalizability of the emerging factors would be enhanced somewhat, at least in the sense of highlighting the need to critically consider their value within any TDE (Peshkin, 1993).

Establishing Trustworthiness

Several steps were taken to establish trustworthiness. First, steps were taken to maximize the levels of open-ended responses (as outlined above), and two researchers carried out the interviews in order to reduce the personal bias that a single researcher may bring. Second, a report of the results was sent back to each coach to establish credibility of the

findings through stakeholder checks (cf. Patton, 1990), from which no one reported any required changes. Furthermore, two different researchers carried out reliability checks (Scanlan, Ravizza, & Stein, 1989). This involved raw data quotes being coded into raw data themes in 10% of the interviews, followed by matching all the second dimensions to their third dimension themes and matching all the third dimension themes to the general dimension themes. Finally, the results of the reliability and validity checks were discussed by all four researchers, which acted to finalize details and the emergence of the appropriate themes.

Deductive Model and Theory Examination

In accordance with procedures used by Edwards et al. (2002), based on the transcripts and the understanding gained from the process of the qualitative analysis, two of the researchers deductively analyzed the data in direct consideration of the five key characteristics of effective TD practice that emerge from current theory and empirical research (see Figure 1). The data from the 16 coaches was individually analyzed, and the researchers assessed the extent to which they provided no support, some support or support for the model (see Table 1). “No support” was defined as no evidence of the importance of the theme; “Some support” was defined as evidence supporting the importance of the theme and use of less than 50% of methods, and finally; “Support” was defined as evidence supporting the importance of theme and over 50% of methods.

Results

The themes and general dimensions that emerged from the inductive hierarchical content analysis are inherent in this section (Cohn, 1991) and are presented in the Appendix. Quotes are used to enable the reader to gain a better appreciation of the context in which the themes emerge from the data.

Clarity and Consistency of Philosophy, Objectives and Methodology

Coherent long-term aims and methods.

It was clear from the data that long-term aims must be consistently prioritized throughout the development system in order to prepare explicitly for senior success. In fact, in many cases junior performance levels appeared quite unrelated to those at the senior stage; a factor which participants recognised through their respective system:

“I’m a successful ‘age group’ coach, I’ve won all my ‘sport’ games”. Well, great. And the best thing to do is just to sweep it all away and say no, we’ll leave our selection later...what we’re really wanting to do is select from our senior club sides, and junior internationals; by junior I mean under 21.

A lot of former world junior champions don’t stay in the sport. They don’t make it or they stay in the sport but they don’t seem to go on to greater things. There are exceptions of course but again looking at the Aussie model, we think they tend to push them too hard too soon and basically burn them out. There are other reasons so we try not to take a softly softly approach but we try to take a more long-term approach to keep them in the sport longer.

A systematic process designed to progress athletes step by step was highlighted, where pressure to win at each stage was detrimental to long-term development. For example, those with potential can be missed and deprived of opportunities due to a lack of current performance standard, together with coaching aims and methods which lack long-term developmental focus:

I watched the trials last year for the under 13s. They picked the particular mode of players it wasn’t close to what I would have picked. And I have international experience...I’m not saying I would disagree with them in terms of getting the result that year, but I would have disagreed with it in terms of long-term development.

The most important principle is that anything that I teach them has to work when they play senior international 'team sport' ...what you do is you furnish them with the techniques and the decision-making powers to be able to survive for the next level up.

We sent some under-17's to Australia ...they were sent there not as a team at all, they were just sent there as a bunch of players who went there to have an experience. Now that's just totally unheard of in the England stuff, so there's some massive changes [needed] within 'sport'.

Finally, it was appreciated that not everyone can make it to the top; in line with this a strong educational ethos was also prevalent. This is highlighted by the following quotes:

When dealing with a young person you are laying the foundation both physically and mentally for them to take on the world for the rest of their life.

We look to produce a senior international player if they have the ability. If not, the aim and objective is to get them to be competent enough that they can join a club, the senior part of a club, and enjoy the 'sport' for the rest of their life, And that's just as worthy an aim.

Clear expectations and links to the senior level.

For a long-term agenda to be successful, it was reported that those involved in the development process need clear expectations and understanding of the dynamic nature of TD. For example, age group squad selection is not an automatic ticket to senior status, athletes may move in and out of squads and late developers have opportunity to become successful:

We need to be very direct and say that we do not want to be selecting players, I don't mind them being identified and given training but it shouldn't be a situation where other people can't come into that group as they become good enough. But getting

people into that group late, they're entering a very threatening environment to people already established and the psychological handling of that needs to be spot on.

