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The role of debriefing in enhancing learning and development in professional boxing

Yasmin Kojman^a, Kelvin Beeching^a, Miguel-Angel Gomez ^b, Nimai Parmar ^a
and Scott B. Nicholls ^c

^aLondon Sport Institute, Faculty of Science and Technology, Middlesex University, London, UK; ^bFaculty of Physical Activity and Sports Sciences, Technical University of Madrid, Madrid, Spain; ^cSchool of Human Sciences, University of Derby, Derby, UK

ABSTRACT

The use of debriefing by 6 elite coaches (9–16 years' experience coaching professional boxers) and 6 professional boxers (minimum 3 professional bouts) was explored via interviews (25–40 minutes). Boxers represented the featherweight, welterweight, and heavy-weight divisions. Interview questions were framed around, 1) the use of video and data analysis, 2) coach-athlete interaction, and 3) learning and development. The importance of data, video, and the effective integration of performance analysis to facilitate comprehensive feedback to maximise learning opportunities was identified. The coach-athlete relationship, and engagement of the athlete within the debriefing process emerged as an aspect needing continual micro-management to ensure ongoing effectiveness. The development of an "open and honest" relationship and a "safe space" to air thoughts and opinions was greatly encouraged. The length of debriefing session did not appear to impact overall engagement. The use of video debriefing to facilitate a coach's ability to develop the athletes mentally, in addition to their physical boxing capabilities, was a key and standout aspect that should be appropriately considered. The findings add to the limited investigation within boxing, providing insight into the debriefing processes within professional boxing by those on both sides, i.e. the coach and the athlete.

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Performance analysis;
boxing; coaching process;
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1. Introduction

Debriefing stems from three different areas, military, psychology, and education (Gardner, 2013). The concept was first introduced in the military, where its aim was to provide soldiers with the knowledge and aid to return to action. The concept was subsequently adopted by the sporting world, facilitating athlete improvement through reviewing performance(s). The debriefing process is built upon four different components, 1) a self-reflection surrounding the pros and cons of the performance, 2) visionary aids and coach/athlete discussion, 3) identification and agreement of the required changes to technique and strategy and, 4) goal setting (Hogg, 2002). A debrief from a sport perspective is often used as a tool that facilitates self-correction, builds cohesion, and ultimately attempts to improve future performance. Effective debriefing has several positive outcomes, namely, increased learning, motivation,

CONTACT Scott B. Nicholls  scott2491@hotmail.com  School of Human Sciences, University of Derby, Derby, UK

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and confidence (Hogg, 2002). During debriefs, members reflect upon a recent experience and discuss what was in good form and recognise opportunities for improvement. The debrief can take place either in an emotionally charged atmosphere, near the performance (known as a “hot” debrief), or in a more formal, detached environment (known as a cold debrief).

The key use of performance analysis-based debriefing in team sports is evident (Francis & Jones, 2014; Groom & Cushion, 2004; Groom et al., 2010; McArdle et al., 2010; Middlemas et al., 2018; Wright et al., 2016), however, there appears a lack of research surrounding individual sports, such as boxing. Albeit more limited, research within the feedback and debriefing domains for individual sports include Martin et al. (2018) and Nicholls et al. (2018); (2019). Unfortunately, the limited research pool within individual sports likely stems from the difficulty associated with accessing several separate participants, in contrast to team sports whereby 25+ athletes can be accessed almost simultaneously. Unsurprisingly, several aspects such as, coach philosophy, athlete preference, and current mindset have been identified as key within effective debrief provision (Middlemas et al., 2018). Macquet et al. (2015) investigated the process of debriefing during major competitions in professional team sports whereby a two-stage process towards debriefing was identified. This included *preparation* and *presentation*, with the labour associated with each aspect being divided between the coaches and senior players. Furthermore, Macquet et al. (2015) identified that coaches within elite sport are both transformation and transactional leaders who adapt their leadership style to the situation, athlete, or time available.

The use of video within the debriefing process plays a key and systematic role within a coaches’ practice (Kraak et al., 2018; Martin et al., 2018). Video is extremely accessible and easy to use, with several bespoke camera housing products developed to further facilitate this capture process within the increasing and varying sports environments. Such ease of use was identified by Mooney et al. (2016) as the most important user requirement of any tools incorporated within coaching. Groom and Cushion (2004) suggested that video facilitates recall, develops understanding, encourages self-reflection, provides the opportunity to reflect at a future time without emotions, and aims to improve athlete confidence (Francis & Jones, 2014 made similar inferences). The literature surrounding the duration of debriefing sessions appears to have progressed from 30–40 minutes sessions (Groom & Cushion, 2005) towards a much more condensed implementation of sessions lasting < 20 minutes in more recent research (Nicholls et al., 2018; Wright et al., 2013). As a result, more time and effort may be required within the structuring and planning of debriefing sessions, including the development of clear and concise “take-home messages”, ensuring the athlete has a clear picture on where to improve.

