



Exploring the Developmental Practice Environment Experiences of High Performing Athletes

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DOI: <https://doi.org/10.54392/ijpefs2341>

Received: 22-09-2023; Revised: 21-11-2023; Accepted: 23-11-2023; Published: 29-11-2023

Abstract: The influence and interaction of perceived experience on athlete development during deliberate practice activities is unknown. The current study aimed to explore the developmental experiences of high performing athletes during deliberate practice. Participants were 15 Talented Athlete Scholarship Scheme Dual Career athletes (8 females, 7 males, aged between 17 to 18 years) enrolled in full-time UK tertiary education. Experiential data was collected through semi-structured interviews and thematically analyzed. Ten overarching themes were developed: Enjoyable Low-Pressure Practice Environment, Simulated Competition Against Others, Practice Performance Success, Challenging Environment, Supportive Relationships and Sanctuaries, Exposure to Higher Level Athletes and Different Practice Environments, Ability Status within the Practice Group, High Intensity Climate, Disruption to Practice Routine, and Practice Performance Failure. Findings revealed practice experiences to contain significant infrequent positive and consistent low-level negative experiences. To avoid spiraling negativity, participants accepted failure and used successful performance to enhance self-belief. Practitioners working within athlete development can review study findings to enhance their deliberate practice environment.

Keywords: Training, Psychology, Sport Coaching, Influence, Performance, Education

1. Introduction

The lived experiences of individuals who become high performing athletes are complex and involve multiple, interacting cognitive and perceptual processes (Güllich *et al.*, 2022). Research has attended to understand the developmental pathway of athletes (e.g., see Baker *et al.*, 2019), which is particularly complicated due to temporal and contextual perceptions (Douglas & Carless, 2006). Holistic approaches to the structure and mechanisms of athletic development environments (see Henriksen & Stambulova, 2017) can often limit specific domain (e.g., deliberate practice environment) influence. Holistic developmental influences have also been reported without specific focus on associated performance (e.g., Kendellen & Camiré, 2015) and without reference to the potential growth from adversity (e.g., Whitley *et al.*, 2016), which has been suggested to be prominent during deliberate practice activity (e.g., Smith *et al.*, 2020a). Despite practice being an environment where developing athletes spend much of their sporting time (Fletcher *et al.*,

2012), research has yet to specifically explore the influencing factors of the deliberate practice environment on athlete development.

During developmental years, young athletes appraise situations (see Lazarus, 1991) in the practice environment as beneficial (positive) or harmful (negative) towards their advancement (Smith *et al.*, 2019). Athlete development literature has widely advocated the benefit of positive experiences due to strong associations with effective performance (e.g., Gerabinis *et al.*, 2018). For example, Coutinho *et al.* (2016) highlighted positive and enjoyable practice activities leading to performance improvements and Martindale *et al.* (2005) stated the need for talent development systems to promote positivity and reinforcement. Further, coaching models have also identified solely positive experiences (i.e., competence, confidence, connection, character, and caring) contributing to athlete development (Côté *et al.*, 2010). An affective continuum created by past literature exploring at-the-time snapshot approaches, which often suggest positive experiences provide

greater developmental success, is likely damaging to the measurement of experiential influences on development (Knight & Eisenkraft, 2015).

Temporal influence differences are shown in the Positive Youth Development (PYD) model (Shek *et al.*, 2019), which realizes the struggles of youths, and provides a system of positive interventions (e.g., empowerment, positive relationships, and teamwork) to enhance development (Harwood & Johnston, 2016). PYD recognizes that development will often follow adversity and highlights the necessity for negative experience within a developmental environment (Sarkar *et al.*, 2015). Exploratory research with elite Olympic athletes has also shown that success would not have been possible without certain negative experiences occurring at key moments of development (Sarkar & Fletcher, 2017). Therefore, an understanding of the interaction between positive and negative performance influences perceived during practice would aid those responsible for creating and maintaining practice environments designed to develop high performing athletes.

Athletes spend many hours engaged in deliberate practice activities to enhance performance and development (Baker *et al.*, 2003). Deliberate practice has the specific goal of improving performance, is effortful and attention-demanding, is not necessarily enjoyable, and does not lead to immediate social or financial rewards (Ericsson *et al.*, 1993). Recent research evaluated the psychological influences within the practice environment and revealed both positive and negative experiences contributed to successful performance (see Smith *et al.*, 2019, 2020a, 2020b, 2021). The Practice Environment Model (PEM) (Smith *et al.*, 2020a) identified the requirement for short-term failure leading to long term success, which temporally connects positive and negative experience. The PEM contradicted expertise development research where only lower-level players perceived negative developmental experiences when in deliberate acts of skill acquisition and practice (Rothwell *et al.*, 2017). Despite the reported need to expel negativity (e.g., athletes encouraged to resist negative thoughts and emotions) (Headrick *et al.*, 2015) within a skill acquisition environment, which has been reported to produce behavioral and cognitive responses that contribute to off-task behavior and poor future performance (Hurley & Burt, 2015), failure and the facing of adversity in sporting environments have been shown to lead to resilience building (Brown *et al.*,

2015). Resilience, in turn, can potentially shield the influence of inevitable negative sporting experiences on successful development (Fletcher & Sarkar, 2013).

The time frame at which experience is collected is likely the cause of the research contention within developmental practice environments. For example, the development of self-regulation abilities following failure will be viewed as positive without the recognition of the initial negative experience (Nicholls *et al.*, 2016), therefore, crucial negative experiences may not be reported (Hetland *et al.*, 2018). Fraser-Thomas and Côté (2009) highlighted a significant amount of negative experience (e.g., poor relationships with coaches, negative peer influence, parent pressure, and challenging psychological environment) when exploring adolescent developmental experience. However, because participants were of mixed ability, the warranted negative influencing factors experienced by successful athletes were not clear. The importance of recognizing both positive and negative experience is emphasized by Posttraumatic growth theory (Tedeschi & Calhoun, 1995), which posits that severely challenging moments can lead to individuals developing strategies for future benefit (e.g., cognitive processing, self-disclosure, social support, and schema change). To create effective practice environments, Hardy *et al.* (2017) demonstrated the need to understand the totality of elite athletes' developmental experiences, which were "likely fueled by something more than just happiness".