There's an acceptance that, well I hope there is now, there wasn't before, but my belief about squads is that about half of them will carry on next year. About a quarter to a third will drop out for whatever reason, and then there's another group that have just come in that are just starting the process...and some players will go from the third squad straight up to the top squad, and that's happened. And it's being able to recognise when they're ready.

The fact that they get in the nationally identified program, it starts to become like, "I've got in this now, and I'm just going to keep stepping up until I get to the national side." And that's why that way that you set them up becomes very, very important, that everybody knows that you will only be in here as long as you're improving and the opportunity's there. And some day you might drop out of it, you could come back into it, and it's very fluid. If it's set up like that it's very good.

Furthermore, this openness was seen to provide realistic expectations, standards and goals for all involved, including direction and attitude for long-term development. However, this message must be reinforced, through for example appropriate coach reward systems:

You'll not stop that [praise for winning age group competitions], but the thing to do is to make sure that either that the system doesn't exist which is the first thing I would advise, but if you insist on the system being in place, then what you have to do is you have to track some of the players through and give praise to those county managers who actually produce the junior players.

Importance of education, integration and use of outside influences.

The data suggest that it is important to educate a variety of people to ensure that every influence is coherent. This included many people such as parents, coaches, peer groups, other role models, teachers, schools and society as a whole.

We need to ensure that the other people who are working with them are providing what's required, which is difficult. Kids are at school and they're not getting either the 'sport' training or the values or the home environment's no good.

The biggest single problem I have as development coach is the kids have three or four different people talking to them about their game and as a result it leads to a lot of confusion. They become more skilful at doing the right thing for a coach that's stood in front of them than actually improving. And that is because the whole system is disjointed, split between school and club, split between international, divisional county club and school. A player could play conceivably at every one of those levels.

One of the things that is very obvious in looking at young players is that 90% of the time the ones that make it through have got good solid advice at home. Because whether we like it or not, as coaches we see them for four or five hours a week, the parents see them every evening.

Once again it's the education that we've got through to the teachers, to the parents and we need to get it through to the coaches and the youngsters.

They took the coaches out of the club system and in taking the coaches out of the club system it meant as a regional coach you did a one-off development session with a player. But when it came to the weekend, that work wasn't then reinforced.

Finding systematic ways of influencing and utilizing as many people as possible was also considered important, and participants offered a variety of methods including formal

education days, informal contact, large education initiatives, practical coaching education, websites, booklets, use of peers and role models, positive involvement of influential people (e.g., parents), and integration of coach practice and support staff to allow cross over of information and ideas. This is supported below:

When they went to play the game again I brought him over and said, “I’m going to get your dad on the Sunday to do a count of how many times you get on the ball, and we’re going to keep a score, your dad’s going to start tonight. He’s going to see in this game how many touches you get.” And he was fine, he was much better.

We are always discussing our players, right the way down to the elevens and twelves and when we go to a game, or when we go somewhere away, what we do, or we sit in the office. Because we all take teams you see. I take the under-14 team, X takes the under-16s team and the under-15s, and Y takes the under-12s and we’ve got players who take teams as well. So we all take teams, we all know the other kids as well.

You need to educate the parents, you need to get them in and you need to talk to them about the sort of factors where they’re gonna raise in their heads...have a quiet informal chat on the side of the pitch. And parents can then hint to their kids about what you’re looking for and that just helps the process.

For me, the best way to do it is the way I came through the system, which is good schools, good PE teachers, letting you have a go at a lot of sports and giving you the opportunity to go where you need to go to progress, be it a club or whatever, but it all starts with the schools.

I think the advantage of the school over the club situation and producing young players is that they come across other very experienced and talented staff who teach them all

sorts of other qualities...talented people who will teach them all a number of things about life and living, take them on trips, do this, do that.

Systems Facilitating Promotion of Player Development

Individual programs.

A simple, but key and oft stated concept was the need for individualized development. This is important throughout the process, from needs analysis to development programs. Due to the individualized nature of development, every individual had their own personal formula for success and personal requirements in terms of the skills and experiences that ultimately will be most useful. This is highlighted below.

Challenge them in a way which suits them, because I think it becomes very individual you know. I think it's where team sports break down entirely. The team is pushed far too much and the individual isn't, that you need to get the best out of people.

