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# **Implementing and Evaluating the Practice Environment Model Using Action Research**

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The psychological factors that influence performance in the practice environment, where competitive athletes engage in deliberate practice, have recently been given specific research attention. The current study employed an action research approach to implement the practice environment model as an education strategy to increase the practice performance of players in a U.K. basketball academy team over a 20-week period. The aim of the study was to evaluate the effect of the education strategy on practice performance. The team competed nationally and consisted of the head coach, the assistant coach, and 18 male players aged 16–19 years. Data were collected through focus groups, joint semistructured interviews, field observations, and a practice environment model web-based questionnaire. Qualitative data were analysed using thematic narrative analysis and the Friedman test analysed quantitative data. Quantitative results suggested that the education strategy decreased perceptions of stress and increased effort, preparation activities, and teammate support. Qualitative results provided an in-depth narrative of the environmental changes undertaken to improve practice performance. Discussion focuses on the key strategies of effort and control, performance expectations, team drive, positive communication, and preparation. This study is the first to apply the practice environment model to a real-world sporting domain.

*Keywords:* deliberate practice, longitudinal qualitative research, psychosocial development, team performance

## **Implementing and Evaluating the Practice Environment Model Using Action Research**

Athletes spend a considerable amount of time preparing for competition, which emphasises the need to understand the influences impacting performance from environments outside of direct competition (Douglas & Carless, 2006). The psychological factors that influence performance within the practice environment, which are created through stimulus-based perceptions from environmental transactions (Lazarus, 1991), have traditionally received less research attention when compared with other environments, such as during competition and organisational functioning within sport (Wagstaff, 2019a). However, several exploratory studies have recently been conducted within youth basketball to better understand the psychological factors present within the practice environment. These studies captured perceptions from athletes (Smith, Cotterill, & Brown, 2020a), coaches (Smith, Cotterill, & Brown, 2020b), and the holistic organisation of a team (Smith, Cotterill, & Brown, 2019).

The practice environment model (PEM) developed by Smith et al. (2020b) highlighted the short-term cyclical nature of practice to be heavily influenced by the accuracy of performance expectations, perceived intrateam ability rankings, goal orientations, and coach impact. Long-term practice processes (e.g., skill development) occurred through exposure to negative situations (e.g., failure) that caused enhanced resilience and performance improvements. The PEM highlights the influencing factors experienced by athletes in practice where an increase in perceived positive factors (e.g., teammate support) and a reduction in perceived negative factors (e.g., individually focused teammates) could enhance practice performance. As of yet, the PEM has not been tested within a real-world practice environment. The research conducted by Smith et al. (2019, 2020a, 2020b) upon practice perceptions provided an important addition to the current performance environment and organisational stress literature by highlighting several factors that differed to those

previously reported in other environments, such as competition. For example, the influence of intrateam competition, which has been identified as crucial for athlete development by Mills, Butt, Maynard, and Harwood (2012), was reported by Smith et al. (2020a) to be a factor that could decrease team cohesion and performance in practice. The application of intrateam competition as a constraint within the practice environment, therefore, requires greater understanding (Passos, Araújo, & Davids, 2016). Also, Smith et al. (2020b) suggested that the type of communication (e.g., supportive or unsupportive) used within the repetitive practice environment can have a unique influence on performance outcomes (e.g., the influence of accumulative fatigue on teammate communication).

Psychological environment research, which describes the meaningful interactions and transactions that individuals perceive within an environment (Roeser, Midgley, & Urdan, 1996), has provided limited attempts to translate exploratory findings into intervention studies (Wagstaff, 2019b). The necessity to undertake thorough environmental explorations could be one reason why there is a lack of effective intervention studies. An attempt to evaluate a season-long intervention within a rugby club by Pattison and McInerney (2016) was hampered by a lack of clarity regarding the interventions and why they were used, whereas successful intervention studies can be seen through the efforts of Pain and Harwood. The findings from Pain and Harwood's (2007, 2008) initial explorations of influencing factors within the performance environment of international youth soccer players has been applied to future intervention studies on open player discussions on team functioning (Pain & Harwood, 2009) and assessments on preparation, functioning, and performance (Pain, Harwood, & Mullen, 2012). The action research (AR) approach undertaken by Pain et al. (2012) was particularly successful at providing a methodology that could evaluate, adapt, and learn from interventions applied over a long period of time (Farias, Mesquita, Hastie, & O'Donovan, 2018). Dohme, Bloom, Piggott, and Backhouse (2020) also recently reported the