Practice during developmental phases can last for over a decade (Balyi & Hamilton, 2004), which makes the measurement of influential phenomena difficult, such as the identification of growth from initial negative experiences (Linley & Joseph, 2004). Short-term experiential measurement approaches provide more reliable data but do not identify longitudinal impacts on development (Blackie *et al.*, 2017). By controlling for success (i.e., gaining perceptual experience from high performing athletes only), positive and negative experiences can be assumed to have enhanced athlete development (Sarkar *et al.*, 2015). Conformity of developmental experience within elite, but not sub elite athletes (Johnson *et al.*, 2008) further strengthens the justification to assume that the positive and negative experiences of high-performing athletes have contributed to greater performance development. Therefore, data gathered from high performing athletes who have successfully thrived within their practice environment for several years, will

provide a more accurate reflection of the experiences that influence successful development.

The current study sought to explore and identify the developmental experiences of high performing athletes during deliberate practice activities. The aim of the current study was to collect practice environment experiential data from high-performing athletes (as designated by sporting national governing bodies) and report the factors that influenced development. As high-performing athletes, both positive and negative experiences during practice would likely have contributed to successful development, which can provide practitioners with a greater understanding of how best to structure and organize the practice environment during developmental years.

2. Methods

2.1 Participants

Participants (8 females, 7 males, all White British ethnicity, aged between 17 to 18 years, with an average sport experience of 8.1 years) were purposively sampled from Talented Athlete Scholarship Scheme (TASS) Dual Career Programs located in sixth form colleges in the south of England, UK. All participants competed at either national or international level. Participant information can be found in table 1.

TASS is a Sport England funded partnership between talented athletes, delivery sites and national governing bodies of sports to provide vital support for athletes to balance sporting commitments with education (<https://www.tass.gov.uk>). The Swann et al. (2015) criteria for 'eliteness' classified participants within the competitive elite and successful elite categories.

2.2 Data Collection

Ethical approval was granted from the first named researcher's University Ethics Committee prior to the study commencing.

The researchers' ontological and epistemological stance was constructivism and interpretivism respectively, with researchers and participants co-constructing knowledge (Poucher et al., 2020). Both researchers have many years of experience within educational programs involving TASS athletes and understand the culture and community of developmental sporting environments. The first named researcher invited participants via email to take part in the study following permission from the educational organization where they were enrolled as a TASS Dual Career athlete. If a participant agreed to partake in the study, they were then emailed a participant information sheet, allowed to ask questions about the study, assured of their anonymity, and provided their written consent.

Table 1. Participant information

Pseudonym	Gender	Age	Sport	Sport Experience (years)	Level
Abi	Female	18	Cricket	4	International
Ben	Male	17	Triathlon	5	National
Chloe	Female	18	Football	9	National
Dan	Male	18	Athletics	9	National
Ella	Female	18	Netball	9	National
Finn	Male	18	Mountain Biking	10	International
Greg	Male	18	Diving	8	National
Harry	Male	18	Athletics	6.5	International
Imogen	Female	18	Cycling	8	International
Julia	Female	17	Swimming	8	National
Kaye	Female	17	Swimming	6	National
Laura	Female	17	Gymnastics	13	National
Max	Male	18	Snow Boarding	8	International
Nicky	Female	18	Tennis	10	National
Ollie	Male	18	Badminton	8	International

Participants were then invited to attend a face-to-face interview with a TASS Dual Career Coordinator (DCC) (second named author), who provides regular academic support to TASS Dual Career athletes. To prevent coercion, the TASS DCC was not involved in the recruitment of participants (Comer, 2009). The advantage of the TASS DCC conducting all interviews was the strong participant-interviewer rapport that facilitated participants answering more freely and honestly to generate richer data, and the foundational knowledge of participant context (Nakkeeran & Zodpey, 2012; Trainor & Bundon, 2021).

Semi-structured interviews lasted between 47 and 82 minutes (mean = 62.64, SD = 9.64) and were recorded using a digital voice recorder. Semi-structured interviews allowed for open discussions that provided the interviewer a platform to ask further probing questions to pursue emergent themes to allow the participant to construct phenomena through their own experience (Low, 2013). The interview questions were formed from researcher knowledge of developmental practice environments in sport and supported by relevant literature (Kallio *et al.*, 2016). An example of questions asked are "Can you describe an experience, or an accumulation of linked experience over time, from practice that had a big impact on your development?" and "When in your practice environment, was there a moment that propelled you to a higher level?". All interviews were transcribed verbatim by the second named researcher within 48 hours of completion and emailed to the first named researcher who thematically analyzed the data before the next interview took place. Both authors then discussed the need to add or adapt questions to future interviews if the previous interview highlighted an area worthy of exploration that was previously not included. Braun and Clarke (2021) state data saturation should not be a target of qualitative research, however, following the eleventh interview code saturation had occurred (no new theme creation) with remaining interview data items adding to existing themes to provide greater meaning (Hennink *et al.*, 2017).

2.3 Thematic Analysis

Data were analyzed using the inductive thematic analysis approach provided by Braun *et al.* (2016) for sport and exercise science research. Inductive thematic analysis provides a route for researchers' theoretical assumptions, disciplinary knowledge, and research experience to influence data analysis, which was accepted within an interpretative

approach (Smith & McGannon, 2017). The first named researcher, who has practical and research experience within athlete development environments, undertook initial coding by firstly familiarizing themselves with interview transcripts by reading them without making any notes. Following familiarization, the researcher reread and coded the transcripts by creating data items from any text that represented a developmental experience (i.e., an experience that was perceived to have had an impact on participant performance and athletic progress). The data items were abstracted from the original text with the researcher ensuring the participant's message was carefully maintained to safeguard credibility and truth (Tracy, 2010). For example, the quote "I was training with my old coaches then, and I think they weren't very optimistic about my performance and that was what spurred me on" was abstracted to "Coach not having faith in my ability motivated me". Individual data items were labelled with a unique tag to designate the original contributor for future retrieval and added to a computerized spreadsheet for easy movement into theme categories (Smith *et al.*, 2019).