You really judge each athlete on their individual merits, you know their stage of development. You know the rest recovery needs of one will be probably a lot different from another one. So a lot of one-to-one attention is needed.

You've got to treat them all individually, that's how we had to get every single player here as an individual program. There are no group programs.

Ownership, autonomy, and self-motivation.

Participants reported that developing athletes needed to take, and be able to take, an increasing amount of responsibility for their own development and performance as they grow as athletes and people. This was thought to be necessary in order to reach the levels of commitment, learning and hard work required for eventual high-level performance. Skills such as self-awareness, self-motivation, autonomy of learning and self-responsibility were identified as crucial. The participants offered examples of ways in which this could be done

including: allowing an appropriate level of ownership over goals and reviewing processes, delegating responsibility for life and athletic development, letting athletes make mistakes and helping them to learn to develop from them, not giving too much feedback too much of the time, promoting self-awareness through questioning and appropriate feedback systems, and systematic education of the whys and hows of development and performance. All participants endorsed that this takes time and patience:

I'd challenge the athlete to find their way of doing what I know they've got to do. So, that's part of the challenging culture. It's not good either, giving too much away, but more and more, the athlete will take responsibility of his or her own actions the better. That's the best way to learn.

Ownership and self-awareness, I just feel players who are directed all the time lack self-awareness and don't develop, you know, become robotic, whereas if he can get an understanding the way to design drills, the why you do them, to have a clear model of the skills that they're trying to work on...if you can get that sort understanding then you've got players who can self-coach and they can go out any time and do the drills.

You've got to take responsibility yourself to develop the skills or whatever it is that you haven't quite got hold of. So I think the tendency to, definitely you can't do too much with people, you know, take them to the water too many times.

As a coach you often get asked and you are very willing to give advice because you have been through that whole thing yourself as a person most likely. Also you have had other athletes that have gone through. Now again, like in all coaching, it is very dangerous to point out too many of the pitfalls that you might know yourself through your own experience because that to me pre-empts the learning curve.

Explain to you why they made the decision and then you say to them well what were your other options? Why that possibly, that one could have been a better option? And they've gotta understand why because if they understand why they will then try and change their habit. So that is an important stage.

Ongoing review and goal setting.

The data highlighted that a systematic process of goal setting, developing and reviewing was crucial in order to promote change and to monitor and help an athlete through their unpredictable development. When these processes are effective, they provide integrated direction and purpose, feedback and opportunities for the development of intrinsic motivation and ownership. This ongoing review and goal setting process was seen as both formal and informal, and from team to individual, ranging from end-of-season reviews through to fortnightly meetings to “a word after training,” as implied by the quotes below:

We sit down, we have one to ones, we identify what key skills, key positional requirements, mental skills, together with the player, we determine from that rating what we've got to work on most, we help design activities. We then re-measure them see if they have improved a bit, it's just a continuous process of identifying what's needed and then delivering it.

You've got an ongoing process of planning, looking ahead, reviewing, monitoring, planning, reviewing, and it goes on all the time then I think we're continually adjusting to the demands being made on the player.

We do one on ones with players to look at the game as we feel it's needed or as they feel its needed, so I won't meet every week but every three weeks, I would say, I'll have met with every player either within a mini unit or individually to look at the game, look at what they need to improve, particularly if they are not being selected.

Importance of informal player coach interactions and set up.

The role of this regular and informal communication was a particularly important feature. The informal nature of many interactions was not seen as a replacement of formal meetings, but as a vital extra. The relaxed nature of these meetings more often than not resulted in sharing of important information and a building of trust, factors seen by participants as key for effective development. The following quote reinforces this:

Ring them occasionally, sit down and have a beer, have a coffee, particularly with two or three of the more senior players in the side. Have a check, you know how you think things are going; this and that and the other. And then you run into others at various other times and places and that's an opportunity to have a quiet word with them more. And obviously you stop people pre- and post- training, pre- post- match times. I believe to be honest with you that rather than a lot of formal situations that informal is best ... That's what makes the whole team stick together, that communication....It's just a chat and it's a non-threatening environment. They'll tell you loads of things. Then you can get to know the players that bit better and know what makes them tick.

Balance.

The participants emphasized that creating balance in the athletes' lives was extremely important for sustaining successful progression. Particularly, developing an athlete's ability to relieve stress resulting from life and/or sport and develop effective mental and physical recovery plans would help prevent burnout. Furthermore, encouraging a balance of outside activities could also help athletes to see themselves from a more rounded perspective, and prepare them for the outside world:

I think certainly at a younger age, if you looked at some of the academy models around, particularly in football, something like Ajax they work really hard on the values, on the balanced lifestyle, the values and develop character.

