

Article

The Role of Challenge in Talent Development: Understanding Impact in Response to Emotional Disturbance

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Abstract: (1) Background: The pursuit of excellence is central to most development environments, and this is particularly the case in high-performance sport. Accordingly, we examined some mechanisms for development, focusing on the nature and impact of challenge in the experiences of more or less successful high-level rugby players. (2) Methods: Retrospective interviews were conducted with two groups of players. All had been successful on the development pathway (i.e., recruited to high level academies and selected as age group internationals). Only some had progressed to senior contracts and international selection, offering a basis for contrast. (3) Results: Data suggest the importance of negative experiences in the development of performers and performance. Importantly, however, the impact is dependent on both the skills of the individual and the style, timing and context of the challenge. (4) Conclusions: Negative experiences seemed to offer developmental opportunities wider than just learning to cope, at least for those who eventually succeeded. In short, progress was dependent on an interaction between individual skill, interpretation, context and social setting. The need for coaches and others to develop the appropriate attitudes and approach to challenge is a clear implication.

Keywords: talent; pathway; coaching; psycho-behavioural skills

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1. Introduction

The importance of effective talent development (TD) in sport is well established as a key aspect of achieving high-level performance. The TD process is acknowledged as complex, non-linear and dynamic, e.g., [1,2] with an increasing emphasis on the necessity to develop and deploy a range of psychological skills to meet and optimally benefit from challenges; in short, this is achieved by maximally exploiting opportunities along the pathway [3,4]. As such, whilst there is increasing evidence that the challenge experience may be universal for athletes as they progress towards high performance [5], the ability to effectively navigate and learn from these challenges may be a key differentiator between those who progress and those do not [6,7]. Indeed, the literature has also suggested a growing awareness of the characteristics that athletes need to benefit from challenging experience [8], and the role of the coach in prompting and managing the challenge experience [9]. In short, there is a groundswell of evidence pointing to the essential growth agenda which must underpin the TD experience.

Two important issues still merit research attention, however. Firstly, although investigation has highlighted the importance of a long-term perspective [10], there is an absence of investigation into the nuances of athlete experience, or curriculum that may optimise development [11]. Secondly, although challenge has been acknowledged by several authors as a crucial component of the pathway, there are various subtly, but importantly different, perspectives which may at face value, seem incongruent with a contemporary

focus on athlete wellbeing as the main focus of the development experience. Perhaps building from the ideas of post-traumatic growth [12], there is increasing support for a more ‘negatively focused’ element of athlete experience. For example, Sarkar, Fletcher and Brown [13] suggest that ‘what doesn’t kill me makes me stronger’. Others, including the Great British Medallists study, put significant emphasis on the juxtaposition of life trauma when coupled with positive sport experience, with sporting challenge at the TD stage [14]. Other evidence bases have pointed to the essential role of challenge in athlete development with the necessity for the experience of emotional highs and lows as a result of athletic endeavours, rather than broader life experience [6]. The latter has become an increasing concern of the literature, with life trauma being linked to a failure to progress [15]. This has been followed by a growth in the investigation of the challenge experience of athletes both retrospectively and longitudinally [16,17]. This body of literature supports the hypothesis that the affective tone of experience, the perceived impact of the emotional disturbance, plays a critical role in subsequent reflection [18,19]. As such, many stress the essential role of challenge events and consequent experience of emotional disturbance [20], with positive affect seemingly reinforcing efficacious beliefs and negative affect leading to detailed and in depth reflective patterns [17]. Notably, these patterns seem to be reflected across other contexts, for example, in science where early career setbacks seem to lead to stronger career outcomes for some, but also higher attrition [21]. In short, the impact of emotional disturbance can be positive but also negative, with perception playing an important role. This is not an easy experience and the mainstream psychological literature suggests that learning from challenging experiences or failure is hard [22].

Consequently, whilst the need for growth is increasingly agreed, there is appropriate and ongoing debate about the ways in which this is best achieved. Several dichotomies in advice are apparent [23]; however, one of the most marked, contentious and potentially impactful (in both directions) is the degree of traumatic upset and challenge against the level of friendly support. This negative versus positive conundrum excites passionate debate on both sides and represents an important focus for investigation. To date, a number of authors have investigated the positive dimensions of the athlete perceived impact, making a series of recommendations for increasing positive athlete experience [24]. Unfortunately, however, this emphasis has led to a number of issues being conflated in practice; as one example, the growing push for psychological safety [25]. Although initially conceptualised as a performance-based construct in the business setting [26,27], psychological safety has been redefined for the sport setting [28] and redefined again with an emphasis on athlete mental health [29]. Reflecting on the original definition, Taylor and colleagues [30] suggested that there were a number of features of the construct that were not transferable to the high-performance (HP) sport setting. Building on this empirically, it appeared that, in a group of elite athletes, psychological safety was not a feature of their experience, nor did it appear to offer universal utility for their development [9]. Therefore, once again, the *impact* of environmental manipulations seems at best unclear.

On this basis, it is important to consider how optimum impact can be achieved. On the coaching side, a significant volume of work has considered the critical role played by the coach–athlete relationship in supporting athlete development [31]. To this point, much of this work has focused on the more positive elements of relationship dynamics and, in general, has been more focused on support than challenge. Extending the literature in the area, the role of the coach as offering ‘tough love’ has been suggested, presenting the athlete with a range of ‘harder’ and ‘softer’ interpersonal approaches, with perceived (at the time) and actual (as adult high-level players) benefits of each [9]. This is supportive of a view that would see the coach having a role in deliberately shaping the affective experience of the athlete (and consequent impact), both positively *and* negatively. This body of evidence has suggested that, in contrast to the perspective that sees the coach purely as a support figure, there is an additional role for challenging developing performers, offering feedback that induces negative emotion, stressing the longer-term advantages which accrue [17]. Of course, all *should* acknowledge the need for balance, so that developing performers’

resources and motivation are not overwhelmed [17]. A point seemingly reinforced by data suggesting that abusive coaching may have a long-term negative impact on career trajectory [32]. This represents a concern for practitioners and researchers alike, given the risks of a lack of granular understanding of recommendations in the literature [15].

In addition, research has also pointed to a variety of other circumstances that will impact on the athlete experience. In the majority of talent development environments, the athletes' experience will be influenced by a wide range of different systems and stakeholders [2,11]. Recent work has pointed to a desirable outcome of these various inputs being a coherent athlete experience [33], especially as there will likely be a broad network of different stakeholders that influence the experience of the athlete [34,35]. As a consequence, the concept of integrated practice has been applied to the talent development setting, integration being the extent to which different inputs to the athlete are systematically blended [36]. In addition, the critical role of the coach as the orchestrator of various inputs has been emphasised [37]. Consequently, given that preparing for and learning from challenge is a critical feature of development, this should be considered systemically, cf. [38]. In essence, rather than just being the role of the individual athlete, or coach, it is a core function of a whole talent system to prepare athletes for challenging experiences [39].

However, despite the well-acknowledged role of the system and that peers and role models are a core feature of TD [10,40], unfortunately, we know comparatively little about how the coach might orchestrate a culture that optimally promotes development [41]. That is, although empirical work has examined the social milieu in which challenge is experienced and how social support influences coping with challenge [8], there is very limited evidence of the role played by athletic peers or role models in influencing learning from emotional disturbance. This is despite the social circumstances of the athlete being identified as prominent features of their experience [42–44].

Thus, whilst it has been recommended that coaching environments should promote learning from challenging experience, often using the perspectives of support figures as a key driver, there is limited empirical evidence to guide practice. As such, there is a need to investigate the role of challenge in development and what roles may be taken by those supporting the performer through the process. This is particularly relevant given the risks of prolonged negative affect. As such, there is a clear necessity for a more granular understanding of how emotionally disturbing experiences are generated; and built into talent systems and the social milieu of the TDE. Therefore, against this backdrop, our investigation had three aims. The first was to contrast a group of 'successful' and 'unsuccessful' players to understand the nature of the challenge experience throughout their pathways on perceived progression or stagnation. Secondly, to understand the extent and impact of system integration on their challenge experience. Thirdly, to understand the impact of the social milieu on their ability to process and benefit from challenging experiences.

2. Methods

2.1. Research Philosophy, Design and Methods

Given the aims of this study and our wish to explore the differences between 'successful' and 'unsuccessful' rugby players' challenge experience, how this was orchestrated, and key features of their social milieu, a pragmatic research philosophy was employed [45]. The pragmatic approach supports the use of methods which produce findings and implications that are practically meaningful, without the need to adhere to a specific epistemological perspective [46]. Therefore, the comparison of successful and unsuccessful players' perceptions of challenge, the orchestration of challenge and perceptions of social circumstances, presents a pertinent investigation for anyone interested in the elite sport context. In line with our pragmatic approach, qualitative research methods allowed for a deep examination of the player group's developmental experiences [47]. Qualitative research methods support authors to collect rich descriptive data, with an aim of producing a useful interpretation of a practical problem, rather than one that is absolute [48]. Furthermore, a pragmatic research philosophy encourages the consideration of biases and preferences

to make sense of findings. Reflecting these considerations, it is important to note that this study was aided by our experience as active practitioners within HP sport and specifically in rugby union [49,50].

2.2. Participants

In line with our epistemological orientation, rather than being guided by the notion of data saturation, we instead considered our sample, utilising the notion of information power which suggests that the more information a sample offers, the lower the necessary number of participants [51,52]. In this case, the high specificity of the sample, the application of existing theory and the experience of the domain held by interviewers and the analysis strategy were demonstrated through the breadth of the study aims. An initial sample of two groups of male rugby union players was recruited against inclusion and exclusion criteria directly relevant to the research aims. Across both groups, the players were matched by the criteria of: (a) playing within an English Premiership academy system between 2012 and 2018, (b) having been selected and played for their country at junior international level at either U18 and/or U20 level and (c) had been successful in gaining a professional contract at a senior elite team in the English Premiership (the highest level of performance nationally). Information power was critically evaluated throughout the research process with readers able to judge the adequacy of this based on the richness of the results presented [51]. The first group of players were defined as ‘successful’ as all had progressed through the domestic game and subsequently been selected to play for their country at a senior international level ($n = 7$; Age, $M = 22.14$). Importantly, to add further context to their career status, interviews took place within 6 months of players entering an international camp or playing for their country for the first time. As a point of comparison, the second group were players whose career status was defined as those who were ‘unsuccessful’. Those who, despite matching the first cohort as having progressed through the academy system, played junior international rugby and signed a professional contract, had subsequently been released from their professional contract ($n = 8$; Age $M = 22.75$).