Similar data items were grouped together to create initial theme categories. Each transcript was analyzed in turn with thematic placements sent to the second named researcher for agreement. When disagreement occurred, both researchers discussed data item placement and came to an agreement, which either moved a data item from one theme category to another or separated a theme category to provide greater distinction and experiential accuracy. Revision of data item placement occurred consistently throughout data analysis as new themes were created following each interview to produce a coherent, organized, and accurate analysis of the data set (Braun *et al.*, 2016). Once initial theme categories had been created, both researchers grouped similar categories together to create overarching themes. Theme categories provided notable and distinct meaning to the central organizing concept of the overarching themes.

2.4 Methodological Rigor

While maintaining an interpretively oriented approach, to achieve a greater level of reliability in naturalistic research (Belotto, 2018), high reliability was gained by involving two researchers in a consensus coding approach to "capture salient themes, which are really there" (Braun & Clarke, 2016). The two-level approach consisted of the second named

researcher familiarizing themselves with data during the collection process and the first named researcher providing initial coding before both researchers created final themes, which reduced single researcher bias (Belotto, 2018). To increase rigor in qualitative research, a critical friend is often championed, but they can only encourage researcher reflexivity rather than provide a coherent and knowledgeable opinion on data generation (Smith & McGannon, 2018); which this study can offer. By using one researcher to collect data, a second researcher to analyze data, and both to create themes, bias during interpretation found with a single researcher was eliminated (Delattre *et al.*, 2009). Data collected from 15 participants achieved

high prevalence and code saturation (Hennink *et al.*, 2017).

3. Results

Thematic analysis revealed 49 themes that were organized into ten overarching themes (displayed in table 2) from the coding of 1375 individual data items. The overarching themes are represented by an organization of both positive and negative developmental practice experiences that provide a rich overview of the TASS Dual Career athletes' pathway to becoming a high performing athlete. Pseudonyms are used to ensure participant anonymity.

Table 2. Overarching themes and themes from thematic analysis

Enjoyable Low-Pressure Practice Environment	Fun environment
	Low expectations
Simulated Competition Against Others	Being able to beat others
	Competition focused environment
	Others who compete hard
	Selection pressure
	Comparative level athletes
	Failure opportunity against superior athletes
Practice Performance Success	Ability to succeed
	Creating moments of realisation
	Overachieving expected performance
	Overcoming challenging situations
	Learning new skills
	Selection success
Challenging Environment	Requirement for dedication
	Focus on improvement
	Development of belief in ability
	Consistent overreaching for success
	High autonomy
	Producing a practice vision
	Generation of self-awareness
Supportive Relationships and Sanctuaries	Future sport direction
	Encouragement
	Significant trauma
	Professional training structure
	Strong coach relationship
	Practice friends
Exposure to Higher Level Athletes and Different Practice Environments	Compete against better athletes
	Modelling opportunities
	Multisport environment experience
	Learning from different athletes
Ability Status within the Practice Group	Impressing others
	Recognition
	Elite level label
	Lowest ranked

High Intensity Climate	Applied effort focus
	Physical superiority
	Effectiveness of environment
Disruption to Practice Routine	Reflecting on significant changes
	Routine disruption
	Change of path
Practice Performance Failure	Lack of achievement
	Growth from failure
	Significant poor performance
	Development of not wanting to fail again
	Being physically weaker
	Control
	Accepting failure
	Selection failure

3.1 Enjoyable Low-Pressure Practice Environment

The practice environment was regarded as a domain that athletes enjoyed, with Ella stating: "Everyone was getting along and having fun, it was the spirit of the team that made it enjoyable". Participants highlighted lower performance expectations in practice producing less pressure, which enhanced enjoyment and performance. Kaye highlighted lower practice expectations provided a grounding when goals were not met: "if I don't get picked [for national squad] then that's not the end of the world, I'm back at training the next day, and I'm still a year young and shouldn't expect my development [in practice] to come all at once". Having a love for practicing the sport was critical for athlete development, as shown by Dan: "I actually found a sport that I loved going to training for. I think that was a really positive steppingstone for me as I loved being there [at practice]".

3.2 Simulated Competition Against Others

The chance to compete against others during practice was discussed by Imogen as a central driving force: "As a sports person the need to beat others is really important, and that starts in training, and drives me massively". Competing to be the best within a training group appeared to be a necessity to improve and develop as an athlete, which was aided by others in the practice environment who would compete: "people put a lot into it. Sessions become really intense, really serious, so it's a really good environment to be in as no one wants to be last" (Ben). Selection for advanced practice groups was

discussed as an inevitable part of athlete development. Abi spoke of the damaging effects of selection pressure: "Sometimes it does [impact my performance in practice], especially when its leading towards a game, that's when I feel it the most". However, Ella stated the need for selection pressure to enhance motivation: "I knew that the higher you move up the better the coaching will get so I was like I have to stay here on the program and that made every practice really important to me and I had to be better than everyone else". Finally, Harry revealed experiencing a strong influence from their success or failure against athletes who were a similar ability level:

I got in and that's when [friend in group] got his England vest. Of course, I was annoyed because that's what I wanted to get. I wasn't annoyed at him of course, but it was frustrating to see your teammate get it and then I was tense and didn't train well for weeks.

3.3 Practice Performance Success

The impact of successful performance permeated through much of the interviews and was described by Max as a key factor of his development: "I just kept being the best [during practice], others start to get worried about you. I'd go to GB training camps, and everyone knew it, it does feel good and helps push you". Chloe suggested the need for consistent skill learning: "[Previous team coach] made me think about aspects of the game individually. They would make me do sessions just on place kicks. But [New team] then helped me to think more technically better and how to analyze your game". Participants were greatly impacted by overachievement in practice

that had a lasting and spiraling effect: "It started with some great competition wins, made me so motivated in practice, I wanted to train every day, like an addiction. I was training at a top level, and I just kept getting better, it all fed in" (Greg). Unexpected high performance led to moments of realization, as described by Laura: "I remember it really well, I just got it [high level skill], like really got it, which made my ability during practice go up, which had a knock-on effect for other things, that's when I thought I'm good". Successful practice performance was also cited following the overcoming of challenging situations: "when you're on the track, it's just you, so you learn to deal with it yourself, I'm more resilient in training" (Dan).