I think they're (education/work/leaving home, etc.) part of the challenge as well. I mean X went to university, went home because he had to do the Commonwealth Games to do and various other things like that. So the competition structure didn't sort of endorse the university situation. But no, I think generally speaking those are the little challenges around and its part of growing up.

You might have to defocus them, to teach them how to relax, to teach them how to not over-train, to get them into the mental stage where they are not overdoing it.

De-emphasize age group success.

It was highlighted that de-emphasizing age group success was a crucial concept for influential people to understand and implement within any TDE. For a variety of reasons it was seen as extremely difficult to identify those who will eventually reach the top, and without a change in emphasis on age group "success," problems would continue to exist in selection, coaching and funding opportunities, aims and subsequent experiences:

You can be player of the year at 13 or 14 years of age, you can be a star. And then at 16, 17 years of age you can't get a game on your team, because the boys have just overtaken you.

There's two players here that missed out on representative teams when younger, late developers, they are now first teamers.

The other thing I would say is advice to the governing body to keep large numbers of kids involved, I would get rid of County 'team sport' juniors. I would do some divisional 'team sport' at the age of under 16 but not until that stage, because all it does is it turns people off the sport, it's far too selective. Eleven get picked in the County, where there are actually 50 or 60 that could one day be great players.

Now, invariably, the people who get picked at the bottom end of junior sport in the UK are those that have been coached earlier, started the game earlier, have got a head start, and they're not being rated with a future. They're being rated with a present.

It's important to keep a look on players in general...I think it's very important at developmental level that don't write off the ones that aren't there yet when they're 16 because you will find in 12 months things will change dramatically.

Role models.

Participants reported that peer group pressure could have significant positive or negative influence on a young athlete. However, systematic utilization of role models was highly beneficial and the management of potentially negative situations is key. Positive examples included; mixing different close age groups at school or in the club environment, bringing in or exposing younger athletes to already successful elite athletes and or coaches, using video, targeting influential peers and utilizing them, reading biographies or through mixed age or performance group meetings. The data suggested that this area is often not used to its fullest capacity and that is a large and exciting but currently missed opportunity:

What we've done here at school which long time ago is double up the year groups so we have the under 13s and under 14s work together as under 14 A and B. Therefore you have two years of 14s - one when you're learning and one when you're the boss! And that obviously helps the younger players on hugely at each stage. And also then gives them some leadership experience as well. And then they're more, you know, cock of the school so to speak, you know. And that's the way it should be.

I would say my job is more as a motivator as well. To explain to kids there is a pathway to the job, there is a structure, I don't hide the fact that you've got to work hard, you've got some great role-models there, and we'd be delighted to have you guys pushing the

people that we have in the institute here and it's not impossible. And give them some real-life examples of people who have already done that.

University is the death nail to most players. They go, even sports universities such as Loughborough, and drink themselves into the ground. Two years later they are no better. They are fat, they are unfit and they will never then make the step.

That's the way to disseminate knowledge and it has some meaning because they can see then that real people have issues and problems, things that need to be resolved and they have solutions to them. And they want to hear it from them because they're not listening necessarily to myself or other coaches. But they will respect and listen to their peers and people they would want to compete with.

A player has just retired from international 'sport' and he's 27-28, he's a gold medallist and the Germans consider him to be their best player ever technically. And this guy's performance - the English guy playing with them - has gone up another two steps. He is twice the player he was two or three years ago. That's not to do with my coaching, that's to do with him having a very good role model.

Complexity and integration.

It was consistently reported that there are a wide range of factors that need to be considered in any TDE, ranging from an organizational level to decisions made by the coaches themselves based on individual athletes with individual circumstances. As the data have shown, under the surface there are many factors that interact and affect each other significantly, and consequently the process and decisions taken are highly systematic, integrated and interdisciplinary. However, the participants stated that while the complexity of the process needs to be acknowledged, the end result and process needs to be kept simple to be effective and practical, as highlighted by the quotes below:

There are an awful lot of factors involved, which, if you like, we need to take the synoptic view to the players' development. Taking ideas in loads of different places and then simple advice from thereon in. I wouldn't say it's rocket science. I wouldn't say that you need to make it very, very difficult and intellectual.

They don't integrate their thinking and therefore their actions are not integrated either. Now, that's not a criticism necessarily of them as people. I think it's more of a system, the system of production of them.