successful use of AR to evaluate a mental skills training programme. The prolonged immersion of the researcher within the participants' world was reported to provide a rich assessment and in-depth understanding of the athletes' environment, which is especially important in longitudinal intervention studies. Unlike the research attention applied to performance environments, the practice environment has yet to be subjected to an applied intervention to enhance athlete performance based on existing exploratory research. Furthermore, longitudinal application of the PEM to a practice environment will provide a robust examination of previous research findings and indicate whether the factors of the PEM can enhance practice performance. Using an AR approach, the aim of the current study was to implement and evaluate a season-long education strategy (ES) based on the PEM (Smith et al., 2020b) within a U.K. basketball academy practice environment. The research questions were (a) does the ES (displayed in Table 1) improve the individual psychological factors identified in the and (b) does the ES improve practice performance.

## **Method**

### **Action Research**

This study was guided by the ontological and epistemological position of interpretivism. The methodology of AR was chosen because of the need to interpret the unique experience of individuals within socialised subjective structures (Nielsen & Nielsen, 2006). AR is becoming more common within sport and exercise research (e.g., Chalip & Hutchinson, 2017; Chapron & Morgan, 2019; Farias et al., 2018), providing long-term and contextually-bound solutions to the real-life needs of athletes and coaches (Thrower, Harwood, & Spray, 2017). AR enables participants to gain knowledge and power to be in control of their own lives by acting as decision makers (McNiff, 2016), which is particularly important within youth sport environments where development can be exclusively reliant upon

players and coaches (Gano-Overway & Guivernau, 2018). Knowledge creation through AR involves researchers working with sport practitioners to effect desired change rather than to solely understand participants' subjective perceptions of themselves (McNiff, 2016) and group social arrangements (Huang, 2010). By collaborating with the members of the environment and turning them into researchers, AR can: contribute to the understanding of practical problems identified in previous practice environment research, evaluate change from multiple sources to enhance the understanding of the phenomenon of interest, and permit individuals within the environment to make decisions that guide the research because they are best placed to do so (Bodner, MacIsaac, & White, 1999; O'Brien, 2001). This study applied the AR spiral offered by Kemmis, McTaggart, and Nixon (2013), which proposes "cycles of planning, acting and observing, reflecting, re-planning, new action and observation, further reflection, and so on" (p. 112).

### **Participants**

The participants were from a male basketball academy team that competed in the U.K.-wide Elite Academy Basketball League. All players were undertaking full-time educational programmes in a U.K. sixth form college (i.e., state-funded provider of education for 16–19 year olds). The team undertook approximately 12 hr of weekly on-court practice activity. The first named author (White British male aged 38 years), referred to henceforth as the researcher, conducted all interactions within the environment. The researcher was in an academic position at the linked educational organisation and had provided psychological support to the team for 3 years before the study commenced. The researcher's interaction with participants was as a practitioner (e.g., delivering the ES) and researcher (e.g., observation and data collection). The researcher interacted with players on a weekly basis in player meetings and focus groups and with coaches at weekly player and

coach meetings. The head coach (HC) was a White British male aged 31 years in his eighth year of full-time employment with the team and had an overall coaching experience of 12 years. The assistant coach (AC) was a White British male aged 27 years in his fourth year of full-time employment and had 9 years of coaching experience. The team consisted of 18 players aged between 16 and 19 years (mean = 17.70, SD = 1.04) who represented four nationalities (15 British, one Lithuanian, one Polish, and one American), and experience within the current practice environment ranged from first year to third year (mean = 1.56, SD = 0.70).

### **Procedure**

Ethical approval was gained from the University of Winchester ethics committee. The HC and AC of the team were professionally known to the researcher through ongoing team psychology support and previous research studies. The researcher contacted the coaches, and both agreed to take part in the study. Following discussions, the researcher and coaches identified five key strategies from the PEM to be implemented into the practice environment to enhance practice performance over the season, which created the initial ES (see Table 1). It was important that any implemented ES would not adversely affect player well-being. Using guidance posited by Currie and Sumich (2014), the ES had to create an environment with a positive climate and freedom for expression, offer choice, and be free from continuous normative competency tasks in front of others. The five strategies that made up the ES were: high effort as the primary goal in all practice sessions, the undertaking of prepractice performance reflections to focus on current state, the development of supportive communication between teammates and coaches, the setting of common goals shared by all players that come before individual goals, and enhanced practice preparation. The players were invited to partake in the study by the HC and researcher in a preseason team meeting where the ES was introduced and study information sheets provided. The players were