A comparison between these two groups allowed us to explore the initiation of challenge experiences, how their experiences were orchestrated and the two groups’ experience of the social milieu along similar pathways that resulted in different outcomes. Finally, all players were recruited to take part through personal contact and, following protocol approval by the University Ethics Committee, completed informed consent. To ensure the confidentiality and anonymity of players who participated, no information regarding playing position, number of international caps or appearances, nor any statistics, has been presented.

2.3. Data Collection

Both groups of players were invited to participate in two stages of data collection, both of which took place within a wider semi-structured interview. A semi-structured interview guide was developed and refined through a pilot interview with former professional players ($n = 2$) with similar profiles to the unsuccessful population, minus experience of junior international rugby. These pilot studies led to subtle refinements of the semi-structured interview guide and clearer guidance on the use of the graphic timeline. As a result, participants were prompted that perceptions of progress and stagnation were not related to their career progression, rather their perceived rate of development. Similarly, questions were refined to enhance clarity. For example, reference to “social milieu” was changed to ask players to reflect on their peers and senior players. Interviews were conducted by both the first ($n = 9$) and second ($n = 5$) authors. Prior to the interview, a pre-briefing allowed them to reflect on the timeline task and interview questions ahead of the interview. At the first stage of the interview, players were asked to draw their playing career on a timeline, highlighting key challenges and perceived critical events along the X axis [20,53]. Participants were then asked to score their relative development in terms of progress (+5) and stagnation (−5) along the Y axis. Players were then asked to go through the timeline again, this time

focusing more deeply on specific perceived critical periods and, importantly, the time between perceived challenge experiences. The second stage of the interview included questions regarding the initiation of players' challenge experience and their response to it, how their experiences were orchestrated and their perspective of the social milieu within each age/stage of their pathway at academy club, junior international, senior club, and for the successful group, senior international levels. The interview guide consisted of open-ended questions that elicited responses informed by appropriate literature whilst follow-up probes and prompts were planned for and used to allow expansion on key points [54]. Some of the core questions related to perceived critical periods included: "what made that experience so challenging?", "what was the atmosphere at the club like at that point?", "how did the senior players impact on you during that time?" and "what help were you getting from coaches during that time?". The interviews lasted between 60 and 105 min ($M = 79$ min) and were recorded for subsequent analysis. Following COVID-19 risk mitigation guidance from the University Ethics Committee, interviews were arranged over video-conferencing software (Zoom Video Communications, San Jose, CA, USA, Version 5.7) at a time and date that suited the participant.

2.4. Data Analysis

All interviews were transcribed verbatim and then checked for accuracy against audio recordings. A Reflexive Thematic Analysis (TA) approach [55] was employed to analyse each transcript through QSR NVivo Version 12 software. Given our pragmatic approach to research, TA was chosen as it allows researchers to examine patterns of shared meaning across data sets [56]. Additionally, a core feature of TA is the recognition that the researcher plays a key role in the process of generating themes through engagement with the data. This allowed for deep reflexive engagement between the researcher, the data collected and the relevant theory [40]. Data analysis was conducted by the first author, who progressed through each of the six phases initially outlined by Braun and Clarke. Importantly, this took place flexibly, with appropriate non-linear movement between phases [55]. During the first stage, the first author became familiar with the content, highlighting and annotating areas of interest. Second, an initial process of coding was conducted on a surface (semantic) level, before identifying the assumptions that underpin surface meaning through multiple sweeps of analysis [57]. Third, initial themes were identified, organised and defined from the initial coding process. At the fourth stage, the second author, acting as a critical friend, supported the review and refinement of themes to quality check if they were 'coherent, consistent and distinctive' [58]. The fifth phase included a process of defining and naming each theme based on attribution of shared meaning from the data, theory and shared views of the authors. The final stage was the write up and report of data [39]. Additionally, perceptions of progression and stagnation were mapped against the timeline to offer a visual depiction of each player's developmental pathway.

2.5. Trustworthiness

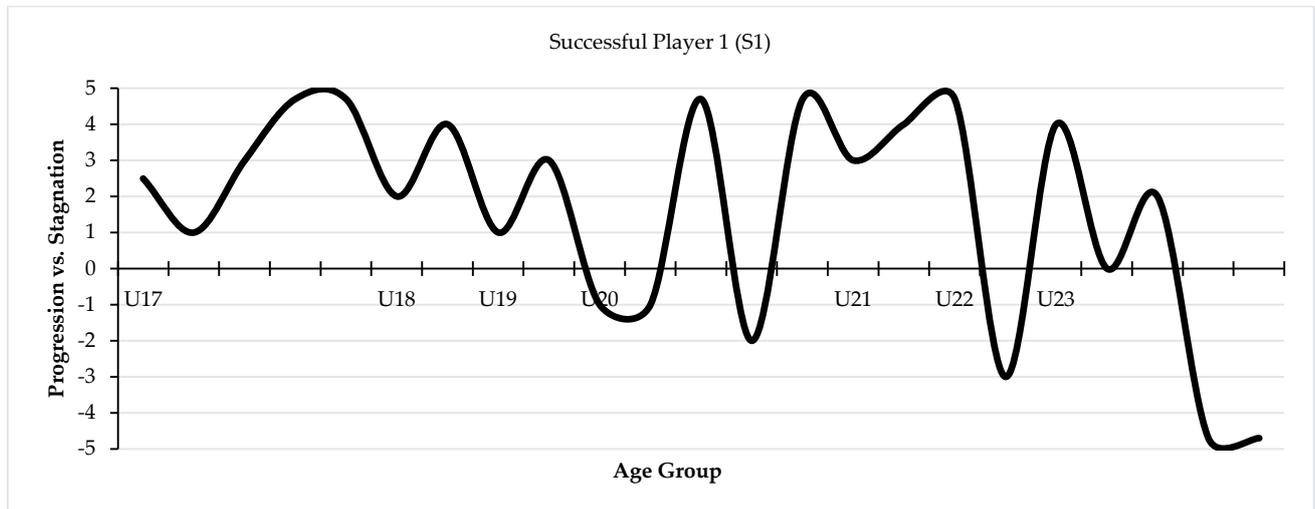
Several measures were taken to ensure trustworthiness in our approach. First, member reflections were solicited by email following completion of the six-phase TA process [59]. This involved all participants being contacted and sent a tabulated form of the final themes through the TA to seek their reflections on generated themes. In addition, participants were asked if the themes reflected their own experiences and if they had any further comments or considerations. Nearly all participants chose to take part in member reflections ($n = 14$ from 15) and their additional reflections have been incorporated into the Section 3.

Throughout the duration of the data collection process, the first and second authors kept a reflexive journal where key differences and similarities between players' perceptions and key areas of interest in line with the research questions were continuously identified. This journal also acted as an accurate audit trail of the analysis procedure, to critically consider the methodological approach and support the initial generation of codes [60].

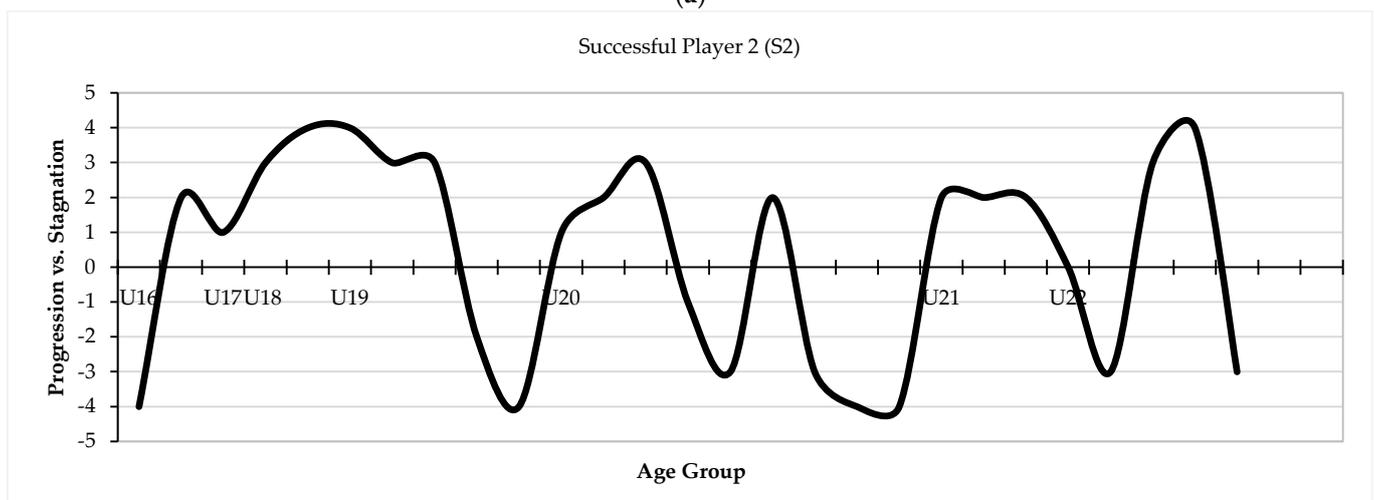
Finally, to ensure resonance in our approach, the third author, who is an experienced qualitative researcher, acted as a critical friend throughout the process [58].

3. Results

Figure 1 Timelines—players' perceptions of progression vs. stagnation.