It is complex and you have to be very systematic in the way you set things up. For example, by Wednesday we need to have individual reviews and unit reviews, a full debrief of the game we've just played, and a look ahead at the next team. They've got individual responsibility to look for body language and things in the opposition team, what they can attack, what they can exploit, what they can expect...to achieve it you can't just be willy-nilly, you have to look at times and resources.

Not only is it important to be physically stronger, but I think psychologically it is a massive help. When you are physically stronger you are holding people off, you get to the ball a lot quicker and your confidence grows so psychologically you improve as a player...and if you are confident you'll be relaxed, if you're relaxed you'll play better etc. and it all goes hand in hand, there's nothing works without the other part.

Importance of Ongoing TID and Opportunities

Athlete development is individualized and unpredictable.

It was clear from the data that development within and between individuals is individualized and unpredictable. Hence, performance standards are often a poor measure of potential and this needs to be accounted for in any TDE.

Sometimes it could be how their body grows in the wrong way. It could be outside interests, they could lose their belief in themselves. How many times have you seen in different sports young people coming along and they have the world scene for 18 months and they're gone, you never hear of them again. Sometimes they might be gone a number of years, then suddenly come back.

What you get is at the younger end, we're going to select him for the first year rugby team at stand off cause he's six feet six. And he's going to catch the ball and score tries for us. Or he's a big lad, sometimes a lot of time is invested in these so-called big lads in the first two or three years of their game playing career. Then all of a sudden other folk bypass them. And it's the wee dirt guy that's just been dogging in his training and all the rest of it and he's started to grow and become more physically mature. So I think people have to be careful.

It all depends on how they develop and I've seen some young people who were extremely talented as 12/13 year olds but by the time they have got to 18/19 they have lost their talent.

I have seen people who have developed and then stood still for 2 or 3 years and then suddenly things have kicked in and they've developed again. If we were capable of identifying that and bottling it, we would be winning everything. You can't, it is just how things go and develop and who knows what is going to happen.

Producing teams that haven't got enough power to actually play against the international sides, and yet they've got people that they've dropped out of the sport earlier because they thought they were uncoordinated or whatever, but they haven't given them the chance to grow. There's been some horrendous cases of that, where

someone who's grown to 6ft 2 or whatever isn't going to look the same as a 5ft 2 person under the same conditions at 14 years of age.

Flexible, open and ongoing development opportunities.

The unpredictability of the development process needs to be supported systematically with flexible, open and ongoing opportunities to as many youngsters as possible.

They (clubs) need 12s, 14s, 16s, 18s yeah. And you need as many teams within each of those brackets as possible. So you play for the under 12 fourth eleven. And that is the system that has been running in Holland and Germany for years and should have been running here.

At the younger group you're giving the widest possible group experiences, and just let them get on with it. Observe them while they're having those experiences, and then gradually over a couple of years you'll start to pick out who the ones are that are going to step forward. Now, they're the ones that you need to pick up.

Skills that must be promoted in development environments.

The data showed that a wide variety of skills are needed for development. These included some more generic skills, such as fundamental movements, decision-making, life and mental skills. These were important as they provided a basis on which more sport-specific development could take place. Importantly, skills needed to be developed in an integrated manner to be successful. For example, technical skills must be learnt in conjunction with decision making in order to encourage transfer to a game situation. This process needed to be systematic but at the same time allow for natural ability to shine through. The variety of factors was necessary to promote effective performance and also effective progression, development and life management. The quotes below highlight this:

Every skill you can imagine is applied.

It's just one of the skills along with conditioning, along with technical skills, along with technical awareness. But it's given scant regard in most outfits whereas I think there's a belief where you've either got it or you haven't mentally instead of an understanding that mental skills can be trained like physical skills. We've introduced programs here such as centering or mindfulness, visualization and goal setting.

You can get someone with a really awful attitude, but the way I look at that is, that's changeable. You can't change your genetics, but you could change somebody's attitude.

But when the pressure really comes on there's always returning to rote under pressure which is why it's important to start the psychological stuff fairly young. But I'm not sure that that psychological stuff needs to be "lie on my couch" stuff, it's more practical psychology.

He's got to be able to run nicely. In other words, it's pleasing to the eye, smooth, balanced, able to change direction nicely, smoothly.

If it's 6-10 year olds the main aims would be to give fundamental movement skills.