The use of qualitative methods within these studies has enabled a richer understanding of participant experiences which have been reflected upon positively and consequently suggested as an important tool within future exploration (Nelson et al., 2011; Wright et al., 2016). As evidenced, the coach is often required to consider a wide variety of contextual factors, such as performance outcome, logistical constraints (e.g. time availability, allocation of technical and monetary resource), and group or athlete dynamic and demographical (e.g. age, gender) differences when formulating effective debriefing strategies (Hogg, 2002; Middlemas et al., 2018; Nicholls et al., 2018). Several of the studies have highlighted the use of debriefing and the considerations required for an effective debrief; however, there remains a need to further understand the use of the debriefing process of a wider variety of sports, most importantly, within an applied and elite environment. Nicholls et al. (2019) suggested the use of case study

approaches within specific individual sports in isolation to be a useful and informative route within future feedback and debrief investigation. Therefore, the aim of this study was to explore and provide an understanding of the views and use of performance analysis-based debriefing within the professional boxing environment.

2. Methods

2.1. Participants

Twelve participants (6 coaches and 6 athletes) working or competing in high-performance sport participated within the study. The coaches were all full time within their respective roles and had a minimum of nine years' experience (9–16 years) coaching professional level boxers. The athletes were full time athletes who had competed a minimum of three professional fights. The athletes represented three different weight classes; featherweight, heavyweight, and welterweight. Following institutional ethical approval, all participants were provided with information relating to the nature of the study and completed a written informed consent form prior to study commencement.

2.2. Interview question design

Interview questions were themed around current research (Macquet et al., 2015; Nicholls et al., 2018, 2019) as well as discussions with the wider research team and applied performance analyst practitioners. Two online group discussions via Microsoft Teams lasting 32 and 44 minutes were undertaken with 3 practitioners who had a minimum of 8-years working within applied performance analysis. The outlined themes surrounded learning and development, athlete engagement, relationships between coach and athlete, and timing of debriefing. The research team and applied practitioner discussions were undertaken to provide critical reflection on question appropriateness, wording, and clarity regarding the overall study aims (Gratton & Jones, 2010). However, because of the limited academic literature relating to performance analysis and debriefing within boxing specifically, significant pilot testing was undertaken. The pilot process was key within the identification of potential flaws and limitations, ultimately enabling the research team to further refine the interview questions. Pilot testing was conducted with two coaches who had at least six years experience delivering performance analysis and feedback support to elite athletes and two experienced academics who had over ten years' experience within elite performance analysis. Following the completion of the pilot test no further amendments were made to the questions to be used within data collection. The final question list to help frame the discussion consisted of 14 open questions, under three main sections, 1) use of video and data analysis, 2) coach-athlete interaction, and 3) learning and development (Macquet et al., 2015).

2.3. Procedure

To collect rich data to portray complex human experiences (Voutilainen et al., 2011), a qualitative approach was implemented. This approach is regarded as well-suited to exploring the processes of individuals working in natural settings, such as coaches and athletes. It also enabled an in depth understanding of practice, particularly when participant access is

limited. As such, semi-structured interviews were utilised to provide guidance within data collection but to ultimately allow the participant to openly discuss the topic and theme in question whilst providing views upon their individual experiences. The lead author conducted all interviews with each participant adopting an “active listener” role to ensure the participant took the lead and could express their opinions whilst ensuring the discussion remained linked to the initial question. The author asked further questions where appropriate to gain further understanding or clarification. The interviews were completed in a one-to-one format (participant and interviewer) between July and August 2020 lasting between 25 and 40 minutes. Each interview was audio recorded in a similar manner to McArdle et al. (2010) to allow transcription and further investigation.