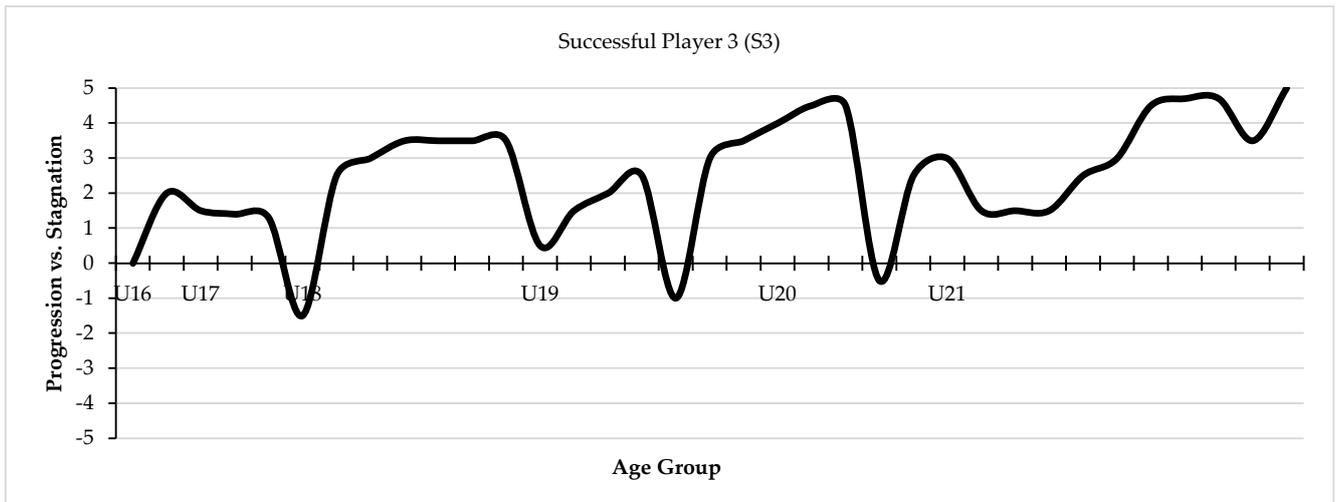


(a)

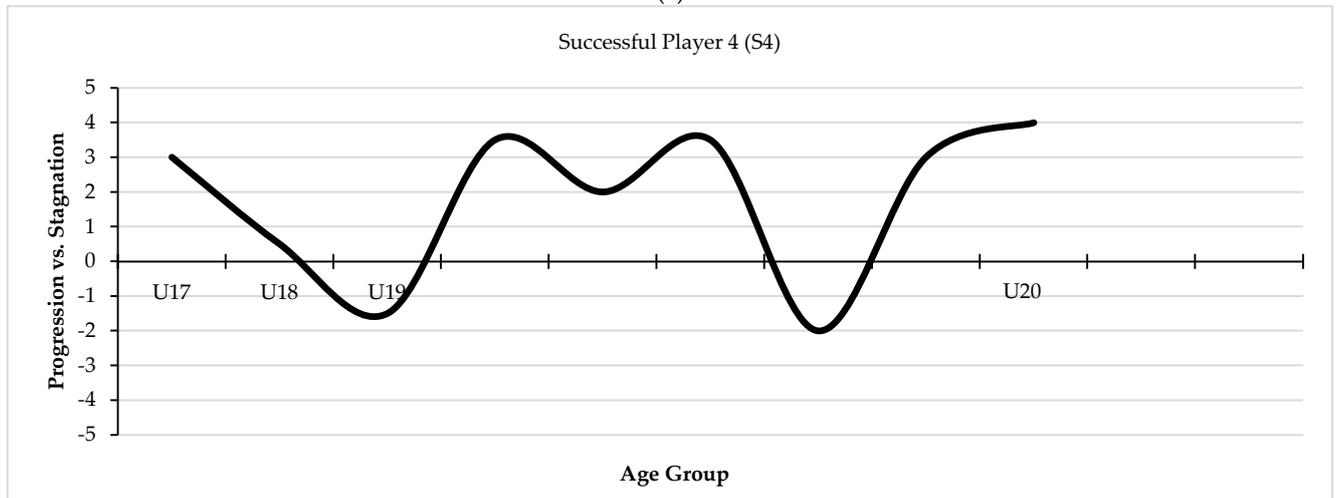


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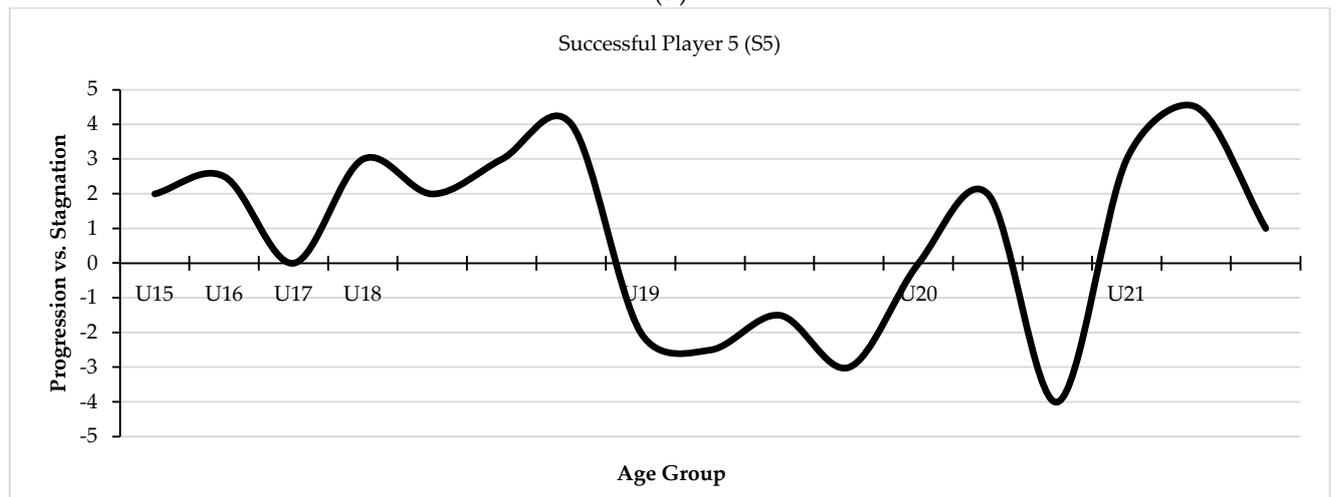
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(c)

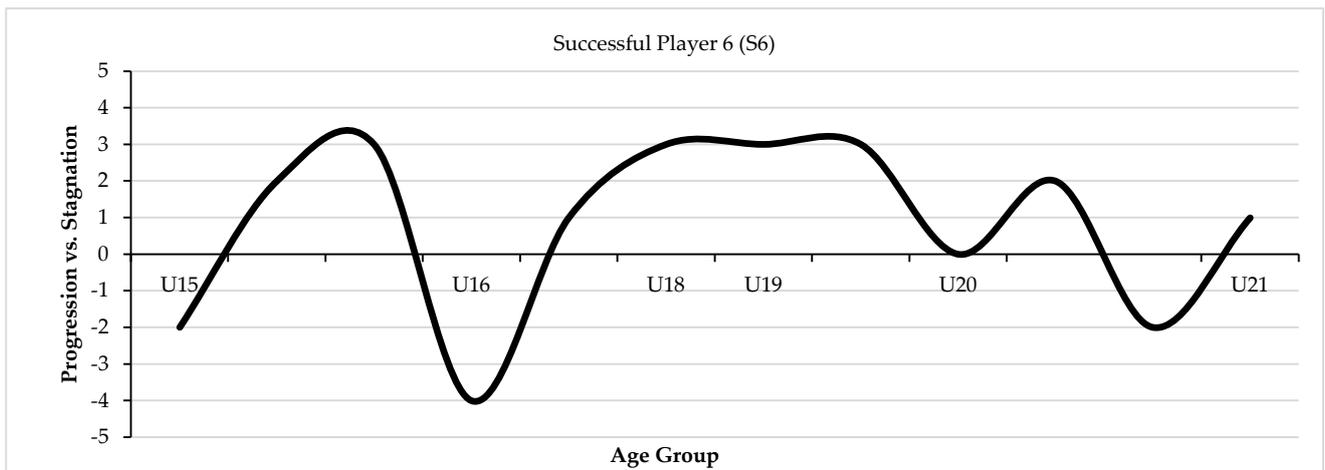


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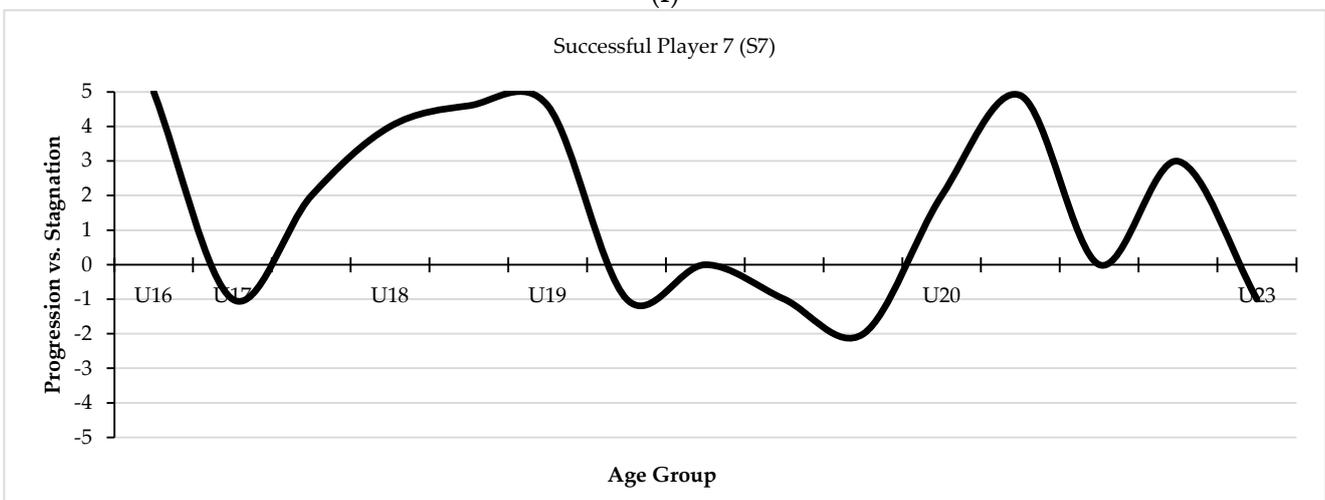