Many people say that we need the best coach in the establishment is the head coach. But I disagree. For me, for me the quality of coaching I need this very low level. And I'd look at very good coaches for coaching the youngsters and bringing them through this process. Because if you get that process right, the end process is going to be very easy. If you don't get that right then the end process can be very difficult.

Basically what I was trying to do is to make them being athletes, so it means not 'sport' but athletes first - running, swimming, introduction on bike, gym work – but only introduction at some point. And my first concern was co-ordination skill first.

I think with the environment, using the right coaches, and the very solid work through the respect, the discipline, the passion about what is being done, a good technique etc, so that a person that comes into your sport can see a way forward. They can see that if they are good at that then the next stage is this and the next stage is that. There is adequate technique coaching taking care of them as persons and as athletes through each of these stages but without making them all into soldiers where they are all marching up and down. That to me is a very fine balance, it's the same as developing talent and bringing technique in without losing the talent. It is having a structure/strategic plan in a regimented way so that you are bringing things forward but still allowing for that individuality.

Results of the Deductive Analysis

As the table highlights, substantial support for the literature-based model of TDEs resulted from the deductive analysis (see Table 1). However, we feel it is useful as a brief summary to highlight that while no entirely new concepts emerged from the analyses, the coach data did support the need to expand two key aspects of the model. First, the key method concerned with “providing forums for open and honest communication patterns” would need to be expanded to emphasize the importance of incorporating both formal and informal coach-athlete interactions. Second, the key method “provide regular individual goal setting and review processes” would also need to be further expanded to emphasize the importance of providing individualized programs. (For a more detailed view of the features of the literature-based model see Martindale et al., 2005).

Insert Table 1 About Here

Discussion

The results section is, by decision, very detailed, and we feel that the inherent messages ring loud and clear. Before considering some of the many implications however, it is

important to highlight the limitations inherent in the study, which must be considered against the comparatively clear results which emerge.

For example, a small number of coaches were involved ($N=16$) and, perhaps to be expected as with any attempt to summarize and condense findings, not all coaches promoted each of the generic factors in exactly the same way or to the same extent. Additionally, agreement between participants was, quite understandably, “clouded” by the sport-specific context in which they worked. Thirdly, other important groups, such as athletes and parents were not included in this work. Such a triangulation of information would be extremely useful, indeed some of which is currently being undertaken in an attempt to strengthen our understanding of the requirements of effective TDEs. Finally, we recognize that the issue of generalization is important, as in any qualitative investigation.

In support of the data however, the nature of both participants and analysis must be considered. Firstly, the selection criteria so carefully applied obviously limit the sample size. Thus, the group is drawn from a comparatively small subset of coaches but, in the current context, could justifiably be seen as offering an expert opinion on TD in the UK. As such, their opinions would seem to hold important advice for others; the selection criteria for inclusion certainly support this view.

Secondly, theme consistency within the data must be considered. Throughout the investigation, and reflecting good practice in qualitative work, we took careful steps to avoid any leading of participants. However, clear and consistent guidelines emerged from this diverse sport sample, which demonstrate a clear coherence with those themes obtained from other research. Thus, qualitative limitations notwithstanding, this extended level of support is presented in order to enhance the user generalizability of the findings by providing the reader with the best possible description of effective TDEs (Peshkin, 1993). We present both

message and methodological caveats, allowing researchers, coaches and policy makers alike to use this work as a critical base on which to review, research and develop practice.

With these qualifications in mind, four important factors emerge from the data, over and above the clarity of systemic considerations which is the primary message of the results. Firstly, the need for an integrated, pan-stage system was a clear and consistent suggestion from all participants. In the present study, the context of effective TDEs (defined as that which aids the development of those who have been identified as talented) was associated mainly with academies and national age group standards. However, emerging from this developing picture of TDEs is that many, if not all, of these factors apply across a wide variety of development experiences such as school and club systems. To highlight this point, one participant in the study (ex-international head coach) was currently (and extremely successfully) coaching his sport using the same ideas at school, club and age group levels. The data support the contention that the most effective mechanism for change and influence would be able to consider the athlete and their experiences as a whole, whereby the overall philosophies and features espoused in the model would reverberate from “the top” right through every youth experience, a situation only possible with the influence of those with power to change sport structures and education (e.g., policy makers and governing bodies). Furthermore, the full context of the process appeared to require consideration of what happens before this stage. For example, this study also supported the well-documented need for an early stage where fun, passion and fundamental skills (physical and mental) are introduced to all youngsters as a prerequisite for effective future development.