2.4. Trustworthiness and data analysis

All interviews were transcribed within Express Scribe and then offered back to each participant to check response accuracy and provide additional information where appropriate. The written transcriptions were imported into the qualitative analysis software, QSR Nvivo 11 (Qualitative Solution Research 2002) for exploration. A deductive thematic analysis approach was used to analyse the data (Kiger & Varpio, 2020) by virtue of the knowledge gained and question themes identified within prior research. Initially, the lead author read through each transcription multiple times to become familiar with the data and begin to identify repetition of similar ideas within the participant group (Braun & Clarke, 2006). Through this process the written transcriptions were coded into relevant themes which were felt to represent and summarise various aspects provided by each participant (Braun & Clarke, 2006). This process involved the 1) categorisation of paraphrased or raw quotes, 2) grouping of similar categories, and 3) the identification of the wider theme(s) which the participant’s response represented. To ensure data trustworthiness, several different approaches were taken including, triangulation, member checking and peer-debriefing. The lead researcher attended and observed several training and feedback sessions between the participant coaches and athletes within the study to triangulate and externally validate participants responses, i.e. Do the participants do what they say they do? Secondly, each transcription was sent to the relevant participant to member-check or verify response and transcription accuracy. Peer debriefing was the next step ensuring data trustworthiness. This process involved an experienced qualitative researcher (10 years undertaking qualitative research) reviewing and assessing the participant’s raw and coded aspects of each transcript, whilst acting as a “critical friend” to discuss the various choices made within the coding process by the lead researcher. Finally, a summary of findings was presented to the participants to provide feedback upon data interpretation, including quotation selection, in a similar manner to Nicholls et al. (2019). No changes were requested by the participant group following this final step.

3. Results and discussion

3.1. Debriefing using performance analysis techniques

It is well established that coaches are only able to effectively recall between 16.8 % and 59.2 % of events within a sports performance (Franks & Miller, 1991; Laird & Waters, 2008; Nicholls & Worsfold, 2016). Consequently, a performance analyst is often utilised

to work closely alongside coaches to compliment a coaches' observation and provide additional insight. A key role of the performance analyst is to provide information related to critical aspects of a sports performance, in turn, enhancing athlete development and the coach decision-making process (Groom et al., 2010; O'Donoghue, 2006). The coaches outlined the importance of using data to provide their athletes with informative support.

Hughes and Franks (2004) stated that performance analysis research has contributed significantly to our current knowledge and identification of movement and performance patterns within competitive football. Although much research has been developed outside of football, there still appears a significant lack of development within combat sports, such as boxing. In addition, it becomes difficult to provide structured performance analysis support and debriefing sessions to the athletes when they often consider "performance analysis feedback" and "debriefing" to mean vastly different things between athletes. For example, Athlete 1 describes the performance analysis feedback process as "a session with detailed information from individuals that perform tasks for you". Whereas Athlete 2 considers the debriefing process as a "breakdown after a session, of good and bad points, as well as improvement areas and overall performance of a training session".

The lack of a universal understanding regarding what performance analysis feedback and debriefing is and the benefits associated with these aspects throughout boxing is a barrier faced by many sports in the infancy of receiving performance analysis focused debriefing. This barrier is often heightened within sports (e.g. boxing) where the athlete is often the key decision maker regarding the various support avenues they receive (e.g. coaching, accepting opponent bouts, or sport science).

3.2. Video and technology

The importance of video analysis and the use of current technology has been consistently highlighted as an imperative aspect of the feedback and debriefing process (Francis & Jones, 2014; Middlemas et al., 2018; Nicholls et al., 2018). This importance has been further supported by the coaches interviewed within boxing describing the use of technology as "the most beneficial way and the most accurate" to enhance performance. The desire to maximise learning opportunities within sport has led to widespread use of video-based performance analysis within the coaching process (Groom et al., 2010). Middlemas et al. (2018) concluded that video could be used to focus critical reflection, learning and future response to specific challenges or experiences. This type of approach enables the coaches to shape the athlete's future behaviour, with the aim of eliminating on-pitch errors. The participant coaches provided some key examples regarding the benefits their athletes gain from filming sparring sessions, the footage of competitive fights, and the data generated from other technological devices used within these sessions. For example,

Coach 4: [Data is] extremely beneficial, for example, using punch counting trackers worn within my boxing gloves whilst punching the heavy bag to record the amount of punches thrown, recording the data, keeping the data and repeating the session would allow me to see improvements throughout a training camp.

The coaches and athletes highlighted that boxing is always evolving, therefore the opportunity to embrace new technology as it evolves provides an interesting opportunity to continually push the boundaries of what is possible whilst analysing boxing performance. The responses suggest that coaches also understand that it is imperative they are “forward thinkers”, who are striving to “get ahead of the curve” themselves with innovative ideas.