3.4 Challenging Environment

To develop successfully, participants required an ardent desire to be better, which was enhanced and supported by their practice environment. Ella's enduring belief in her ability was evident when she stated:

I would have just stuck with it for another year [if failed to gain selection]. I would have made my way up because I still have my confidence and mentality that I'm going to get there. That's been built into me for years in training. My coach got me to overcome things, no matter how hard they have been.

The development of strong self-belief was accompanied with a strong motivation to improve when set difficult challenges in practice, which created feelings of never being happy with performance: "you always feel you could do so much better, even if you can't. I can't remember ever being 100% happy with how I practice. High [practice] performance wouldn't impact me" (Imogen). The practice environment provided high levels of autonomy, as indicated by Chloe: "It's not easy but I started doing my own research and stuff. I did my own research for gym, and they [coach] would help me as we didn't have that much time together". As well as having autonomy, participants were also said to have a vision for where they would be in the future. For example, Kaye spoke about "knowing that I wanted to be a pro [professional athlete] and then planning out what I need to do in practice to get there and how tough it would be". Laura highlighted: "I think my training has developed me as this person. I have overcome tough times and that's made me resilient to other things that happen".

3.5 Supportive Relationships and Sanctuaries

Significant others were said to give participants encouragement, support and direction in practice, especially following traumatic experiences: "It was demoralizing at the start [of the year] because it felt like the training was for nothing, but my coach helped me... we go back and watch the film and find errors" (Max). Having friends within the practice environment was important for psychological recovery: "I think its stuff like my mates at training knowing about it. I can see other people outside to socialize and take a break, but they don't really know" (Harry). The support structure in practice influenced athlete development, as stated by Nicky: "It was just more professional, not like a job yet, but more professional and that was important for me, like I could see myself as that elite athlete".

3.6 Exposure to Higher Level Athletes and Different Practice Environments

Exposure to new and challenging practice situations was essential for athletic development. A significant influence was exposure to higher level athletes during practice, which promoted both an opportunity for challenge and observation. Ben discussed the importance of practicing with superior athletes:

Training with older people definitely had an impact because when you see older people train its very inspirational... watching older people and better people, it makes you want to look like them and be like them, and that had a big impact on me.

Finn suggested that he had: "learnt a lot from [elite] teammates this year. I was fortunate to be able to practice with them before the race". Participants identified not only technical enhancements from exposure to better athletes but also tactical, as Laura stated: "I could see and ask them why they did things, what decisions they make and why. We all have the skills so how you put it together counts a lot". Max stated that experience from practicing other sports was also beneficial: "doing gymnastics [when younger] was good. I do lots of trampolining as well to help with flips. I used to do football and I like the teamwork element of it, which I think about when we train".

3.7 Ability Status within the Practice Group

Participants identified the need to display their achievements to others during practice, as stated by Imogen: "What motivates me is hearing what the other people in the group have to say about me". Greg clarified that he wanted to impress his coach: "She didn't think I could qualify so I wanted to prove her wrong and worked really hard the next few weeks in training". Participants also referred to wanting to impress family and friends: "It certainly boosts your confidence and ego a little bit. I'd tell everyone about training and sometimes they'd come and watch" (Ella). Holding the label of being within an 'elite' or 'high performing' practice group was highlighted as being important for development. Participants endeavored to reach higher practice groups and feared being removed:

I wanted to be in with the people who looked like they were higher standard and better. Like, I could say I'm in this group, at this level. You then don't want to lose your place, so I had to push hard for it and be better than people around me. (Julia)

In contrast to reaching high status positions, participants also recognized the motivational impact of being a lower ranked member of a practice group. For example, Kaye suggested: "not being at the top of my sport, actually being like really low down, and made me want to get better. First you get better than them, then them, and so on".

3.8 High Intensity Environment

When asked about effective practice environments, Abi replied: "The workload. That had an impact on me in terms of the more I did the more I learned kind of thing". Finn identified successful practice demanding high effort: "Positive in the long term because it shows that your drive is there, and I think that it shows that you want to do this as a career for a long time. It's got to be tough to achieve". The practice environment was a place for effective competition preparation as stated by Julia:

I've had bad spells in training. You just need to push through, keep trying. It should be efficient and organized. I've trained in places where it's poor [organization] and wasn't great for me. I don't mind having fun but I'm not there to have fun, I'm there to get better.

Practice was important for physical development: "my strength and conditioning coach helped to build up my physique... made me feel more like an athlete so it put me in a better mindset to progress and train better" (Greg). Enhanced physical strength through higher intensity training was described by Kaye as being a "major reason why I started to improve, like training was really tough, but I got really good like really quick because I was stronger than everyone else".

3.9 Disruption to Practice Routine

Key negative moments in a participant's journey enhanced motivation and created opportunities to develop further as an athlete. Major injury led to practice disruption: "When I did my hamstring at training, and I carried on because I was annoyed. I was then out for a while, it was stupid [to carry on]. I was a bit lost without sport in my life" (Harry). Being injured was frustrating due to the inability to practice, but when Dan was injured, he reported being able to reflect: "You talk to people [about injuries], they think of it as a really negative thing because they think pain, can't train, but you get time to figure out what works". The frustration of injury was borne from a lack of control over missed practice as highlighted by Nicky: "It came at the wrong time. Totally knocked me back. I was out for months. I couldn't do anything at all. It was a really difficult time". Regardless of the reason for practice disruption, Chloe reported her sporting path being changed for the better:

I wasn't enjoying training, so I stopped for a bit. Then I changed to a new position, got lucky that my dad convinced me to go back, and got me somewhere [new club]. I became a keeper... yeah, a totally different position, it was like meant to be. Because training was different and there was more focus on just me, it was better, I actually enjoyed training.