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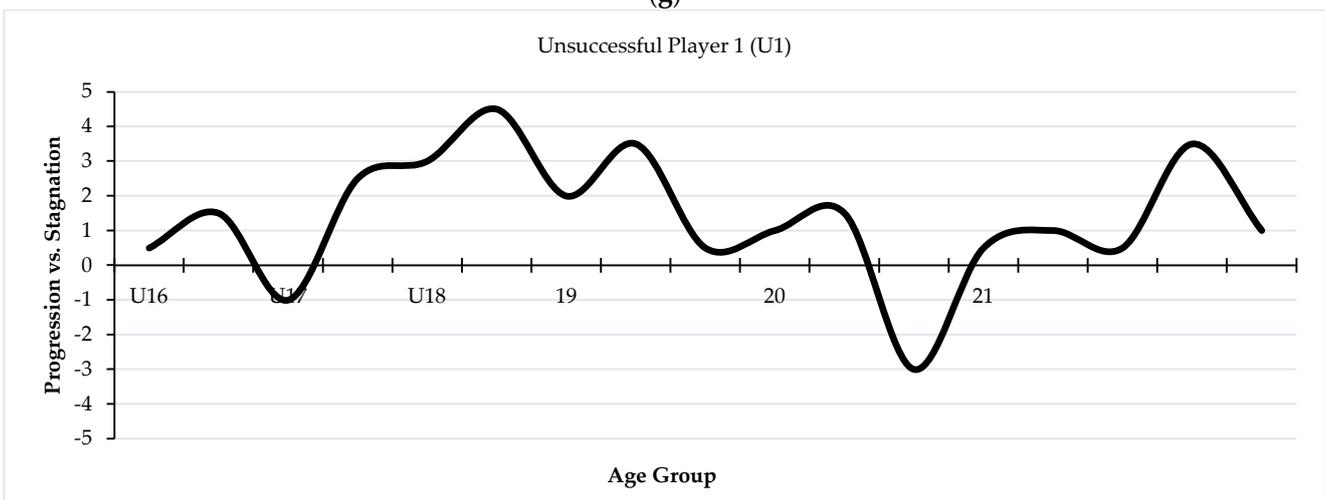
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(f)

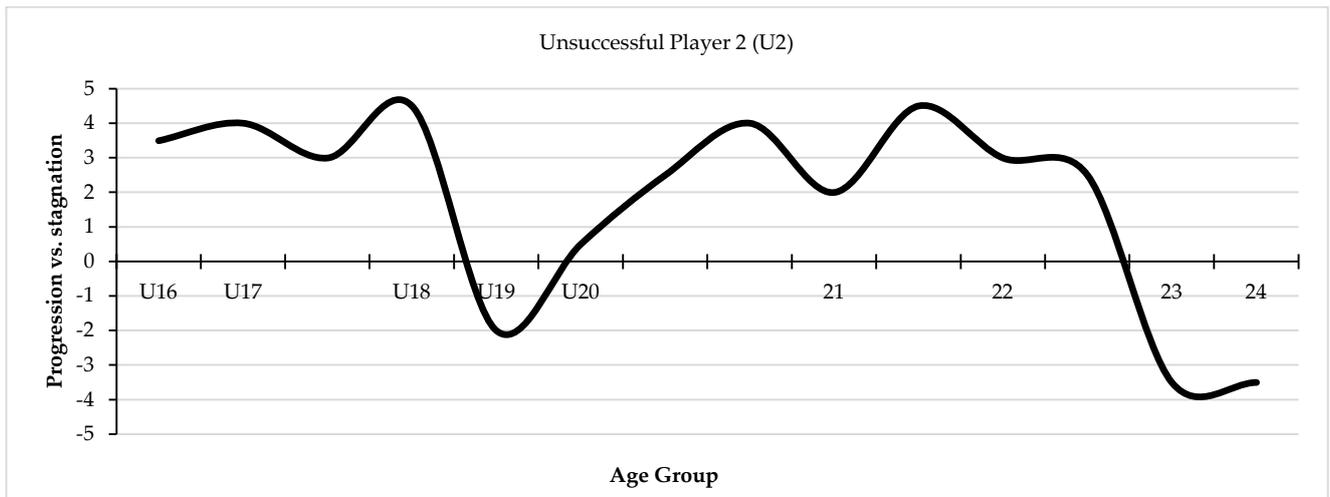


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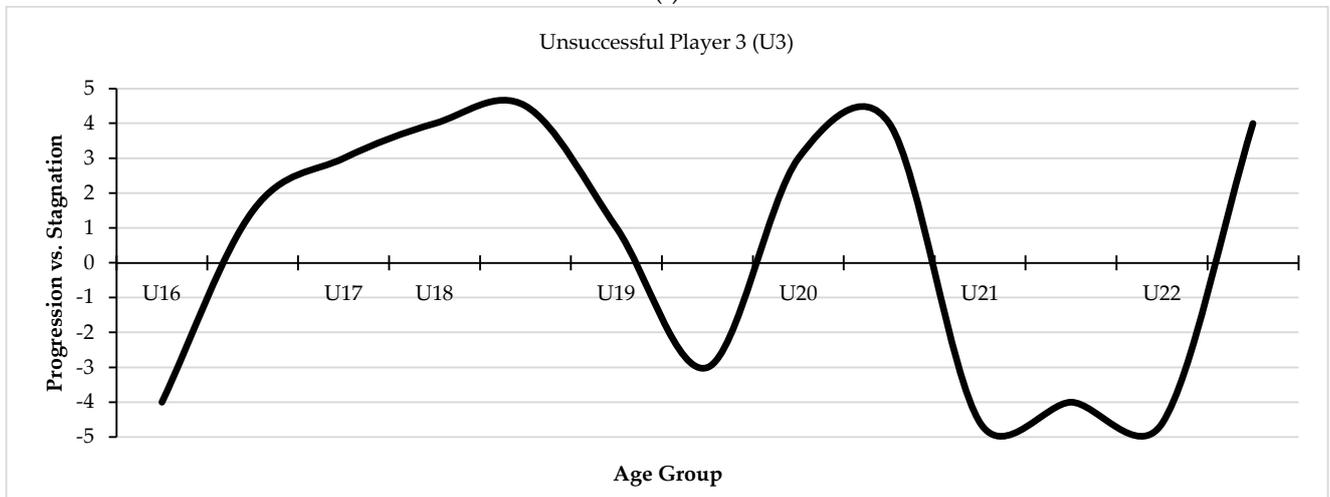


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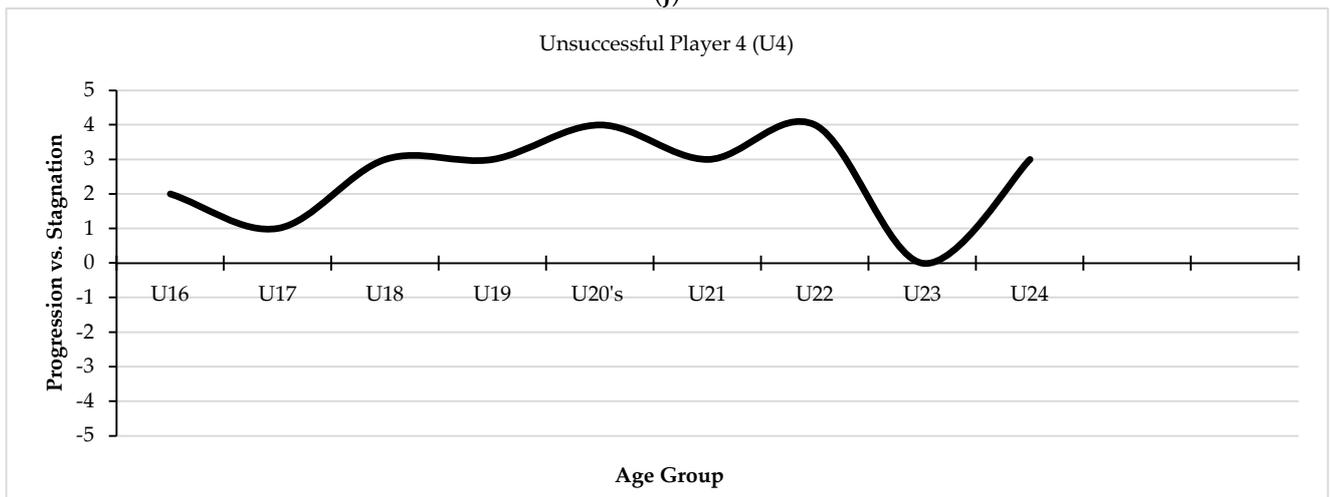
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(i)



(j)



(k)

Figure 1. Cont.