explained their role, assured of their confidentiality, advised of their freedom to leave the study at any time, and given the chance to ask questions (Nair, Showden, Sligo, Matthews, & Kidman, 2020). All players agreed to take part in the study and gave written consent. The study lasted for 20 weeks (length of competitive season) exclusive of academic holidays when the practice facility closed. In line with effective AR, the ES was not static and was open for adaptations and changes throughout the season (Bodner et al., 1999). The researcher and coaches collaborated on, and implemented, changes to the ES. Data were collected from three sources over six time phases. Both qualitative and quantitative data collection techniques were used to provide triangulation (Denzin, 2012) and to add rigor, breadth complexity, richness, and depth to the inquiry (Flick, 2007). The data collection techniques comprised focus groups, joint semi-structured interviews, observations, and a web-based questionnaire (WBQ).

### **Weekly Meetings**

The researcher held weekly player and coach meetings to disseminate information, evaluate player interactions, discuss ES functionality, and introduce any changes. Player meetings lasted between 25 and 42 min (mean = 33.24, SD = 5.09) and were undertaken in a classroom situated in the building where practice was performed. Coach meetings lasted between 22 and 45 min (mean = 30.03, SD = 6.34) and were undertaken in the staff office. Details of meetings can be found in Table 2. The weekly player meetings were undertaken after the academic day and before evening practice sessions. Coaches identified several players who displayed a lack of adherence to the ES, and they met the researcher on an individual basis to reinforce ES benefits. The coaches applied the ES within the practice environment, and weekly coach meetings were used to discuss ES progress and the implementation of relevant changes. Coach meetings were not held at a regular time but were undertaken when it was convenient due to scheduling issues.

## **Data Collection Techniques**

The programme of data collection techniques can be seen in Table 2. Focus groups and joint semi-structured interviews. Focus groups generated data through social interaction and group synergy to illuminate participant perspectives (Krueger & Casey, 2014). Four player focus groups were conducted during Weeks 2, 11, and 20 that lasted between 47 and 52 min (mean = 49.84, SD = 2.45). All players contributed to at least one focus group with participants randomly selected. Three coach joint semi-structured interviews were conducted with the HC and AC during Weeks 3, 8, and 20 that lasted between 39 and 49 min (mean = 44.00, SD = 5.00). Semi-structured focus group and interview guides were used to gather participants' experience of positive and negative performance influences in the practice environment. The guide was designed by the researcher and based on their knowledge of the environment and previous literature (Woodman & Hardy, 2001). Each guide differed due to the reactive nature of AR wherein past cycles informed future guides (Mulhall, 2003). Questioning in the first focus group and interview was more generalised (e.g., "What are you thinking about just before you get to practice?") compared with future focus groups and interviews that held more specific questioning to ES changes (e.g., "What have been the benefits of conducting pre-practice performance expectations?"). All focus groups and interviews were audio recorded and transcribed verbatim within 48 hr of their conclusion to enhance the recall of nonverbal features of the interaction (Bailey, 2008). Observations. Observations were conducted to interpret PEMbased behaviour within the practice environment. Observations were undertaken during weekly meetings and on-court practice sessions. The researcher was in a position to oversee, communicate, and act on the elements within the environment (Simpson & Tuson, 2003). Therefore, the researcher's personal experience and understanding of the environment provided meaningful interpretation (Atkinson, 1992). Observations were recorded in field notes, which provided a running background commentary as well as offering

triangulation with other data sources (Montgomery&Bailey, 2007). Web-based questionnaire. The WBQ was representative of the PEM factors. The WBQ collected player data and acted as a reflective tool before and after practice. The WBQ was disseminated to players following the weekly meetings via a Google Form. Players completed the WBQ privately on personal mobile devices, and data were collected using 7-point Likert scales. All questions were anchored with poor/low (1) and excellent/high (7). Before practice commenced, players were prompted to reflect on their current psychological and physiological state and whether they felt they could perform to their normal standard of ability. The players were asked to score the following four questions on a 7-point Likert scale: “My preparation (e.g., sleep, rest, nutrition, and lifestyle) for training has been : : : ,” “My current fatigue (e.g., muscle soreness) levels are : : : ,” “My current stress levels are : : : ,” and “My performance at training today will be : : : .” The WBQ then instructed players to complete the remaining questions immediately after the practice session. The three post-practice activity questions were: “My performance during training today was : : : ,” “My effort level during training today was : : : ,” and “The positive support from teammates and coaches I’ve received has been : : : .” Players then submitted the WBQ.