3.10 Practice Performance Failure

Significant poor performance influenced practice, as highlighted by Laura: "It definitely affected me for ages, months. I got to come back home and see everyone from my old club. I just lost a little bit of belief in myself. I'm ok now though". The higher the stakes, the greater the impact: "Preparing for national final at training, I just couldn't catch the ball. I replay that time all the time in my head. I still think about it today" (Ella). Failure during extended periods of poor

goal achievement and low performance in practice was reflected upon by Harry: "I found training a bit harder because I was less motivated, I couldn't improve. My level was not good at training, which made me worse again". Ben discussed the failure he felt by being physically weaker in the practice group: "It was more of a realization. They were so much stronger and that was the difference. I literally couldn't compete at all with them when we trained". Despite the negativity associated with failed performance, it motivated Abi to not want to fail again: "I was more scared that it was going to keep happening. What they [coaches] were actually saying [getting dropped from group] was going to happen... Sometimes it's a positive because it wakes you up from it happening". Accepting failure and the lack of control over failing was described as essential for development: "You can't stop training bad. Learn not to focus on it. My coach always says you only learn from losing and it stays with me" (Nicky). Performance growth from failure was stated by Imogen: "If it [practice performance] doesn't go too well its sort of holding onto that anger and putting it forward into what you do next".

4. Discussion

The current study explored the key developmental experiences of TASS Dual Career athletes during time spent within their practice environment. The results can support practitioners to create and maintain a practice environment that facilitates the development of athletes. Findings suggest the need for certain initially perceived negative experiences to occur, which have previously been viewed as damaging to development (e.g., Coutinho *et al.*, 2016; Martindale *et al.*, 2005). For example, there is a critical need for failure during practice that emerges from comparisons against others, a technically and physically challenging environment, and a significant lack of progress over a long period of time. A large amount of data was analyzed, and this discussion section focuses on the more interesting and nuanced findings. At times, findings share similarities with previous research on elite athletes (e.g., Hardy *et al.*, 2017), but the way experiences are perceived within practice appear to be unique to the environment when compared to holistic or competition-focused developmental experiences.

Sarkar *et al.* (2015) identified significant competition failure as important for the development of elite athletes, through which learning, and reflection could be undertaken. Gulbin *et al.* (2013) similarly

showed that most athletes experience at least one period of developmental decline before reaching a higher competitive level. The current study suggests the practice environment should provide consistent failure, through challenge, and allow failure to pervade and influence long-term practice performance. Failure in practice should be viewed as acceptable and associated with positive consequences (i.e., opportunity to learn) (Gómez-López *et al.*, 2020). Gustafsson *et al.* (2017) reported fear of failure in elite adolescent athletes produced higher levels of psychological stress and burnout, which was particularly evident through experiences of shame and embarrassment. However, failure within the practice environment (e.g., being the weakest performer) was a contributor to enhanced development rather than a cause of psychological stress and burnout. An emphasis on lower practice expectations from external sources (e.g., coaches) and the acceptance of regularly occurring, uncontrollable failure in practice seems to be effective for development (Smith *et al.*, 2021). Higher internally generated practice expectations appear to be more effective for development and decreased the stress associated with external sources.

Success and achievement were important for athlete development within the practice environment. In contrast to failure that was experienced more consistently over time, participants referred to significant moments of success having a developmental impact. Previous research has referred to positive emotions needing to outweigh negative emotions for flourishing mental health (e.g., Fredrickson and Losada, 2005; Schutte, 2014). The critical positivity ratio has attracted criticism (Brown *et al.*, 2013) and it seems that within sporting environments there is less flourishing due to athletes' constant battle to overcome negativity (Hardy *et al.*, 2017; Sarker & Fletcher, 2017). Current study results support the cyclical developmental process proposed by Smith *et al.* (2020a) with the experience of low-level regular failure during practice that creates a desire to improve and ends with the realization of significant success. Lower levels of negative experience were supported by a lack of reference to spiraling negative feelings that can adversely affect performance (Knight & Eisenkraft, 2015). To offset spiraling negativity within practice, the acceptance of failure (Breines & Chen, 2012) and adversity-related experiences (Sarkar *et al.*, 2015) seem critical to promote the motivation to improve and achieve.

Negativity was predominantly experienced through various forms of practice performance failure (e.g., failing to meet a practice objective or losing in practice competition). Recent research suggests negative communication (Smith *et al.*, 2021) and punishment (Kerr *et al.*, 2020) to be coaching tools used to develop athletes. However, negative communication during practice, such as condescending tones and autocratic styles (Fraser-Thomas & Côté, 2009), was not apparent in the current study. Despite the potential for the coach-athlete relationship to experience the majority of conflict during practice (Wachsmuth *et al.*, 2018), there was no reference made to direct negative communication within the environment. In fact, coach and teammate support was often cited to be present and may be a further tool used to buffer the negative effects of performance failure.

Participants stated rarely being happy with performance, which supports the presence of consistent negativity. A strong belief in their ability built through practice achievement and autonomy afforded to them by coaches (Nichols *et al.*, 2019) was cited to help accept failure. Whitley *et al.* (2016) reported self-belief to be a key influence on an athlete's ability to overcome developmental risk factors, which was borne from early and significant career success. The rarely occurring significant positive achievements experienced in practice appear to contribute to athlete self-belief and the buffering of negative experience. Without significant practice achievement, negativity experienced in the environment may be overwhelming for athletes and cause adverse developmental influences (Saarinen *et al.*, 2020).

Exposure to higher ability players, where failure was experienced, was deemed more acceptable by participants. Goldman *et al.* (2022) reported talented youth soccer players to be appropriately challenged with higher intensity practice when they practiced and competed with older athletes. Despite Goldman and colleagues highlighting the social issues that younger athletes may have when competing with older athletes, the current study did not support those findings, suggesting a developmentally successful practice environment minimizes social issues for younger athletes. Interestingly, Ronkainen *et al.* (2019) suggested student-athletes will choose role models not just based on performance criteria and, therefore, within socially created practice

environments (Smith, 2003), coaches may wish to consider the non-performance needs of their athletes.

High performing athletes are characterized by their desire to compete against others (Witkowski & Pieioira, 2018). Practice competition could be created by selection pressure and goal setting, which creates regular ability comparisons against others (Smith *et al.*, 2021). Saarinen *et al.* (2020) reported the need to impress others through competitive success as having a negative impact within the coaching environment, but that was not realized in this study within practice. Jordalen *et al.* (2020) found competition success to be important for development, but within practice there appears to be a need for regular competitive failure. Failure in competitive situations during practice would be more advisable than coach created punishments to provide negative and adversarial experiences (Kerr *et al.*, 2020). Therefore, if high performing athletes are achieving success during competition, practice failure against other comparable athletes may be advantageous for development. Lower practice expectations may ease the impact of competitive failure in practice, suggesting why highly significant failure might be more influential in competition than practice.