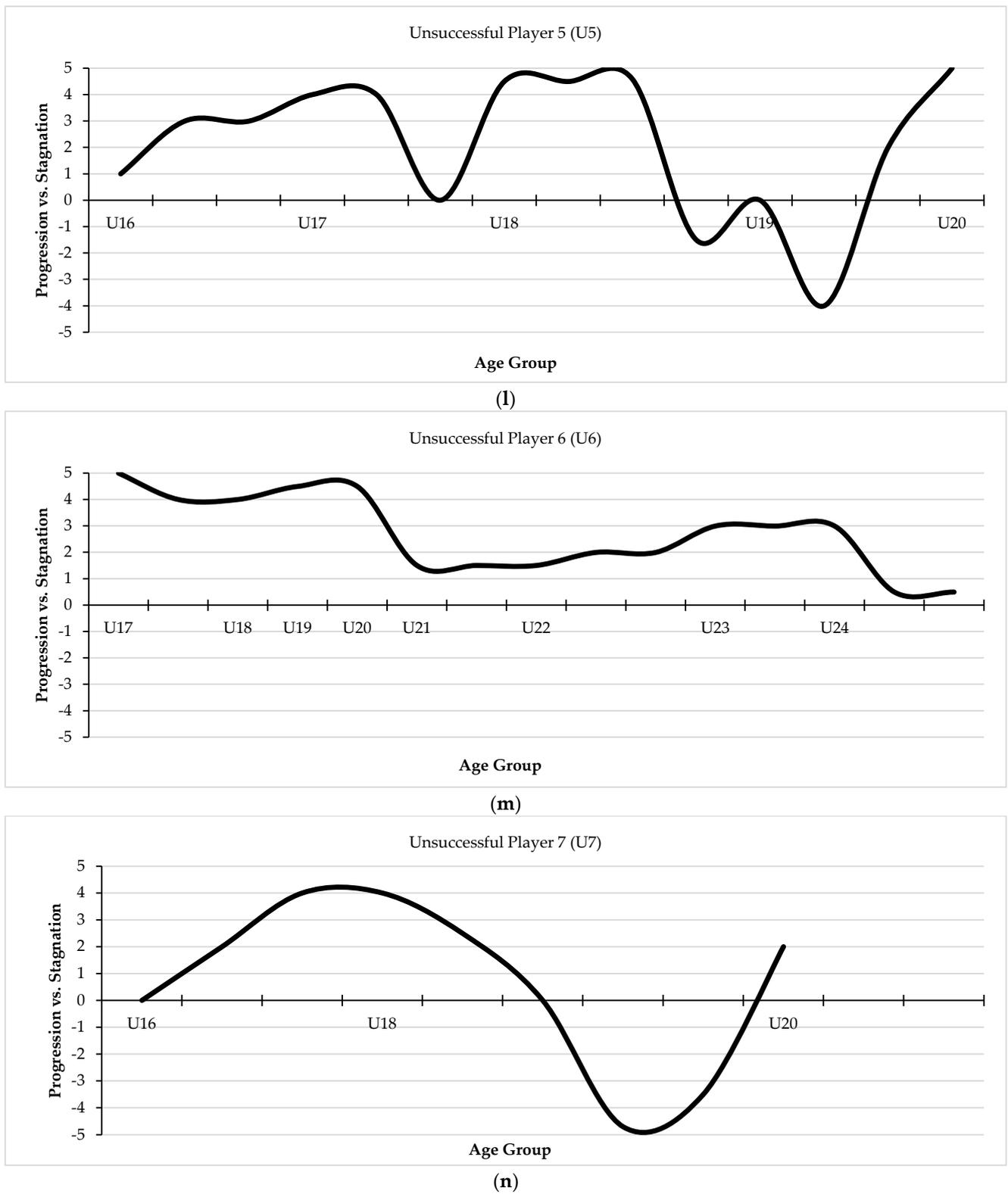


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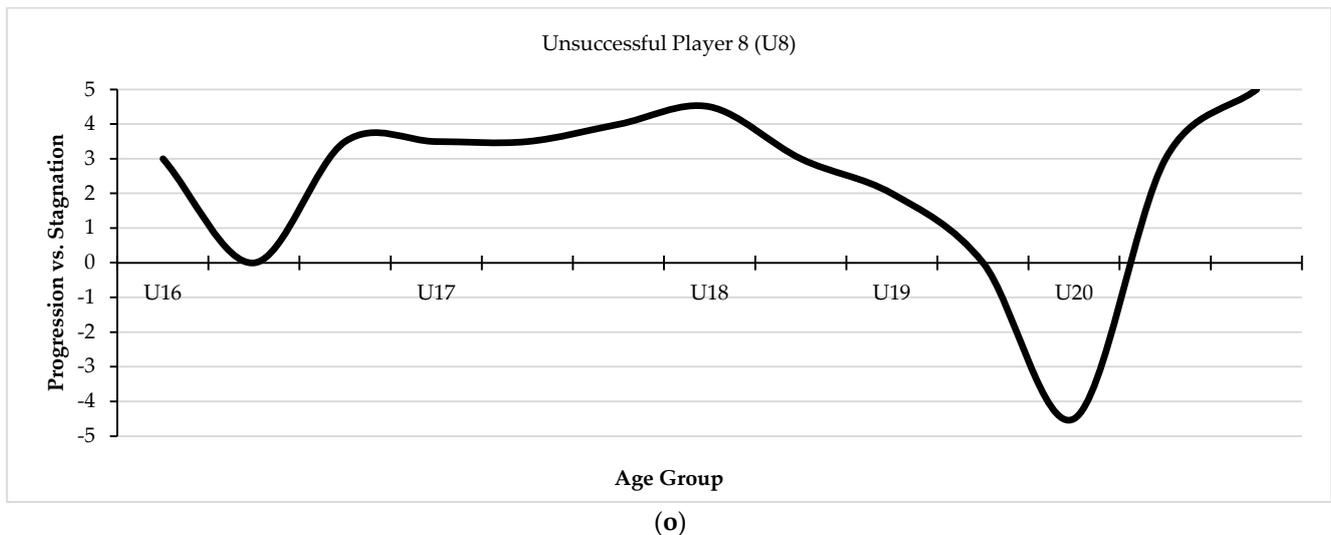


Figure 1. (a–o) Timelines indicating perceptions of progression and stagnation throughout the successful and unsuccessful playing groups' developmental pathway.

3.1. Factors Provoking the Challenge Experience

Across the sample, players experienced a variety of physical, technical, tactical, social and mental challenges, with a range of internal and external factors provoking different degrees of emotional disturbance and consequent impact. These included: comparisons to teammates, personal desire to impress, the motivation to push themselves to new levels of performance and to fulfil the expectations of the coaching and their peers. A key factor initiating the challenge experience for players were training demands. This appeared to be especially prominent when players transitioned to new environments such as senior or international teams, or the arrival of new coaches to a club with shifting technical, tactical, physical and mental demands:

(Coach) was the factor behind the buy-in to training and the hard work that followed. It was said pretty early on that we were going to train harder than everybody else, and that's where it became 'training to win' (S4)

Coaches played a central role in initiating such challenge experiences for players. A key feature for the successful group were instances of deliberately challenging coaching which initiated an emotional response. These often-highlighted areas of weakness which were perceived to have the potential to prevent future progress. For instance, S5 reflected on an interaction with a coach, who suggested that his physical conditioning could improve:

He just sternly said: 'you could be you could be so much better if you were lighter'. I was like, yeah you're probably right . . . I was probably about five kilos heavier than I said I was. It was just a time of like realisation, yeah you know what, you're probably right

Similarly, S3 shared an experience where a coach was consistently challenging him to improve his technical proficiency in training:

He was so detailed, he was always on me. Like every single time in a session I'd catch the ball and pass, he'd come up to me like and ask, were you square? Did you take it to the line? It wasn't a bad thing, but he was always challenging me to reach higher standards

Whilst coach input was experienced as highly challenging and provoking of negative emotional responses, they also led to periods of deep reflection. Furthermore, players also valued the challenge that their coach offered them.

However, in contrast to the successful playing group, unsuccessful players often reflected on a lack of performance-focused coach challenge, instead having to cope with

the challenge of what they perceived to be poor coaching practice. Notably, however, this wasn't always reflected by their perception of progress or stagnation. For example, U4 reflected on the lack of constructive feedback he received: "I was waiting around and trying to chase them and they tell you what you already know, or what they think you want to hear". Likewise, U2 said:

He wouldn't really give me too much feedback. If I wasn't picked, he would just give me like an answer that they were older and they've got man strength. I couldn't do anything with that, it's not very constructive in my eyes

The generated theme concerning the initiation of the challenge experience was the impact of playing experiences. The successful playing group shared 'big' games as key challenges throughout their development. These experiences included the successful navigation of challenge; take, for example, S1:

The score was 24–22 five meters out from own line, sold out crowd, and I should have been completely petrified. If I messed up that scrum, I would probably never play again . . . but I was ready, (coach) had prepared me

Successful players also shared unsuccessful experiences in perceived high-pressure moments:

I was on the bench against (International U20s), I came on, had some good carries and tackles, but I gave away a stupid penalty on our own line and got sent off. I remember going into changing rooms and I was gutted because obviously we've lost the game. I didn't play the week after (S2)

The third generated theme concerned the challenge provoked by selection and deselection. Selection appearing to validate a player's effort and status within a group:

(Coach) started me in some (European) games ahead of others, it boosted me up because I was training harder than I'd ever trained. I was doing more than I've ever done. Going out there and actually starting was so different than just seeing off the game, it was awesome. I absolutely loved it (S1)

In contrast, deselection led to periods where players questioned their status and left them in deep reflection as to the direction of their career. For some, especially amongst the deselected group, players began to question the competence of coaches making selection decisions:

(Coach) said: 'stop trying to prove a point, we know what you can do'. So I stopped trying to prove a point and play my game. I got dropped the next the next game. There was constant chopping and changing, no one understood the decisions and it led to unrest (U4)

The final theme concerning player's challenge experience was the disappointment of injury. All players in this sample experienced significant challenges with injuries that led to lengthy periods of time lost from playing and training. All of which initiated negative perceptions, feelings of frustration and stagnation. Re-injury seemed to be a core factor in inducing the strongest negative emotions, with players reflecting on the lack of control they perceived over their future. Beyond the obvious detrimental impact on development of injury, where players perceived a lack of control, there seemed to be a longer-term negative impact:

I got labelled as this person that got injured. And that's fine. You know, I definitely labelled other players. There were teammates in your group who you knew had heart or were just great. I just had the label as being injured so I kind of knew at that point I would never make it (U5)

Similar to experience of poor coaching practice, players were also challenged by poor medical practice. For instance, U2 shared an experience following rehabilitation from a long-term anterior cruciate ligament injury being mismanaged by his club:

When I came back I tore my hammy (hamstring) in the second week after a good first week of training. I remember saying on the day 'my right calf and left hammy's hurting' ... I did tell the physio, he just said 'carry on going'. They didn't really warm me up that day.

However, player reflections also suggest clear differences between individual experiences depending on the severity and circumstances of injury.

I felt (the knee injury) taught me a lot of things about myself. I wasn't in a very good spot mentally, just because I couldn't do what I wanted to do ... Before the injury I had two really good games, (international coach) recognised it, (club coach) recognised it and then I had this unfortunate injury, but the situation gave me that drive to really kick on and smash my rehab and dedicate my time to that (S4)

This adaptive response seemed to be supported by the flexibility to refocus goals and the perception of control with which to take adaptive action, often influenced by support they received at critical periods.

The final theme concerned challenge initiated by some player's own high standards. Players reflected on challenges being self-initiated because of the meaning and value that they put on their athletic endeavours. For U2, this was experienced throughout his career.