### **Data Analysis**

The qualitative data gathered from focus groups, joint semi-structured interviews, and observations were analysed through thematic narrative analysis (TNA), which provided a depth to evaluation within a social context that statistical analysis could not provide (Griffin & Phoenix, 2016). The current study adopted guidelines set out by Smith (2016) for using TNA in sport and exercise. A TNA approach is the most commonly used method when the researcher is operating as a story analyst (Riessman, 2008) with various data sources (Ronkainen, Watkins, & Ryba, 2016). Due to the weekly data collection periods informing and contributing to the AR process, data analysis was completed within 7 days of its initial

collection to ensure that the AR spiral (Kemmis et al., 2013) was present and that past data could inform and change future practice (Gilbourne & Richardson, 2005). The first phase of analysis involved narrative indwelling or familiarisation with the data wherein transcripts and field notes were read and reread to gain an understanding of the stories (Frank, 2013).

Narrative themes and thematic relationships were then searched for in an attempt to keep the stories within the text intact. Key passages of text and any patterns that occurred were highlighted and, ensuring that the story remained intact, were moved to a computerised spreadsheet that allowed for an easy manipulation and movement of theme text. The text that represented the central concept of the story was then grouped with other similar clusters that became themes. The theme creation phase relied on researcher interpretation of the thematic content to provide rich insights into the story of the participants. As the study progressed, TNA identified a continually evolving group of themes that provided an ongoing commentary of the ES that contributed to future strategy (Gilbourne & Richardson, 2005). Finally, the TNA results were written as a realist tale to communicate the story of the 20-week study in an engaging and insightful manner (King, 2016). Quantitative data from the WBQ were analysed using the Friedman test in IBM SPSS Statistics. The Friedman test was chosen because it is a nonparametric test, analyses ordinal data, and could measure the differences between time phases (Green & Salkind, 2016). The average score for each participant was calculated for the six time phases, and differences between Likert-scale scores were analysed to assess change over time. The categories analysed were: current fatigue, current stress, predicted performance, actual performance, effort, preparation, and support.

### **Methodological Rigor**

This study used rigor criteria set out by Melrose (2001) for AR. There was a continuous repeating of the AR cycle each week, which included critical reflection on behalf of the researcher and the use of experienced researchers as critical friends (second and third

authors) throughout each cycle to ensure that learning and understanding from the environment was well grounded (McNiff, 2016). The members of the study remained constant, which enhanced the credibility of the applied strategy. The researcher's interpersonal abilities and good rapport with participants improved the working of the AR processes. Credibility was enhanced by the researcher's knowledge and experience of the environment under investigation and trust held within the group. Also, as highly experienced researchers, the second and third authors assisted with initial research planning. Vinson, Brady, Moreland, and Judge (2016) suggested that coaches construct practice activities and have a knowledge and understanding of the culture and ongoing social context in the environment, making them a pivotal component of the environment. The coaches in the current study were involved in data collection decisions that added a value to the findings. The collection of data from multiple sources improved the reliability of findings. Field notes were kept by the researcher that aided reflexivity and were pivotal in assessing the improvements within the environment. The coaches and critical friends were able to view field notes, examine the text for meaning, and contribute to data interpretation. The current study suggested a validity to results through improved practice performance, increased participant control within the environment, and pragmatic ES adaptations.

## **Results**

The ES impact was evaluated through perceived performance changes within the practice environment, which included qualitative and quantitative analysis. Table 1 highlights changes made to the ES following the completion of the AR process. Qualitative analysis was undertaken through a TNA approach to describe perceptual data. The findings within each subsection are ordered chronologically to inform the reader of the social contexts of the findings (Griffin & Phoenix, 2016) and where learning informed ES changes. Information of the phases can be found in Table 2.

Direct evidence of the “preparation” strategy was lacking and is, therefore, not reported in the “Results” section. However, the preparation strategy appeared to have an indirect influence on the other strategies, which is highlighted in the “Discussion” section. Pseudonyms were used to protect participant identity. Quantitative data obtained from the WBQ revealed statistical significance (set at a p value of .05 or lower) with decreased current stress,  $\chi^2(2) = 14.48$ ,  $p = .013$ , and increased actual performance,  $\chi^2(2) = 42.23$ ,  $p = .001$ , effort,  $\chi^2(2) = 20.14$ ,  $p = .001$ , preparation,  $\chi^2(2) = 36.66$ ,  $p = .001$ , and support,  $\chi^2(2) = 23.48$ ,  $p = .001$ . Importantly, actual performance had increased and surpassed predicted performance, which had decreased. No statistical significance was found for current fatigue,  $\chi^2(2) = 9.66$ ,  $p = .085$ , and predicted performance,  $\chi^2(2) = 7.55$ ,  $p = .183$ .