3.3. Coach-athlete relationship

Debriefing is a collaborative process providing an opportunity for coaches and athletes to be open, honest and explore what has transpired during the performance or group of performances (Sarmiento et al., 2015). Several contextual, environmental, and psychological factors influencing delivery sessions have been identified within the literature, emphasising the importance of coaches treating athletes as individuals with bespoke and potentially complex needs (Middlemas & Harwood, 2018). When questioned upon a coaches’ aims regarding a debriefing session, several similar responses were provided.

Coach 1: I want them to self-identify the areas they need to improve in or where they performed best. I normally ask them to pick one fault and one area they thought they did well in. We then discuss how we can develop our strengths and weaknesses we have identified.

Coach 2: Within a [debriefing] session the goal for me is to understand where the athlete feels they have done well, on a technical standpoint or a performance standpoint, where they feel they might have slacked, where or what they feel they might have struggled on, if they felt off that day if they felt good, and any kind of injury management as well.

3.4. Athlete engagement

Athlete engagement has been described as an opportunity to allow athletes to not only actively participate within the debriefing session but to lead the session. The interviews revealed that the length of time does not affect athlete engagement or interest, which contrasts with Nicholls et al. (2018) and Wright et al. (2013) who identified < 20 minutes sessions were preferred. It can be noted that the athlete’s emotional state was a key factor within extending or shortening this duration during session design. All athletes highlighted the importance of a “safe space” whereby they can assess how well they have done and what can be improved, as key components of an engaging debriefing session. Furthermore, the interviews highlighted several questions which the athletes make use of to determine the success of a debrief. For example,

Athlete 2: I aim to take constructive criticism from a debriefing session. I want to know where I failed, where I need to improve and what I can do to work on those areas to improve.

During the interview Coach 2 discusses athlete engagement as important to the debrief and adds, “it’s an open discussion and it’s not me telling them chapter and verse and its exceptionally important for a boxer to be engaged and understand where they are in their camp or where they are in their performance ability compared to what they previously were or how they’ve improved”. Although the coaches and athletes may not always see

eye to eye, the athlete engagement is important especially on a one-to-one basis, as it allows voices and opinions to be listened to in a comfortable environment. It became evident within the interviews that the debriefing sessions within boxing are athlete centred and driven by the athlete, for example,

Coach 2: I think it's important for the athlete to keep all coaches in the loop about where they are at . . . if I'm not in contact with the athlete regularly I will assume I don't need to do anything for them because otherwise they would be talking to me right?

The use of an athlete centred approach within debriefing has also been widely used within the Olympic sports environment (Nicholls et al., 2018). Evidence from athlete development research has illustrated a more athlete centred approach to be effective within the fostering of elite athletes and decision-makers (Kidman, 2010; Potrac et al., 2000). In addition, Coach 4 highlighted that the boxer has the last say on conventional athlete centred decisions such as training structure; however, the boxers also make the final decision regarding whether they want to accept a potential forthcoming fight or not, which clearly contrasts with most elite sports whereby a set competitive schedule is outlined by the governing body.

3.5. Psychological factors and benefits

Athletes are constantly exposed to a wide variety of internal and external feedback regarding the performance and outcome of movements which they perform (Karageorghis & Terry, 2011; Magill & Anderson, 2014). As a result, it is important for the coach to focus the athlete's attention on the most important aspect from their performance within debriefing whilst limiting any potential negative impacts. Debriefing has psychological benefits that aid the athlete, namely, confidence and self-belief development, provide an understanding, reinforce correct performance, and provide a view often reserved for coaches (Groom & Cushion, 2004). The idea that confidence is positively impacted through this process was apparent throughout the interviews, for example,

Coach 2: Its good and important for their psychological welfare and it can build that confidence which I keep coming back to, that confidence, that self -belief of completing the task at hand and as it is a solo sport, a quite aggressive, all on the line kind of sport the self-confidence needs to be sky high going into any of these events.

Athlete 2: I think that debriefing can be incredibly important in my psychological welfare. For example, after taking part in a sparring session in which I believe that I haven't done particularly well, it is important that I discuss this with my coaches, gain their perspective and understand why I perhaps didn't do so well. It is important to get this frustration out of my mind and into the open as without doing this I can quite easily remain unhappy and frustrated. Discussing how I feel relieves tension from my mind, allowing me to sleep better, live happier and move forwards faster.

Athlete 3: I absolutely believe that debriefing can assist in psychological welfare. Competitions place a huge stress on any athlete. Debriefing is a very useful way to soothe an athlete's nerves and emotions after stressful events, and make the athlete feel less alone.

Furthermore, Coach 3 stated the importance of developing both the physical and mental sides of the boxer's skill set to be continually successful in the short and long term.