It was more myself; we knew that the coaches had really high expectations of us and it kind of brought the best out of me. That's why I trained so hard, because I didn't really want to leave anything to a second chance or fail at anything

Although perfectionistic tendencies prompted more frequent emotional disturbances, with some perceiving this to be a positive factor in their development. For others, maladaptive perfectionistic tendencies seemed to prevent adaptive reflection. The nature of this highly individual response is highlighted by players who dropped out of the professional game, with some perceiving a rebound in their progress whilst playing at lower levels of the sport.

3.2. *Integrated Practice*

As shown in Table 1, a key feature of the player's experience was the extent to which they perceived their journey as being orchestrated by coaches, staff, or the broader system. Where this was effective, it seemed to present players with a level of coherence. Whilst there were differences between the environments they navigated, these differences were not so significant that they were unable to make sense of events. Where ineffective, players had significantly different experiences of different environments and often experienced a level of incoherence and difficulty making sense of where different elements contributed to their development:

It didn't help that my academy coaches and international coaches were so different. At my academy it was just 'go and play', we had the mindset that we could just chuck the ball around. At (junior international) it was just so much more about trying to win the game, it felt like two different sports. I see value in both, but at the time very difficult to make sense of (U4)

In some instances, this even manifested in coaches in different environments seeking to undermine the efforts of others:

When I played (junior international) it was a very difficult experience. I went there confident and arriving there, (the coaches) said that we were doing it all wrong at (club). They said that we weren't being developed properly and that we had it all wrong, it really confused me and knocked me off course. It was a massive and direct contradiction (U5)

Table 1. Impact of systemic integration on learning from challenge.

Enabling Factors	Disabling Factors		
Coherence between environments	<p>“When I played for (international U20s), it was great, slightly different beliefs and values, how they play the rugby . . . It just exposed me to another style of game. How they played was different to anything I’ve ever played it before, or since. I loved it. The improvements I made in my game and what I learned being out there was invaluable” (S2)</p>	Incoherence between environments	<p>“My (junior international) experience was completely different, near opposite of (club). They wanted their forwards to do kicks, nothing I was good at. They didn’t really want me there, it was basically all private school lads who were very sure of themselves, nothing like (club) . . . I remember in my first session I made a tackle and folded a player from another club and they were like: ‘oh the (club) lads are here’” (U3) “(New head coach) arrived, on his third day he said: ‘if you’re up for playing, I can send you to (lower league team) to go and play there for the season. At that point, you know that your career at that club is over. All that before him even seeing me train . . . It was completely different to what (previous head coach) had discussed and planned with me” (U2)</p>
Coherence within club environment	<p>“It’s very clear, individually, what we need to do to perform and get the best out of ourselves. The level of detail has increased massively and I was hearing the same things from all the coaches” (S3)</p>	Incoherence within club environment	<p>“It was a huge flaw in the club. You go from being built up, getting regular coaching with people feeding back on your development to nearly nothing, probably just at the point when a player needs the most help. It killed me moving into a professional environment and being told ‘get on with it’” (U1)</p>
Long-term outlook	<p>“It was maybe surprising but (school) was excellent, they built my base as a player. The work I did there helped me kick on later. At the time, I didn’t feel I was getting better. I just felt my understanding was getting better. Looking back now, there was definitely a long-term focus, I was learning how high-level rugby works” (U4)</p>	Short-term outlook	

Experiences such as these seemed to prevent players from being able to make sense of events, leaving players feeling powerless and lacking control of their development. This coherence and the experience of multiple different inputs was also reflected within each environment that the player was a part of. Players perceived their ability to navigate input within their club environment:

(Coach) sat me down at the beginning of the season, and says: 'you're in my plans, I love the way you play ... if you can develop these five things ... he was showing me the bigger picture of where I would fit into the organisation over the course of the next four years. After that, I was like a dog with a bone because there was something tangible and all the other coaches bought into it, they helped me with it. It was the best input I've ever had in terms of my professional development (U1)

In contrast, where this integrated input was missing, players were left confused and unable to make sense of the steps they needed to take:

Unexpectedly (Director of Rugby) walked up to me in the gym and said, 'we've got (senior player) coming from South Africa, you need to change position'. So being naïve, I just said yes. I wanted to play. There was a period of two months where I was working to change position, it was all I was focused on. I played two games and I was awful. I made my debut against (lower league team). It was awful, the rest of my game was just not going well ... Then another coach came up to me and said: 'I don't know why he's changed your position. You will never play there, that's not what your game is about'. At that point, I became very disillusioned (U6)

Players also reflected that performance-relevant information came to them from multiple sources, often from figures that might be deemed outside of the coaching or performance staff. Take, for example, U1's conversation with a club's chief executive:

(Chief executive) got me in his office and said 'I can see a real future for you at this club and I see you and (player) pushing on together'. So, I had (chief executive) giving me a spiel about the future and then a few months later he's releasing me. In between those conversations, I had barely played

From the perspective of the players, this incoherence appeared to be driven by a level of short termism. This manifested both in terms of the style of approach generated by individual coaches and organisationally. There was a strong perception that where an organisation was set up solely with a focus on senior team performance, it inhibited the longer-term development of individuals:

No one was progressing. We were cannon fodder, we'd go out on a Monday to play in the A league (2nd team competition), get back at 2 a.m. We'd be in at 8 a.m. in the morning and then you'd be out doing full smash the day after you just play the game. It was a shambles, no development coaching, just coaching to win games (U6)

Similarly, because of these pressures on senior performance and staff losing their jobs through underperformance, players felt both the changing environmental demands and perceptions of them:

I was stagnating, we had new coaches all the time. At one point, it felt like every six months you'd go into a team meeting and find out that someone's gone. It was getting ridiculous. It was a really tough time. One coach would want more physicality, the next wanted me to be more skilful ... You would come in and roll the dice, you could be the first choice or fifth, it was chaos (U5)

This was contrasted by other players who perceived that their journey was being carefully guided by a group of people presenting a similar message and providing a horizontally coherent experience:

I had really experienced coaches, I had so many options, but they were all on the same page, same sorts of messages. It kept me focused, even outside (club). That's when, despite the playing challenges, that I improved again. We had a psychologist as well and I used to use them twice a week my game came on leaps and bounds. I was playing a lot better and I was developing into a senior sort of role, I could see people beginning to respect me because of how I operated (S5)

This was also identified on the systemic level, where some players reflected on the value of academy and senior experiences: specifically, those that were conducive to longer term development. In essence, vertical coherence perceived by participants to support their later progress:

We knew we had to turn up an attitude to learn and get better. Those standards we were laid out very early on. When we went into the first team and it was not too dissimilar, obviously the rugby was massively different, but the environment, the standards were like drilled into us very early doors and I think that really helped the transition (S3)

Players also reported that a key phase appeared to be periods in which they were sent to loan clubs for playing experience. In some instances, these were perceived to be valuable, especially where a level of planning and integration was evident between the professional club and loan club:

I knew where I would be going at the end of the season before, it was all planned . . . the coaches at loan clubs would know what I'd done that week and what the club needed from me. Then, I'd come back from the loan game, the academy coaches would have watched the game, I'd sit down with (coach) we'd go through it and review: what I did well, what needed work ons. Then we'd do it all over again (S2)

This proactivity seemed to support players in preparing for their experience and enabling them to engage in post-game debriefs. From the perspective of the player, their ability to reflect on and use their experiences seemed to influence their progression. These types of reflections seemed especially important as players were sent on loan to lower-level teams, especially given the range of factors that could mitigate the impact of their playing experiences. These included players perceiving the level of the game to be below their ability, or the loan process being poorly managed, with players overworked and unable to derive meaning from their experience:

I was required to train all week at (club) no matter what. I'd be training Monday Tuesday, Thursday, Friday and then Tuesday and Thursday night at (loan club). Even then, I was rocking up and being put on the bench every week because they had an old boy who's a club legend with 300 appearances. I was never getting picked ahead of him because he's been there for ages. Training was sh*t, the coaches were sh*t, even when he was injured and I played, they were getting smashed every week. I was getting very little out of it (U2)

The absence of preparation, planning and debrief seemed to inhibit players learning from playing experience, regardless of level of performance. As an additional factor, players reflected that the extent of challenge that their playing experience offered them, was a key factor in the rate of their progress. Indeed, those players who did progress to higher levels of the game seemed to perceive their playing experiences as being the right thing for their needs at a particular time:

Going to (loan club) which was probably one of the best things. It was my first experience of senior rugby and the game was really hard, especially being in a relegation battle, we weren't winning anything, it was really just scraping the barrel. Sometimes I got absolutely annihilated and sometimes I held my own, but there was no dominance. It was just like: 'how am I going to survive this game?' And then straight on to the next . . . In terms of experience it was brilliant (S5)

Importantly, their perceptions of the quality of this game time seemed to matter. This seemed to contrast with players who perceived their destination as not being appropriate for their individual needs:

(Director of Rugby) said that everyone would be going on loan to (loan club), that was really frustrating for me to hear. That's not the right plan for me. It was confusing, frustrating for me to hear. From my point of view, I had played better rugby week in week out the previous season . . . I felt like I was ready to kick on . . . I really didn't understand, and it held me right back (U7)

3.3. Features of the Social Milieu

In addition to the organisational factors perceived to enable learning from experience, the social milieu appeared to be an especially influential feature of player experience, as shown in Table 2. Players consistently perceived the input of senior players in their clubs and international teams as impacting their progression in multiple ways. This was especially noticeable where players perceived a significant gap between senior and junior players. This isolation, a lack of high standard setting from the senior playing group, seemed to prevent players from making the most of the milieu:

The easiest way I could describe was just a negative environment. There was no competition, no communication with senior players, it just wouldn't happen. Senior players would just be moaning, no one enjoyed what they were doing. Most important for me, no one was actually getting better (U6)

This contrasted with players who discussed how important they felt their interactions with senior players were when they were held accountable to high standards. This in many cases felt like a step change from previous training environments, a strongly pressurising influence that appeared adaptive:

If you weren't doing it right, you were told about it by the bloke next to you. The players were the ones driving standards. I remember in a training session; I missed a ruck I was supposed to clear. (Player) turned around and lost it with me, he was like: 'what the f**k is that; we need you hitting it, I've had to clean your ruck and it's messed up the next play'. I was like, fair enough and I didn't do it again. That's how it was and should be. That's a respect thing from teammates, it is the biggest difference that I see between levels of the game and it takes some getting used to. You see (senior internationals) in training, pushing to get more out of each other. Afterwards, they shake hands, and walk off. That's how people operate and how you get the best out of each other. It's just as, if not more important that what the coach does. Your teammates see things that coaches can't, you've got mini coaches everywhere (S2)

Players perceived this social accountability to be a positive factor in their development. Indeed, others commented on the perception of pressure from senior players: "I was motivated to get better because I didn't want to look like a di*k. It was massive peer pressure to do my job well" (U7). Rather than this being seen as a negative, players strongly perceived it to be an adaptive feature of the environment, encouraging them to set new benchmarks for their reflection. Similarly, players reflected on what they learned from senior players by observing them on a day-to-day basis, learning the norms of professionalism and, as they progressed, what they needed to do to become a player at international level:

At my first (senior international) camp, I was watching (senior player), he was someone that I didn't realise he worked that hard. He is constantly doing extras, working on his footwork and I genuinely didn't expect it. He was there setting up his own intricate drills and you could tell that when he is on the field, he nails that stuff. I want to emulate him, so I went and did all those extras with him. Off the field, he is so relaxed and he has the perfect balance of switching on/off (S6)

Table 2. Features of the social milieu perceived to enable learning from challenge.