### **Effort and Control**

The HC cited an issue with effort being a primary focus during practice: “High effort should be inherent, inherent in the best players, we want it to be natural. Players have so much to think about tactically that to focus on something else could hurt development. Player Ben suggested a high-effort primary focus to be beneficial during a performance crisis: “I was so tired, but I was kind of chilled because when you [researcher] said last week to focus on effort I was just focusing on that and I’m pretty happy with the way it went.” The coaches recognised a high-effort primary focus as being a successful intervention due to it being controllable. A perceived lack of control over performance was stated by the AC to cause a spiral of continual negativity: Control is massive and something we have been talking about : : : they focus on one thing and when it doesn’t come off, they get really annoyed despite the fact they can’t directly affect it. They don’t have a mechanism to cope with it. Field note analysis highlighted players being heavily affected by mistakes, with continued mistakes indicating poor coping ability and a reliance on attempting to control outcomes. At the start of Phase 2, high effort as a primary focus was altered to become a coping strategy during a

performance crisis rather than be used in all practice scenarios, as described by the following field note: There was a general consensus among players that high effort would be better utilised as a coping mechanism to help shift focus away from tangible outcomes. Some players reiterated that when in a normal state there is too much skill and tactical information to think about and that just applying effort would not be an appropriate primary focus : : : effort was set as the only controllable factor the players have so it was interesting to see them recognise that and take it forward. One player stated that teammate mistakes could not be controlled so it should not affect them. The performance effects of understanding control were identified by Player Chris: “By not reminiscing about mistakes, thinking about what’s next or what’s right now rather than what’s been. But it doesn’t actually make my performance improve, it just stops continuous decline.” The need for players to remain in the present moment and not focus on previous failure provided an enhancement to the use of high effort as a primary goal. To enhance ES delivery, at the end of phase four, the coaches were advising players what elements of the practice session were controllable, with Player Adam stating: “We are much better at not thinking about what just happened with a mistake as it’s the past, you can only control the present and what happens next. I think the next play mentality has gotten so much better.” In Phase 6, the coaches perceived fewer performance slumps, as highlighted in the following field note extract from a live observation: A drill was run where players were put under pressure to shoot. The pressure was unpredictable and in some cases it was impossible to shot accurately and many mistakes were made. The coaches had taken time before the drill to advise players that they could not directly control the ball going in the hoop. When players missed, the coaches felt they dealt with it better than they had done any time before.

### **Performance Expectations**

Performance expectations that did not centre upon the present moment (e.g., psychological and physiological state) but upon an individual's general expectation of performance were discussed by Player Simon to be damaging: "I think that he [a teammate] doesn't like to fail too much, no matter how drained he feels. When he does get tired and fails, he puts out that anger in the wrong way." Player Adam stated the benefits of setting realistic performance expectations based on how he felt before practice: "Sometimes I'm just proper dead so I don't really expect anything of myself. So, it ends up giving me clear thoughts rather than having these pressures to perform." Similar to a high-effort primary focus, players identified a greater requirement for performance expectations when in crisis (e.g., fatigued state).

During Phase 3, the setting of effective performance expectations was evident in the following field note extract: "The team had a tough physical session the morning before on-court practice. Several players indicated feeling tired and lowered their expectations for the afternoon session. Following the afternoon session, the players reported performance to be above what they expected." However, some players cited having a strong desire to display their expected standard of ability within the team, which might override the performance expectations set before practice. To counter the need to display one's ability, the coaches agreed to adapt practice sessions to contain fewer individual-based drills.

Evidence in Phase 4 suggested that players were performing performance expectation reflections to varying degrees. This prompted a change to the ES wherein different levels of reflection were undertaken, as cited by Player Evan: I'll turn up and first think "am I ok?" If I am then all good. If I think I'm tired, like my legs aren't great, I'll think about what I can do and what to expect from myself. There's like levels of questioning. If I'm trashed then I won't expect anything. In Phase 6, the increased reflective activities undertaken by the players appeared to be enhancing practice performance, as shown in the following field note extract from a practice session observation: "Players were tired and the performance on the



whole was below standard, but no player seemed to drop energy levels, no one appeared to enter a negative performance spiral. This didn't happen in the earlier weeks of the season."

Player Pete identified his ability to set more accurate performance expectations: "I think about how I feel about training now. Sometimes I'm good and sometimes I'm not and I don't get any surprises. If all of a sudden I don't perform, there's probably a reason and I thought about it already."