Notably, the lack of effective foundations was a common concern for the UK coaches, in both what and how skills were taught, a view that has been documented before (Moore et al., 1998). In line with this, the issue of when youngsters should be selected (or not) was key,

and while selection is needed eventually; the timing, rationale and development experiences associated with it were promoted by participants as requiring special consideration.

Secondly, due to the recognized notion of late developers and the dynamic process of development and performance, supported by other research (Abbott et al., 2005), a depth of quality systems would sensibly be in place, outside of any select experience, to sufficiently aid those with potential who, for whatever reason, may be overlooked by often premature early selection.

Thirdly, the data highlight a number of UK system-specific problems, including a lack of coherent aims between levels of development and clear long-term pathways; poor communication systems; lack of funding; potential detrimental effects of University lifestyles, and a lack of a “cultural mentality” for hard work, self-responsibility and self-improvement. We leave it to the non-British reader to decide whether these issues apply to their own setting.

Finally, the nature of this report as an achievable but yet to be reached ideal must be stressed. For a number of reasons often outside their control, not all of the emerging factors were currently practiced coherently, or at all, by the participants: nonetheless, all were factors that the coaches believed were important for effective practice. For example, all believed parent education was important, but due to resource limitation it wasn't currently happening. However, the five key goals and systems that emerged were representative and provided a model for effective TD practice and critical reflection.

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Appendix

Hierarchical Model of the Inductive Analysis

Sub-theme 1	Sub-theme 2	General dimension
<ul style="list-style-type: none"> ▪ Get players to and winning at senior level ▪ Prepare 'kids' for the rest of their lives ▪ Develop 'kids' to be good enough to join a club/ stay involved in sports ▪ Promote and develop coherent aims and messages across school/club/country 	<ul style="list-style-type: none"> Coherent long term aims and methods 	
<ul style="list-style-type: none"> ▪ Ensure players understand standards expected of them and provide clear and relevant aims at their level in relation to long term achievement ▪ Ensure players understand standards eventually required ▪ Maximize player contact and involvement with senior players and coaching staff ▪ Ensure coherent long term aims through the system ▪ Ensure coaches 'talk' and integrate at all levels 	<ul style="list-style-type: none"> Clear expectations and links to senior level 	<ul style="list-style-type: none"> Clarity and consistency of philosophy, objectives and methodology
<ul style="list-style-type: none"> ▪ Promote education and 'use' of parents ▪ Promote education and 'use' of teachers ▪ Promote education, integration and communication between a variety of coaches ▪ Promote integration with a wide variety support staff: 'Team of Support' ▪ Utilize the influence of peer group ▪ Provide flexibility and support for athlete's work or education demands 	<ul style="list-style-type: none"> Importance of education, integration & use of 'outside' influences 	

Sub-theme 1	Sub-theme 2	General dimension
<ul style="list-style-type: none"> ▪ Be systematic and individually focused ▪ Allow for individual differences within needs, strengths/ weaknesses and developmental program 	Promote individualized programs	
<ul style="list-style-type: none"> ▪ Promote player self awareness ▪ Promote player ownership ▪ Promote independent learning ▪ Promote self responsibility ▪ Promote and check player understanding 	Develop player ownership, autonomy and self motivation	
Ongoing review and goal setting for player improvement		
<ul style="list-style-type: none"> ▪ Set up non threatening, informal interactions – more opportunities to find out about and help athletes ▪ Create open and honest two way communication 	Informal player/coach interactions and set up	
<ul style="list-style-type: none"> ▪ Provide overall balanced development within sport ▪ Encourage lifestyle balance ▪ Target emotional and physical recovery 	Balance	Systems facilitating the promotion of player Development
<ul style="list-style-type: none"> ▪ Many age group teams too selective too early ▪ Create opportunities for all to develop ▪ Individual differences in ‘development’ – must focus on individual development not squad/team performance ▪ Coach rewards must focus on bringing players through not win loss record 	De-emphasize age group success	

Sub-theme 1a	Sub-theme1b	Sub-theme 2	General dimension
<ul style="list-style-type: none"> Parents as role models Peers as role models Teachers/schools as role models Senior performers as role models Older/more experienced peers as role models Coaches as role models 		Utilize the effects of role models	
<ul style="list-style-type: none"> Reinforce skills through a variety of means Promote systematic skill teaching and practice 		Systematic and integrated teaching and reinforcement	
<ul style="list-style-type: none"> Maturation stage variability Past training experience variability Unpredictability in development and later success Early selection/de-selection putting 'kids' off sport Identification difficult – requires best coaches 	Identifying potential/talent in youngsters is problematic		
<ul style="list-style-type: none"> Transitions can be positive or negative Transitions offer important lessons Most athletes have hard times Mental toughness key to progression Pressures effect athletes differently Support network important Variety of potential generic and individualized problem periods 	Transitions – issues regarding potential problem periods	Athlete development is individualized and unpredictable	