Enabling Factors	Disabling Factors		
Support/accountability from senior players	<p>“I was going I was going away working with the likes of (senior player) is massively different. The detail, what I needed to do where and how concise it was, was just poles apart. He had things that coaches didn’t really have detail on and you start learning a lot more. The information I was getting was so valuable” (S3)</p>	<p>‘Us and them’ divide with senior players</p>	<p>“I feel like the (club) environment made me stagnate. The hierarchy between the senior players and young players was ridiculous. I would walk into the training ground and some players wouldn’t even look at you” (U4)</p>
Adaptive role modelling of senior players	<p>“Just being around (player), he’s won a World Cup but he will work just as much with academy players as seniors. He is still pushing hard to get better every day, it was a real example to me. It is that humility that matters. I was a sponge, just trying to take everything in. It was massive for my progression” (S4)</p>	<p>‘Toxic’ atmosphere generated by senior players</p>	<p>“The social environment was great, we were having a great time, but it was almost cancerous. There were a lot of players who’d just slag off the coaches, thinking they could do things better, not wanting to be there anymore. I was watching these two 30-year-olds sapping (undermining) in the corner and I felt like I needed to join in. I was 19 and got a career ahead of me, but I didn’t see that. I just thought I’m just gonna try and fit in and start sapping. For a young player that’s dangerous” (U8)</p>
Adaptive use of peers	<p>“I worked very well with (peer). We’d always competed against each other. It was healthy competition; you’d never make the other person look bad but you would always try and compete to be the best. In training we used to have tangible targets, pushing each other to be better. We’re good friends, but when you’re in the same position as someone it can become unhealthy competition and that doesn’t benefit anyone” (U7)</p>	<p>Maladaptive peer influence</p>	<p>“At (international age group) I was p*ssed off. We didn’t work hard and I didn’t feel like I was being stretched. The best players weren’t involved in the squad and the standards just weren’t high enough” (U5)</p>

This sat in stark contrast to the experiences of role modelling in other contexts, with players reflecting on the negative influences provided by senior peers and how it shaped their response to challenge:

There was so much toxicity, players would go into the changing room on a Tuesday, they're being paid really well, but they can't be ars*d. Their training was really poor. I was part of a young group of lads who were very influenced by all of this. I thought that it was how senior players behaved. That you needed to sit here, be angry because you're not being picked. Then moan, cheat or disrupt training, just don't really care. There was a big drinking culture with players going out in midweek. It would be six pints in the pub, then a night out. As a group of young players we saw these international superstars, when they're not picked, this is how they act. We thought, that this is what you must do (U5)

Players also reflected on the role modelling provided by their direct peers especially during their academy experience and early transition to the first team. Just as with senior players, social learning from peers played a significant role in the player's ability to maximise what they took from their various experiences. Players were able to offer reflections on the impact of peers even from their school rugby:

At school I was in a room with (player) and never saw anyone who wanted to be a rugby player more. I could see him going out day after day and striving for it. I realised very quickly what I needed to do if I was to compete with someone like that (U4)

Early in professional careers, players also discussed the value of comparing themselves to their peer group, rather than against the senior players in their clubs. The junior international age group seemed to provide players with some perspective and benchmark their other experience:

At (international U20s) we had a lot of good players and it was a brilliant experience to get to play with people from different environments and different abilities. The big bit for me was seeing how I compared to my peers and I liked what I saw. I felt like I could dominate at that level. It gave me real confidence (S1)

However, players also commented that where peer groups held lower standards, it was a risk factor for their development:

(Peer player) was great for me, he had a very good attitude, I watched him, how he behaved, and I was copying and emulating his attitudes (sic). But, everyone else, it was all a bit lighthearted, not focused on what they said they wanted. We just didn't push each other enough. (U8)

4. Discussion

The aims of the investigation were threefold: firstly, to understand the nature of the challenge experience for players as they progressed through their respective pathway and how this impacted on perceptions of progression and stagnation. Secondly, to understand the extent and impact of system integration on their challenge experience. Thirdly, to understand what features of the social milieu impacted on their ability to process and benefit from challenging experience. The findings present a complex overall picture, adding to our understanding of the role played by challenge in development and identifying key moderators of the adaptive response.

4.1. What Was Challenging?

For all players in this sample, life as an aspiring elite athlete was far from comfortable with repeated emotional disturbances characterising their pathway [16]. This was the same for players who were able to progress to the elite level of the sport, whose careers were characterised by repeated challenge experiences. Importantly, whilst there appeared

to be differences in the response to challenge experienced by those who were successful and those that dropped out of the professional game [6], there were also differences in responses based on the events initiating challenge for the player [36]. In the case of the former, and in no way suggesting a causative link, it appeared that players who reflected on challenge and were able to adopt an action-focused orientation through a perception of control, were far more able to profit from challenging experiences [61]. Thus, it appears that whilst negative emotional experiences did appear to lead to more in-depth patterns of reflection [18], the nature of this reflection and subsequent action seemed to depend on their overall confidence and perception of control [62]. Notably, as shown by the tables, the increased challenge levels did not always impact on player's perceptions of progression or stagnation. This is something that may warrant future research. Pending such additional insights, we would highlight that impact seems significantly (and unsurprisingly) based on the recipient's perception rather than the coach's intention.

In line with findings in the non-sports literature, this presents a deepening of our understanding of the mechanisms of challenge and negative experience. Whilst it appears that high levels of challenge appear critical for the ultimate development of high performance, challenge itself appears to be a proving experience, one that can lead to an adaptive response and furthering of development, but this cannot be assumed [20]. In short, response to challenge depends on what the individual *brings* to the challenge and the type of challenge that they are facing. Data in this study would also suggest that the nature and context of the challenge are likely as important as the skillset of the athlete, if learning is the goal, rather than coping. As an example, where athletes in this study reported poor, incoherent coaching practice, it seemed to act as a barrier to progress, cf. [34].

Playing Experience

One prominent cause of challenging experience was events surrounding competitive matches. These included selection, competition experience and coach interactions around games. Selection and deselection seemed to be one of the key challenges faced by players throughout their careers [17]. In this sample, the judgement conferred by selection seemed to validate a player's efforts, with deselection seeming to act in the opposite direction. Again however, the extent to which players could *understand* selection decisions seemed to moderate the impact of the emotional disturbance. When a player was disappointed by a non-selection, but was provided with, or could generate their own direction as a consequence, this seemed to prompt an adaptive response [62]. Where this direction was absent however, or where players blamed a lack of coach competence on their lack of selection (an external but perhaps also ego protecting attribution), there appeared to be a lack of control and perspective that enabled them to navigate the challenge.

Playing experiences seemed to confer the opportunity for highly emotional experience, and this suggests a potentially fruitful line of enquiry for future research. In this instance, players reflected not only on the perceived developmental benefits of playing in challenging matches above their current level, but also on the benefit of playing in 'easier' fixtures below their perceived standard. There also appeared to be a dual benefit for players playing games that weren't as challenging, that were perceived to be a step down depending on their ability. Though importantly, again, it was not the playing experience itself that appeared to be developmental. Instead, it appeared to be the approach of the player to the challenge, the level of difficulty presented, how that experience was used by coaches and the impact of peers on player perceptions [62].

Finally, the role of the coach around playing experience seemed challenge-inducing, for good and ill. Many of the players who dropped out of the elite game reflected on the experience of negative emotion and challenge based on poor coaching practice. This was predominantly characterised by a lack of individual attention from coaches, with players having to repeatedly follow up to receive feedback. This was similarly characterised by coaches offering input that was designed to placate, rather than offering performance-relevant input [36]. Where critical feedback was absent, players found it very difficult

to make sense of their overall needs. In contrast, where coaches were able to use the experience of the playing experience and guide subsequent reflection, this seemed to support adaptive responses. The sensemaking of the athlete seemed to be critical in the later adaptive outcome, cf. [63]. That is, for an athlete to respond adaptively, they needed to be able to contextualise their experience, reflect on what had happened, apply a skillset (e.g., self-regulation, setting a new goal) and then act in a manner that enhanced future performance.