Coach 3: A successful debriefing should always impact the boxer psychologically as the mental thought process of a boxer or champion is paramount. A good coach will always train his boxer mentally and not just physically in his development plan or debrief system.

Clearly an open and honest relationship between the coach and athlete is an imperative part within both, a successful debrief but also as a tool to enhance the psychological ability of the athlete. Ensuring the coach takes an individualised approach to this process is a further key aspect within maintaining and developing the athlete's psychological welfare and capability.

3.6. Observation sessions

The ability to validate participant responses through observation and discussion can be employed as a key process to ensure the trustworthiness of any information provided by the participant. Consequently, efforts were made to: 1) engage with participants to informally discuss responses and identify whether the same responses were given (internal validation) and 2) observations of sessions were carried out to view participant responses in action (i.e. did participants practice what they preach?).

The observational sessions reaffirmed the notion that the trust and connection between coach and athlete needed to be strong. It was clear that feedback and corrections were being discussed throughout the sparring sessions and if it was a recorded session a debrief would occur directly after. The athlete would have a good deal of time to express concerns, ask questions, and be provided with an environment to gain confidence, something that all coaches speak of with high importance. Moreover, it is evidently clear that the mental training for a boxer is just as imperative as their physical programme. The importance of mental health has been highlighted by different coaches and this has been stressed within some of the quotes included in the previous sections.

3.7. Future directions

Future research approaches should begin to incorporate female athlete groups to ascertain whether a debriefing structure currently exists, and if so, what if any, are the differences between male and female debriefing processes. Such information will ultimately help facilitate the differentiation of the debriefing process, where required, ensuring coaches have the knowledge to generate effective debriefing schedules within male and female environments. Different tactical strategies exist between and within weight divisions during competitive performance. Therefore, additional study incorporating several other weight divisions may also provide additional information to aid and differentiate the debriefing process across the sport. Finally, it would appear extremely useful to develop understanding around coaches' and athletes' longitudinal feedback strategies, how these potentially change and the potential impact these have upon the athlete and their engagement within the process. Specifically, a holistic approach to reviewing feedback implementation and the impact of the coach-athlete relationship on the overall integration, and ultimately, success of debriefing appears warranted.

4. Applied implications and conclusion

The findings add to the limited investigation within boxing, providing insight into the debriefing processes utilised within professional boxing. The themes identified within this study have enhanced the understanding of the debriefing process athletes and coaches participate within throughout the sport of boxing. The coaches' role in the debrief is considerable, however it may also be argued that athletes need to take more control in their tailored debrief sessions to ensure the process is directly related to the improvements they aim to make. The highlighted themes all connect to one other, thus creating a succession of aspects which need to be considered when aiming to develop a successful debriefing session.

The findings mirrored previous research regarding the importance of data and video, and ultimately the effective integration of performance analysis, to enable coaches to better interpret the complex nature of a sports performance and provide appropriate and comprehensive feedback to fully maximise an athlete's learning opportunities (Butterworth et al., 2013). For example, employing video feedback to facilitate coaching recollection (Laird & Waters, 2008; Nicholls & Worsfold, 2016) or the use of devices such as punch counters to assess or profile development within specific aspects of performance following a specific training regime.

In addition, the coach-athlete relationship, and the engagement of the athlete within the debriefing process is arguably a clear aspect that needs to be continually micro-managed to ensure ongoing effectiveness. A key aspect of this within the current study related to the athletes having an "open and honest" environment, but one that is considered a "safe-space" for each party to share their thoughts and opinions. In contrast to Nicholls et al. (2018) and Wright et al. (2013), the athletes stated that the length of debriefing session did not impact their engagement. Arguably however, this finding when re-employed within the applied environment should not be taken literally and careful consideration towards debrief timing and duration should be made. Consistent evidence within the wider literature suggests that shorter, sharper, and more concise sessions should be utilised, with further considerations being made regarding an athlete's emotional state following a performance, and the impact upon objectivity and self-reflection (McArdle et al., 2010; Nicholls et al., 2019; Wright et al., 2013). Finally, the use of video feedback and debriefing to facilitate a coach's ability to develop the athletes mentally, and not just physically, was a key and standout aspect that should not be underestimated within any sporting environment.

Disclosure statement

No potential conflict of interest was reported by the author(s).

ORCID

Miguel-Angel Gomez  <http://orcid.org/0000-0002-9585-3158>

Nimai Parmar  <http://orcid.org/0000-0001-5540-123X>

Scott B. Nicholls  <http://orcid.org/0000-0002-6200-1418>

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