Sub-theme 1a	Sub-theme1b	Sub-theme 2	General dimension
<ul style="list-style-type: none"> Development experience is required before potential can be identified Potential emerges over time 	<ul style="list-style-type: none"> Identify potential over time 	<ul style="list-style-type: none"> Flexible, open, and ongoing opportunities 	<ul style="list-style-type: none"> Importance of ongoing TID and opportunities
<ul style="list-style-type: none"> Late developers exist Variations in progress exist 	<ul style="list-style-type: none"> Provide breadth and depth of opportunities 		
<ul style="list-style-type: none"> Sport-specific skills Fundamental and generic skills Life skills 	<ul style="list-style-type: none"> Wide range of necessary skills 		
<ul style="list-style-type: none"> Love for the game Ability to adapt to life, competition or training pressures Fundamental skills and coordination Ability to improve and develop Mental desire and attitude to improve/succeed Individual differences in mixture of qualities characterizing potential 	<ul style="list-style-type: none"> Generic qualities of young players with potential 	<ul style="list-style-type: none"> Skills that must be promoted in development environment 	

Table 1

Summary of Deductive Data Analysis

Key theme	No support	Some support	Support
Long-term aims and methods		3	13
Widespread coherent messages and support		1	15
Emphasize appropriate development not early “success”		2	14
Individualized and ongoing development		2	14
Integrated, holistic and systematic development		1	15

Figure Captions

Figure 1. The model of effective TDEs emerging from the literature (Martindale et al., 2005).

Figure 2. Interview questions.

KEY FEATURES

**Long Term Aims
and Methods**

**Wide Ranging
Coherent Messages
and Support**

**Emphasise
Appropriate
Development
NOT Early
Success**

**Individualised
and Ongoing
Development**

KEY METHODS

- Develop a Long Term Vision, Purpose and Identity
- Develop Systematic Planning and Implementation
- Provide Coherent Reinforcement at a Variety of Levels

- Provide Coherent Philosophies, Aims and Methods at a Variety of Levels (e.g. Parents, Coach Content, Practice and Reward Systems, Selection, Funding, Competition Structure, NGBs)
- Educate Parents, Schools, Peers, Coaches & Important Others (and encourage positive contributions!)
- Utilise Role Models at a Variety of Levels
- Set Up a Variety of Support Networks Over the Long Term (e.g. Peer, Coach, Sport Staff, Family)
- Provide Forums for Open and Honest Communication Patterns at a Variety of Levels

- De-Emphasise 'Winning' as Success at Developmental Stages
- Provide Clear Expectations, Roles, and Meaning Within the 'Big Picture' at Every Level
- Provide 'Stage Specific' Integrated Experiences and Teaching
 - Fundamental Physical and Perceptual Skills
 - Fundamental Mental Skills (Learning and Development; Life; Performance Related)
 - Sport Specific Skills (Technical, Tactical, Mental, Physical, Perceptual)
 - Balance
- Encourage Increasing Responsibility and Autonomy in Learning/Development
- Develop Intrinsic Motivation and Personal Commitment to Process
- Promote Personal Relevance, Athlete Understanding and Knowledge

- Provide Opportunities and Fundamentals to as Many Youngsters as Possible
- Provide Flexible Systems to Allow for Performance and Physical Development Variation
- Identify, Prepare for and Support Individuals Through Key Transitions
- Provide Regular Individual Goal Setting and Review Processes
- Provide Systematic Reinforcement Contingencies

NATURE OF MODEL

Integrated, Holistic and Systematic

1. Could you give me an overview of what you do when you coach development athletes?
2. How does this contrast to what you do when you coach elite athletes?
3. What factors do you think characterize someone who has the potential to become elite?
4. What are the stages that someone has to go through to progress from novice to elite in your sport?
5. What do you do at each of the stages?
6. Could you tell me about the complexity of what you are trying to do at each stage?
7. Could you tell me about your use of 'others' within each stage?
8. Does your NGB offer clear guidelines as to the levels/skills etc. expected by each stage?
9. How effective do you think current TD processes are in your sport?