When participants experienced trauma or adversity, they received support from those involved in the practice environment (Whitley *et al.*, 2016). In fact, other individuals within the practice environment (e.g., coaches and players) also provided direction and encouragement to participants, which enhanced performance (Berg & Warner, 2019). When participants discussed positive support, it tended to be in relation to significant experiences, which reaffirms the notion that practice can maintain a consistent low level of negative experience interspersed with significant positivity (i.e., success and support). Growth from failure in the practice environment was regularly described as being a personal endeavor without the need for support unless the failure was significant. Similar to posttraumatic growth theory (Tedeschi & Calhoun, 1995), following significant trauma there was a need for support and disclosure that allowed athletes to access differing perspectives from those that had previous experience (e.g., coaches and older athletes) (Tedeschi & Calhoun, 2004).

4.1 Study Limitations

It is possible that the experiences perceived within the practice environment, despite the

participants being high performing athletes, did not contribute adaptively to their development. The measurement and evaluation of human developmental experience is temporally affected and highly complex, with recollection of experience being distorted (e.g., recalling moments of adversity) (Brown *et al.*, 2015). The current study held the assumption that the practice environment experiences reported must have been developmentally beneficial because they were the experiences of athletes who had made it to an elite level. However, the successful youth athletes interviewed in this study may drop out of their sport and not realize their potential (Corrales & Olaya-cuartero, 2022). Therefore, the experiences reported in this study may not be applicable to the development of senior athletes. When conducting qualitative research, it is often difficult to assess how many participants are required to answer the research question (Boddy, 2016). The current study interviewed 15 participants, which may have satisfied code saturation, but did not reach the 16-24 interview target set by Hennink *et al.* (2017) to achieve meaning saturation. Therefore, the richer meaning within the experiential themes may not have been realized.

5. Conclusion

The findings from this study revealed the developmental experiences of high performing TASS dual carrier athletes in the practice environment. Athlete development within the practice environment is nonlinear and multifaceted with both positive and negative experiences. Results suggest that athletes perceived the practice environment to contain consistent low-level negative experiences with less common moments of significant success. Practitioners who wish to create practice environments that are beneficial for athlete developmental should consider providing a balanced approach to positive and negative experience. Significant success should be celebrated to aid with athlete self-belief, which can buffer the potential detrimental influence from a consistent low-level experience of failure within practice. This study highlights the importance of failure acceptance, which interacts with other factors such as recognition of overachievement from others and perceived high effort, to stop spiraling negativity.

References

- Baker, J., Côté, J., & Abernethy, B. (2003). Learning from the experts: Practice activities of expert decision makers in sport. *Research Quarterly for Exercise and Sport*, 74(3), 342-347. [DOI] [PubMed]
- Baker, J., Wattie, N., & Schorer, J. (2019). A proposed conceptualization of talent in sport: The first step in a long and winding road. *Psychology of Sport and Exercise*, 43, 27-33. [DOI]
- Balyi, I., & Hamilton, A. (2004). Long-term athlete development: Trainability in childhood and adolescence. *Olympic Coach*, 16(1), 4-9.
- Belotto, M.J. (2018). Data analysis methods for qualitative research: Managing the challenges of coding, interrater reliability, and thematic analysis. *Qualitative Report*, 23(11), 2622-2633. [DOI]
- Berg, B.K., & Warner, S. (2019). Advancing College Athlete Development via Social Support. *Journal of Issues in Intercollegiate Athletics*, 12, 87-113.
- Blackie, L.E.R., Jayawickreme, E., Tsukayama, E., Forgeard, M.J., Roepke, A.M., & Fleeson, W. (2017). Post-traumatic growth as positive personality change: Developing a measure to assess within-person variability. *Journal of Research in Personality*, 69, 22-32. [DOI]
- Boddy, C. R. (2016). Sample size for qualitative research. *Qualitative Market Research: An International Journal*, 19(4), 426-432. [DOI]
- Braun, V., & Clarke, V. (2016). (Mis)conceptualising themes, thematic analysis, and other problems with Fugard and Potts' (2015) sample-size tool for thematic analysis. *International Journal of Social Research Methodology*, 19(6), 739-743. [DOI]
- Braun, V., & Clarke, V. (2021). To saturate or not to saturate? Questioning data saturation as a useful concept for thematic analysis and sample-size rationales. *Qualitative Research in Sport, Exercise and Health*, 13(2), 201-216. [DOI]
- Braun, V., Clarke, V., & Weate, P. (2016). Using thematic analysis in sport and exercise research. *Routledge handbook of qualitative research in sport and exercise*, 1, 191-205.
- Breines, J.G., & Chen, S. (2012). Self-compassion increases self-improvement motivation. *Personality and Social Psychology Bulletin*, 38(9), 1133-1143. [DOI] [PubMed]