### **Team Drive**

In Phase 1, players cited having strong individual goal focuses that removed their teammates from positions of personal importance due to high levels of competition within practice.

Coaches recognised individual goal focuses as an issue with intrateam competition.

The researcher conducted focused discussions in player meetings on the benefits to the self of having a team-first mentality. The researcher recognised that "this environment is one of personal development and a steppingstone, which makes it difficult to create a team-first drive." This acknowledgement placed the team drive strategy as requiring significant attention and became a focal point in the Week 5 (Phase 2) player meeting, as shown in the following field note extract: We discussed the advantages of putting team performance first and how that will advance individual performance, and why a purely individual approach can damage individual performance. One player indicated how being overly competitive in teammate vs. teammate drills had caused a problem between two players. The negative influence of intrateam competition led the coaches to reflect on its usage, and the ES was adapted to include less individual versus individual competition. In Phase 3, motivation toward team success was suggested to have improved. However, the researcher highlighted a barrier to the enhancement of team drive: "[The basketball programme] is a halfway house to the next step. Some players do not seem focused on the team doing well, only themselves. The highly individual players do not seem capable of breaking this cycle currently." The

HC identified a weakness with individualistic players: I think they buy into it if they are playing well but as soon as there is any adversity they struggle, they can't cope. If they are not performing well then it's all about them, all the weight is on them, they become very insular. So ultimately its selfishness.

The perceived ability ranking position of players within the team was identified by Player Simon to still be a substantial negative influencing factor: "You are competing with other people around you and you don't want to show them that you are not as good. You always want to be better than the people around you." To counter this issue, the ES was adjusted in Phase 4 to encourage players not to judge ability based on episodes of momentary and situational poor performance, as highlighted in the following field note extract: "[Player name removed] stated how much better he felt now that the group had talked about one poor moment, or session, not defining you as a player." Enhancements in team drive were apparent through increased common goals and a greater understanding that one player cannot achieve without the team. Difficulties in developing a team drive approach were stated by Player Gary: "You don't actually experience the end results until after you have made that decision in your head. You can't say that if I do completely accept the team then this will definitely happen. You have to trust it first." In Phase 5, the HC confirmed a perceived decrease in poor performance during small group practice drills involving intrateam competition, especially with those players who experienced failure. A change in player approach to intrateam competition was suggested in the following field note extract: Several players seemed to recognise the need for the pressure of competition against others. Players stated that they thought less about how others were playing against them and how they matched up. [Player name removed] said he just focused on the action of the drill and not targeting to beat a teammate to cement an ability ranking position. Players were looking for a

teammate to do well against them to offer challenge. The AC believed that the ES had enhanced a team-first mentality: “I’m getting players to work more with at least one other person so it’s more team based. We want them to have personal goals, but I think most [goals] now fit into the team. We need to have balance.”

### **Positive Communication**

Frustration with teammate error was highlighted by the HC: “We have a long way to go before players stop thinking about mistakes [by teammates] as negative, then communicating that to them. We say mistakes are not meant but it’ll take time for players to understand that.”

The AC suggested that at the end of Phase 1, there was a shift in negative communication from comments that were individual specific to more general ones, which prompted a change to the ES in Phase 2 to include the reduction of general nonspecific negative communication. During the live practice observation in Week 6 (Phase 2), the researcher noted that poor performing players were generally those who communicated more negatively. Communication improvements were perceived by Player Simon in Phase 4: “I feel a lot of us have learnt how to communicate better, like not shouting at each other and just talking calmly. No one’s playing better if you put them down, that’s one thing I’ve learnt.”

During a weekly meeting in Phase 5, players cited the presence of widespread positive encouragement in practice unless a player disregarded team instruction or portrayed selfish behaviours, which prompted negative reactions from teammates. The AC suggested that negative reactions from teammates were beneficial for maintaining a team-first ethos, which was accepted by the group as a tool for adjusting individual behaviour. The following field note extract indicates a change in player perception: He [player] spoke about how he viewed mistakes by other players differently now. If a player is not trying then he might give a negative comment, but if they are trying and fail then he will encourage them. There seems to

be an improved recognition of damaging behaviour towards the team and the use of concerted social approaches to supply positive encouragement.