4.2. Moderators of Challenge

Critical to the ability of the coach to support player reflection was the extent of coherence generated by integrated practice [11]. Where the messaging received by the player was coherent, it enabled them to make sense of events and take adaptive action. Notably, this messaging went beyond the feedback they received and permeated nearly all elements of their experience, strongly influenced by the philosophies of Michael various coaches, broader organisations and national systems [10]. The temporal orientation of this messaging seemed to be especially prominent, with a number reflecting on the impact that school coaches had on their development, especially when adopting a longer-term view of their progress. This longer-term outlook seemed to have a profound impact on players, and whilst some found it frustrating, in retrospect they could see where it fitted into the bigger picture. This slow pacing contrasted with their experiences, predominantly at the point of transition to senior performance, where short-term agendas dominated [43]. At this stage, players often felt a significant drop in support as they moved from being the focus of academy coaches to having very little input, other than to facilitate or enhance senior team performance in the next match. This suggests that players often lacked the necessary feedback, debrief and reflection opportunities that appear to be so important for promoting adaptive response to challenge [36]. Indeed, for those players who did not progress to elite rugby, this was often perceived to be the cause of their failure to progress. Similarly, players seemed highly aware of the different messaging and direction that they received within their club environment. Where this held a level of consistency, it helped players navigate various challenges. Its absence, often exacerbated by changing coaching groups with different playing philosophies meant that players lacked role clarity or focus for their efforts [9].

All players reflected on the transitions they made between different environments such as international rugby, loan clubs and coaching teams losing their jobs. These contrasting experiences presented players with opportunities for learning and development, with different challenges being presented by these transitions based on differential coaching and game demands. Adaptive responses seemed to be supported by a perception of coherence with other environments or previous coaching teams [35,44]. Where differences were limited, it seemed to provide a stimulus for reflection, for example, where playing philosophies between teams were slightly different. Significant difference led to players struggling to make sense of events and use them for adaptive reflection, instead becoming confused by incoherence. Where players were exposed to drastically different approaches that seemed to require significantly different things from them, such as changing their strengths as a player, this did not seem to make sense. Notably, whilst successful players seemed to be able to cope with and ignore these issues, for others, it seemed to act as a derailer. Thus, appropriate integration of support promoted an adaptive response to challenge [39]. In contrast, a lack of integrated practice and consequent incoherence added an inappropriate challenge and prevented players making the most of the appropriate challenges that they faced. In essence, once again, it was not *just* experience that seemed to promote development. It was instead the various inputs around the player and the sense they made of what they were exposed to.

Social Moderators

A novel feature of this research was the investigation of factors in the social milieu that seemed to impact on the ability of players to learn from their experience. In this sense, the approaches and standards adopted by senior players had a profound impact on the development of younger players and how they responded to challenge. This builds on the suggestion elsewhere that role models are important for development. Similarly, the social milieu acted to dampen the ability of the player to make sense of events, to deploy skills, because adaptive action required a break from social norms. In contrast, where adaptive social factors encouraged players to respond appropriately and deploy a range of psycho-behavioural skills, this exerted a positive effect in both the short and longer term [3,4].

Senior players seemed to provide a target desirable behaviour that players were motivated to attain. Where senior players perceived themselves to have an active role in the development of younger players, they both provided appropriate challenge and offered feedback that assisted players navigating other challenges. This was especially prominent when the social norms of an environment held players to high standards, promoting effort and focus. Indeed, even though some players reflected on the fear of making errors and the potential embarrassment that this might lead to, this seemed to generate attention to detail that hadn't previously been required [61]. Similarly, players also seemed to consciously process and internalise the approaches of their senior and proximal peers [64]. In some cases, in the earlier stages of a player's careers, younger peers offered a more proximal target and, in some cases, a more impactful modelling of approach. In contrast, where social loafing, e.g., [65] or a level of toxicity was a feature of the environment had a negative impact on individual development. As such, the social norms of a player's environment had a profound impact on their ability to engage with the challenges of development. In essence, similar to previous findings in the TD literature, the extent to which athletes cooperate to support each other's development is a core characteristic of effective environments [2,10,66].

We would suggest that this aspect of athlete development warrants further investigation. Given that players in this sample were reflecting on their experience as either young professionals, or early-stage international players, there is a need to understand how these dynamics change over time into senior international performance. We would also suggest that the dynamics of challenge and the role of emotion in learning presented here and in other research presents an opportunity for investigation in high performance contexts outside of sport such as business, the performing arts and the military.

There are of course limitations to the approach taken to meet the research aims in this paper. First, the retrospective nature of the methods employed within this study have often been criticised in research within HP and TD environments as they may offer an invalid and untrustworthy representation of an athlete's experiences [67,68]. To mitigate this limitation, the timeline task stimulated the player's memory and supported the recall of challenges they faced, the nature of those challenges, the integration of different environments and their experiences of the social milieu [53]. Studies which require athletes to reflect on their experiences whilst considering their successful developmental journey will always be prone to survivorship bias. Therefore, to mitigate the possibility of survivorship bias within our data, an inclusion/exclusion criterion was employed to explore two populations who had experienced the same overall TD system, albeit within different contexts, which resulted in different athlete perceptions and experiences. To truly address the research aims, the perspective of athletes from both populations were valued, offering an equal investigation into both successful and unsuccessful players.

Furthermore, a clear limitation of this study is the sole focus on male athletes within the professional rugby union talent system. Future research should utilise the same purpose, study aims and methods to explore player experiences with female athletes [69]. In doing this, the findings presented within this study can act as a reference point to unearth the similarities, differences and inferences from successful and unsuccessful players

within the women's game. In considering this limitation, the same can be said for the transferability of our findings to other team sports, individual sports and other settings. In our role as practitioner researchers, we have adopted a pragmatic research philosophy where researchers are encouraged to design methods that consider transferability across contexts [70]. Transferability challenges the positivist assumption that findings offer widespread generalizability and instead, emphasizes the critical consideration of applicability across contexts. Therefore, we suggest that practitioners and researchers who have interacted with this paper critically consider our findings within their context and consider transferability to other performance domains; moreover, they should consider if the methods were to be repeated with their population of athletes/workers, would similar findings be unearthed.

5. Applied Implications

Given the growing body of evidence pointing to the importance of both navigating and learning from challenging experience, we suggest there are a number of implications for any domain of high performance. As with other research, the data presented here would support the need for performers to develop a breadth of psycho-behavioural skills [3,4] prior to the challenge experience and then use the opportunity presented for learning and growth through appropriate reflection and debrief [71]. In addition, given growing evidence that the experience of challenge seems not only be something to be 'coped with', but serve as tests of existing skillset and can provoke further development. This is not to suggest that learning to cope is not important, simply that emotional disturbance presents opportunities for development beyond coping. As such, it is likely necessary, appropriate and perhaps an ethical imperative for performers to be deliberately exposed to a range of challenges. The dynamics investigated in this paper suggest this might not be solely through progressively higher challenge levels. Instead, may involve periods of higher challenge, followed by periods of consolidation. This offers a different perspective to others in the sport psychology literature that have advocated for a more reactive orientation, offering support when challenge occurs [72]. Here, we suggest the need to deliberately shape the challenge experience for optimal development.

Importantly, evidence in this paper shows that not every challenge is created equal. Players experienced similar events differently and some challenge experiences were considerably more likely to elicit an adaptive response than others. This is only emphasised by the different perspectives of progression and stagnation of players; despite the very different standards of the game they were playing. It is worth emphasising the extent to which personal and environmental standards influence the individual's perceptions [17]. As such, we offer recommendations for the design of challenge events. Firstly, in accordance with previous research, the individual must be adequately prepared for the challenge; secondly, the design must offer the athlete an appropriate level of challenge to test their skillset [71]. Thirdly, the challenge-inducing event should be realistic and appropriate to the needs of the athlete. That is, 'discombobulation' for the sake of it is both inappropriate and likely to be experienced as incoherent by the athlete. Finally, specific follow-up in the form of feedback and debriefing is necessary. These do not always need to be practitioner (coach or psychologist)-led. If appropriately integrated, they might deliberately utilise peers, senior athletes, parents or other stakeholders.

From the top down, it is recommended that HP and talent systems engage in curriculum planning at multiple levels [38]. This planning should aim to identify the typical challenges faced by athletes at various levels and aim to provide coherent steps towards successful navigation of target challenges. This means there is a necessity for a deep focus on planning and preparing for the nature of the future challenge. As highlighted by data in this sample, there is a need for intra-organisational structures that maximise integration. These should include regular communication across and between levels, with the potential for members of staff to span between different stages of a system. In addition, there is also a critical need for inter-organisational integration, where approaches are coherent and

efforts combined [73]. One of the focal points for this challenge-based approach should be the nature of competition and training exposure. It seems increasingly likely that a range of competitive experiences are likely appropriate for optimal TD. However, as data presented here would suggest, it is not the competition experience alone that is adaptive. Instead, we suggest the need for the careful design of competition schedules that might optimally allow for wave-like patterns of varying competitive demand. This would ideally put the athlete through periods of competitive stretch, compete at their current level and perhaps below the current level. This would ideally take place on an individual basis, but pragmatically might be done for a squad. In some contexts, much like some of the international players in the cohort, this pattern seemed to occur naturally through the season. For others, the wrong balance of competition exposure acted against their development. Clearly, once an athlete reaches a certain level, it may not be possible to manipulate competition towards player needs. Future research should consider both how this might be done, but also maximised at the individual level.

The data presented here also show the risks conferred by the number of stakeholders present in many talent systems and HP organisations [17]. Poor coaching practice, although being discussed more by players who were released, appeared to be a feature of nearly every player's experience. Therefore, as part of a bottom-up strategy a focus for TDEs should be the development of a broad psycho-behavioural skillset [74]. It is likely important that players are prepared to *cope* with incoherence and poor coaching. In addition, it is important that they are prepared to operate relatively independently through seeking role clarity, effectively analysing their own performance and knowing who, and when, to seek support from.

Finally, given the significant impact of the social milieu, we suggest the need for organisations to pay particular attention to the overall social milieu. This should go significantly further than popular accounts of social engineering and take into consideration evidence of cultural change in HP organisations [41]. To promote TD, it appears especially critical for senior athletes to hold a clear understanding of their role and their potential impact on younger athletes. In addition, that coaches deliberately engineer behaviours that are likely to enhance performance.

6. Conclusions

There appears to be a complex interrelationship between the psycho-behavioural skillset and the circumstances surrounding challenge events and experiences. Data presented here show that negative experiences seem to be critical features of optimal development. However, not all challenge experiences are created equal. Therefore, whilst positive emotional experiences did seem to lead to enhanced confidence and motivation, negative affect did seem to lead to periods of deep reflection and questioning, and the direction of this cognition depended on the circumstances and the skillset of the player.

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