- Brown, H.E., Lafferty, M.E., & Triggs, C. (2015). In the face of adversity: Resiliency in winter sport athletes. *Science & Sports*, 30(5), e105-e117. [DOI]
- Brown, N.J.L., Sokal, A.D., & Friedman, H.L. (2013). The complex dynamics of wishful thinking: The critical positivity ratio. *American Psychologist*, 68(9), 801-813. [DOI] [PubMed]
- Comer, S. K. (2009). The ethics of conducting educational research on your own students. *Journal of Nursing Law*, 13(4), 100-105. [DOI]
- Corrales, D.M., & Olaya-cuartero, J. (2022). Analysis of school-age dropout in endurance sports: a systematic review. *Journal of Physical Education and Sport*, 22(2), 311-320. [DOI]
- Côté, J., Bruner, M., Erickson, K., Strachan, L., & Fraser-Thomas, J. (2010). Athlete development and coaching. *Sports coaching: Professionalisation and practice*, 63, 84.
- Coutinho, P., Mesquita, I., & Fonseca, A.M. (2016). Talent development in sport: A critical review of pathways to expert performance. *International Journal of Sports Science & Coaching*, 11(2), 279-293. [DOI]
- Delattre, M., Ocler, R., Moulette, P., & Rymeyko, K. (2009). Singularity of qualitative research: From collecting information to producing results. *Tamara: Journal for Critical Organization Inquiry*, 7(3).
- Douglas, K. & Carless, D. (2006). Performance environment research: Research report. *Sport Performance Environment Research*, London.
- Ericsson, K.A., Krampe, R.T., & Tesch-Römer, C. (1993). The role of deliberate practice in the acquisition of expert performance. *Psychological Review*, 100(3), 363-406. [DOI]
- Fletcher, D., & Sarkar, M. (2013). Psychological resilience. *European Psychologist*, 18(1), 12-23. [DOI]
- Fletcher, D., Hanton, S., Mellalieu, S.D., & Neil, R. (2012). A conceptual framework of organizational stressors in sport performers. *Scandinavian Journal of Medicine & Science in Sports*, 22(4), 545-557. [DOI] [PubMed]
- Fraser-Thomas, J., & Côté, J. (2009). Understanding adolescents' positive and negative developmental experiences in sport. *The Sport Psychologist*, 23(1), 3-23. [DOI]
- Fredrickson, B.L., & Losada, M.F. (2005). Positive affect and the complex dynamics of human flourishing. *American Psychologist*, 60(7), 678. [DOI] [PubMed]
- Gerabinis, P., Hatzigeorgiadis, A., Theodorakis, Y., & Goudas, M. (2018). Sport climate, developmental experiences and motivational outcomes in youth sport. *Journal of Education and Human Development*, 7(3), 58-65.
- Goldman, D.E., Turnnidge, J., Kelly, A. L., deVos, J., & Côté, J. (2022). Athlete perceptions of playing-up in youth soccer. *Journal of Applied Sport Psychology*, 34(4), 862-885. [DOI]
- Gómez-López, M., Chicau Borrego, C., Marques da Silva, C., Granero-Gallegos, A., & González-Hernández, J. (2020). Effects of motivational climate on fear of failure and anxiety in teen handball players. *International Journal of Environmental Research and Public Health*, 17(2), 592. [DOI] [PubMed]
- Gulbin, J., Weissensteiner, J., Oldenzel, K., & Gagné, F. (2013). Patterns of performance development in elite athletes. *European Journal of Sport Science*, 13(6), 605-614. [DOI] [PubMed]
- Güllich, A., Macnamara, B.N., & Hambrick, D.Z. (2022). What makes a champion? Early multidisciplinary practice, not early specialization, predicts world-class performance. *Perspectives on Psychological Science*, 17(1), 6-29. [DOI] [PubMed]
- Gustafsson, H., Sagar, S.S., & Stenling, A. (2017). Fear of failure, psychological stress, and burnout among adolescent athletes competing in high level sport. *Scandinavian Journal of Medicine & Science in Sports*, 27(12), 2091-2102. [DOI] [PubMed]
- Hardy, L., Barlow, M., Evans, L., Rees, T., Woodman, T., & Warr, C. (2017). Great British medalists: Psychosocial biographies of super-elite and elite athletes from Olympic sports. *Progress in Brain Research*, 232, 1-119. [DOI] [PubMed]
- Harwood, C., & Johnston, J. (2016). Positive youth development and talent development. *Positive youth development through sport*, Routledge. 113-125. [DOI]

- Headrick, J., Renshaw, I., Davids, K., Pinder, R.A., & Araújo, D. (2015). The dynamics of expertise acquisition in sport: The role of affective learning design. *Psychology of Sport and Exercise*, 16(1), 83-90. [DOI]
- Hennink, M. M., Kaiser, B. N., & Marconi, V. C. (2017). Code saturation versus meaning saturation: how many interviews are enough?. *Qualitative Health Research*, 27(4), 591-608. [DOI] [PubMed]
- Henriksen, K., & Stambulova, N. (2017). Creating optimal environments for talent development: A holistic ecological approach. *Routledge handbook of talent identification and development in sport*, 270-284. [DOI]
- Hetland, A., Vittersø, J., Oscar Bø Wie, S., Kjelstrup, E., Mittner, M., & Dahl, T. I. (2018). Skiing and thinking about it: Moment-to-moment and retrospective analysis of emotions in an extreme sport. *Frontiers in Psychology*, 9, 971. [DOI] [PubMed]
- Hurley, K.S., & Burt, T.L. (2015). Development of physical competence through motor skill acquisition for children and youth with disabilities: Parental perceptions. *Health Psychology Report*, 3(1), 1-12. [DOI]
- Johnson, M.B., Tenenbaum, G., Edmonds, W.A., & Castillo, Y. (2008). A comparison of the developmental experiences of elite and sub-elite swimmers: similar developmental histories can lead to differences in performance level. *Sport, Education and Society*, 13(4), 453-475. [DOI]
- Jordalen, G., Lemyre, P.N., & Durand-Bush, N. (2020). Interplay of motivation and self-regulation throughout the development of elite athletes. *Qualitative Research in Sport, Exercise and Health*, 12(3), 377-391. [DOI]
- Kallio, H., Pietilä, A. M., Johnson, M., & Kangasniemi, M. (2016). Systematic methodological review: developing a framework for a qualitative semi-structured interview guide. *Journal of Advanced Nursing*, 72(12), 2954-2965. [DOI] [PubMed]
- Kendellen, K., & Camiré, M. (2015). Examining former athletes' developmental experiences in high school sport. *Sage Open*, 5(4). [DOI]
- Kerr, G., Battaglia, A., Stirling, A., & Bandy, A. (2020). Examining coaches' perspectives on the use of exercise as punishment. *International Sport Coaching Journal*, 7(3), 306-316. [DOI]
- Knight, A.P., & Eisenkraft, N. (2015). Positive is usually good, negative is not always bad: The effects of group affect on social integration and task performance. *Journal of Applied Psychology*, 100(4), 1214-1227. [DOI] [PubMed]
- Lazarus, R.S. (1991). Progress on a cognitive-motivational-relational theory of emotion. *American Psychologist*, 46(8), 819-834. [DOI] [PubMed]
- Linley, P.A., & Joseph, S. (2004). Positive change following trauma and adversity: A review. *Journal of Traumatic Stress*, 17(1), 11-21. [DOI] [PubMed]
- Low, J. (2013). Unstructured and semi-structured interviews in health research. *Researching health: Qualitative, Quantitative and Mixed Methods*, Sage, 87-105.
- Martindale, R.J., Collins, D., & Daubney, J. (2005). Talent development: A guide for practice and research within sport. *Quest*, 57(4), 353-375. [DOI]
- Nakkeeran, N., & Zodey, S. P. (2012). Qualitative research in applied situations: Strategies to ensure rigor and validity. *Indian Journal of Public Health*, 56(1), 4-11. [DOI] [PubMed]
- Nicholls, A.R., Levy, A.R., Carson, F., Thompson, M.A., & Perry, J.L. (2016). The applicability of self-regulation theories in sport: goal adjustment capacities, stress appraisals, coping, and well-being among athletes. *Psychology of Sport and Exercise*, 27, 47-55. [DOI]
- Nichols, M.K., Lough, N.L., & Corkill, A.J. (2019). Exploring Success: Variations in Division I Student-Athlete Academic and Athletic Performance. *Journal of Issues in Intercollegiate Athletics*, 12, 314-342.
- Poucher, Z.A., Tamminen, K.A., Caron, J.G., & Sweet, S.N. (2020). Thinking through and designing qualitative research studies: A focused mapping review of 30 years of qualitative research in sport psychology. *International Review of Sport and Exercise Psychology*, 13(1), 163-186. [DOI]