The HC identified communication improvements to have effected team cohesion: “The cohesion of the group has been strong despite having a load of new players in; that’s important. We had a group with predominantly first years, and they are all close. It’s the closest group I’ve ever had.” In Phase 6, there was a perceived change in communication from coach to player, as described by Player Pete: “Regardless of what happens I feel more confident, less pressured. I’m told it’s a good shot to take so that’s fine. I don’t feel like I’m under constant pressure to succeed; that’s exhausting.” Despite suggestions of low player effort being successfully combated with negative communication, the HC identified the success of positive communication: “99% of what we say is positive. I can see when we need to be negative or give them motivation, but not when the player makes a mistake. All we ask for is effort, if we get it, great.”

## **Discussion**

The aim of this study was to implement and evaluate the effect of a season-long ES on practice performance in a U.K. basketball academy practice environment. The AR approach produced changes to the ES. The ES iterations and links to current literature are discussed in the following sections.

### **Effort and Control**

Within the practice environment under investigation, players are exposed to a significant amount of environmental information, and the application of effort may not be at the forefront of a player’s thinking (Mann, Williams, Ward, & Janelle, 2007). Due to the high interpretative demands of the environment, the “high effort as a primary focus” strategy was adapted to a coping mechanism for periods of sustained negative performance. Previous

performance environment research has highlighted the importance of effort but failed to show the complexity of its influence, perhaps due to snapshot data collection approaches (e.g., Thelwell, Weston, & Greenlees, 2007). The current study suggests effort to be subject to situational factors. For example, the influence of a high-effort focus may only improve poor performance but disrupt high performance. There may also be a relationship between performance anxiety (e.g., from intrateam competition) and disrupted attention that a primary focus of high effort could mitigate through a compensatory effect (Payne, Wilson, & Vine, 2019). The use of high effort in the current study replaced focus upon tangible outcomes (e.g., successful shots). The altering of player focus away from tangible outcomes and toward high effort could offer more control over performance due to effort being more controllable than situational ability or talent (Douglas & Carless, 2006). The successful use of high effort as a coping strategy was dependent on the player's ability to understand what could be controlled in the environment. Podlog and Dionigi (2010) demonstrated the positive effects (e.g., perceived competency and autonomy) on athletes who only focused on what they could control when returning from injury, with the current study reporting similar results with the cessation of poor performance. Due to control and effort holding a relationship, control was added to the ES during the study to improve performance outcomes. For example, a player should not respond negatively to a teammate error because they had no control over it.

### **Performance Expectations**

In line with the PEM (Smith et al., 2020b), the current study suggests that if a player suffers from fatigue and lowers their performance expectation, then actual performance may increase. In the early phases of the study, players appeared to form expectations based on future performance and were not mindful of current state, which Bernier, Thienot, Codron, and Fournier (2009) suggested could affect the accuracy of self-judgements that positively influence future performance. Actual performance within a practice environment could have

been affected by a raft of different factors during the study (e.g., Martindale, Collins, & Daubney, 2005). However, perceptions of predicted performance are more clearly defined because they were dependent on current state reflections, which suggests that they could directly influence performance. Previous research assessing performance expectations (e.g., Le Foll, Rascle, & Higgins, 2008; Rocaboy & Pavlik, 2020) has failed to evaluate the impact of short-term performance expectations undertaken before cyclical practice activity, with current study findings suggesting that it is an area that could influence performance and requires further investigation. The setting of performance expectations based on current state was cited to be most impactful when players were physically fatigued. In fact, participants suggested that they entered an internal dialogue of questioning to define how fatigued they were, which impacted the performance expectations set. The repetitive nature of practice produces accrued fatigue (Thorpe, Atkinson, Drust, & Gregson, 2017); therefore, practice performance expectations differ greatly to those of one-off competition where tapering may be present (see Vachon et al., 2020). Players in the current study who did not accept diminished performance after lowering expectations appeared to experience pressure when competing against teammates. Despite a concerted attempt to avoid ability ranking throughout the study, the creation of social comparisons appeared to be one of the most performance damaging activities a player could undertake within the environment (Mallinson-Howard, Hill, & Hall, 2019).

### **Team Drive**

Intrateam competition seemed to provide the greatest challenge to altering individualistic behaviour. Within athlete development environments, Mills et al. (2012) emphasised the need for individual players to develop their ability and competitiveness, moving focus and performance processes away from the team. The current study identified behavioural

adjustment through the use of negative communication when overly individualistic orientations were present. Kerr, Battaglia, Stirling, and Bandealy (2020) suggested the use of exercise as a punishment to adjust behaviours that damage performance, and the current study appeared to confirm the successful use of negative communication. However, as with the Kerr et al. (2020) study, there was a lack of evidence to identify whether performance behaviours actually improved in the future. The instability of the practice environment in the current study provided further problems when attempting to create a team-first mentality. The environment was described as a steppingstone, had high player turnover rates, and had players within development ages, which provided goals overly focused on personal development and improvement (Martindale et al., 2005). To combat individualistic approaches during the study, the ES promoted a greater acceptance of teammate error and a commitment to common team goals to enhance the philosophy of practice sessions toward team success (Smith et al., 2020a). A team-first mentality that aided in producing a selfless culture (Morgan, Fletcher, & Sarkar, 2019) appeared to especially aid players who entered competitive situations against teammates. Future research is needed to assess whether differences exist in the promotion of a team-first mentality between stable and unstable practice environments.