- Ronkainen, N.J., Ryba, T.V., & Selänne, H. (2019). "She is where I'd want to be in my career": Youth athletes' role models and their implications for career and identity construction. *Psychology of Sport and Exercise*, 45, 101562. [DOI]
- Rothwell, M., Stone, J. A., Davids, K., & Wright, C. (2017). Development of expertise in elite and sub-elite British rugby league players: A comparison of practice experiences. *European Journal of Sport Science*, 17(10), 1252-1260. [DOI] [PubMed]
- Saarienen, M., Ryba, T.V., Ronkainen, N.J., Rintala, H., & Aunola, K. (2020). 'I was excited to train, so I didn't have problems with the coach': dual career athletes' experiences of (dis)empowering motivational climates. *Sport in Society*, 23(4), 629-644. [DOI]
- Sarkar, M., & Fletcher, D. (2017). Adversity-related experiences are essential for Olympic success: Additional evidence and considerations. *Progress in brain research*, 232, 159-165. [DOI] [PubMed]
- Sarkar, M., Fletcher, D., & Brown, D. J. (2015). What doesn't kill me...: Adversity-related experiences are vital in the development of superior Olympic performance. *Journal of Science and Medicine in Sport*, 18(4), 475-479. [DOI] [PubMed]
- Schutte, N.S. (2014). The broaden and build process: Positive affect, ratio of positive to negative affect and general self-efficacy. *The Journal of Positive Psychology*, 9(1), 66-74. [DOI]
- Shek, D.T., Dou, D., Zhu, X., & Chai, W. (2019). Positive youth development: Current perspectives. *Adolescent Health, Medicine and Therapeutics*, 10, 131-141. [DOI] [PubMed]
- Smith, A.L. (2003). Peer relationships in physical activity contexts: A road less travelled in youth sport and exercise psychology research. *Psychology of Sport and Exercise*, 4(1), 25-39. [DOI]
- Smith, B., & McGannon, K. R. (2018). Developing rigor in qualitative research: Problems and opportunities within sport and exercise psychology. *International Review of Sport and Exercise Psychology*, 11(1), 101-121. [DOI]
- Smith, S.M., Brown, H., & Cotterill, S.T. (2021). Implementing and Evaluating the Practice Environment Model Using Action Research. *International Sport Coaching Journal*, 9(1), 100-110. [DOI]
- Smith, S.M., Cotterill, S.T., & Brown, H. (2019). A case study of factors influencing performance in the practice environment. *Case Studies in Sport and Exercise Psychology*, 3(1), 33-40. [DOI]
- Smith, S.M., Cotterill, S.T., & Brown, H. (2020a). An interpretative phenomenological analysis of coach perceptions in the practice environment. *The Sport Psychologist*, 34(4), 257-267. [DOI]
- Smith, S.M., Cotterill, S.T., & Brown, H. (2020b). An interpretative phenomenological analysis of performance influencing factors within the practice environment. *Journal of Physical Education and Sport*, 20(4), 1646-1657. [DOI]
- Swann, C., Moran, A., & Piggott, D. (2015). Defining elite athletes: Issues in the study of expert performance in sport psychology. *Psychology of Sport and Exercise*, 16, 3-14. [DOI]
- Tedeschi, R.G., & Calhoun, L.G. (1995). Trauma & transformation: Growing in the aftermath of suffering, *Sage*.
- Tedeschi, R.G., & Calhoun, L.G. (2004). Posttraumatic growth: conceptual foundations and empirical evidence. *Psychological Inquiry*, 15(1), 1-18. [DOI]
- Tracy, S.J. (2010). Qualitative quality: Eight "big-tent" criteria for excellent qualitative research. *Qualitative Inquiry*, 16(10), 837-851. [DOI]
- Trainor, L.R., & Bundon, A. (2021). Developing the craft: Reflexive accounts of doing reflexive thematic analysis. *Qualitative Research in Sport, Exercise and Health*, 13(5), 705-726. [DOI]
- Wachsmuth, S., Jowett, S., & Harwood, C.G. (2018). On understanding the nature of interpersonal conflict between coaches and athletes. *Journal of Sports Sciences*, 36(17), 1955-1962. [DOI] [PubMed]
- Whitley, M.A., Massey, W.V., & Leonetti, N.M. (2016). 'Greatness (un) channelled': the role of sport in the life of an elite athlete who overcame multiple developmental risk factors. *Qualitative Research in Sport, Exercise and Health*, 8(2), 194-212. [DOI]

Witkowski, K., & Piepiora, P. (2018). Personality traits of competitive athletes according to type of pressure exerted on opponents. *South African Journal for Research in Sport, Physical Education and Recreation*, 40(1), 97-109.

Funding Information

No funding was received for this research study

Ethics Approval

Ethical approval was obtained from the university ethics board

Author Contribution Statement

Both authors equally contributed and approved the final manuscript.

Informed Consent

All participants provided informed consent

Conflict of interest

There are no conflicts of interest to declare

Does this article pass screening for similarity?

Yes

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