**Positive Communication** The current study aimed to replace negative communication with positive support by enhancing collective prosocial behaviours (Benson & Bruner, 2018). Negative communication was often given when an individual failed as a direct result of a teammate error, which led to frustration and anger due to perceptions of uncontrollability. Kuster et al. (2015) suggested negative communication to indicate situational avoidance and a lack of engagement in solution-based activity, highlighting further detrimental effects on performance. However, as the study progressed, players recognised that they could influence teammate performance following mistakes by using positive communication that increased teammate performance in the future (e.g., good

performance in the next sequence of a drill). During the current study, players were encouraged to recognise negative communication and behaviour from others as a sign of weakness. However, negative communication was accepted within the group if players displayed low effort (Neil, Fletcher, Hanton, & Mellalieu, 2007), which further strengthens the need for future research to evaluate the influence of perceived negativity during practice. By study end, communication was cited as being calmer and more respectful. The improvement in communication was seen as even more impressive due to the high number of new players in the team. Player perspective was reported to have shifted so that mistakes were not viewed as defining of a player's ability in the present moment. Players communicated more positively with others because they understood that a high-performing teammate would provide support and challenge.

### **Preparation**

Quantitative results suggest preparation to have improved, with qualitative findings indicating preparation to have had an influence on the other strategies (e.g., adapted lifestyle behaviours, such as increased sleep and better nutrition, that enhance performance in practice). Supporting the setting of accurate performance expectations, players who could prepare for practice by reflecting and adapting their behaviours were most successful at improving performance (Thelwell et al., 2007). As with previous performance environment research that sought to improve the reflective capabilities of athletes (e.g., Pain et al., 2012; Richards, Mascarenhas, & Collins, 2009), the current study successfully employed weekly meetings with the researcher and continuous dialogue with coaches that focused on reflective thinking (Richards et al., 2009). The current study accepted factors outside of the practice environment to have an influence on performance within it (Smith et al., 2020a). Players cited suffering from stress and anxiety from factors outside of basketball (e.g., academic pressures) that were unavoidable within a nonprofessional environment (Fletcher, Hanton,



Mellalieu, & Neil, 2012). A committed approach wherein lifestyle decisions put basketball first appeared to be the most successful for practice preparation and performance. As seen in previous research with Olympic athletes, high effort and commitment to prepare for practice activities was a positive performance factor (e.g., Greenleaf, Gould, & Dieffenbach, 2001), which was replicated in the current study.

### **Limitations and Future Research**

AR has been suggested by Gebhard (2005) to be a problem-focused research approach. The current study focused on the ES, and therefore, other issues or opportunities arising in the practice environment that could have enhanced performance may have been missed. A practical limitation of the study was the involvement the researcher had in delivering the ES. To identify the PEM as a tool for enhancing practice performance in the natural setting of U.K. academy basketball, the coach/es should play a more leading role in creating and maintaining the practice environment. Future research should analyse the impact of coach-led PEM interventions. To strengthen the rationale for using the PEM as a tool to enhance practice performance, further evaluation is required in similar basketball practice environments as well as other sports. Future research using the PEM could design a scale to measure the perceived psychological climate of a practice environment, which could be used by practitioners to assess the effectiveness of their environment.

### **Conclusion**

The ES employed in the current study suggested that a performance improvement in the practice environment was achieved, as evidenced by both qualitative and quantitative measures, therefore supporting the PEM (Smith et al., 2020b) as a tool to improve practice performance. The AR approach undertaken in the current study highlighted several iterations that were required to enhance the ES (see Table 1). Findings indicate an interdependency between many of the individual strategies, which suggests the need for collective

implementation within the practice domain to achieve success (Evans, Hardy, & Fleming, 2000). Due to the performance demands within basketball practice environments being different from those in competition (Montgomery, Pyne, & Minahan, 2010), the current study has provided further evidence of the specificity of psychological influencing factors in the practice environment and the need to apply distinctive research to this unique domain.

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