

Personality Traits and their Relationship to Elite Rugby League Performance

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ABSTRACT

This study examined the relationship between personality traits and the sport of rugby league at the elite level. Literature reviewed during the course of this study indicated that there is a strong association between personality characteristics and success in sport. This in turn supported the concept of utilizing personality traits as a predictor of elite rugby league performance. The personality traits of a group of 67 past and present elite Australian rugby league players were assessed utilizing two personality tests, the CPI 260 and the PVSIII-R test of mental hardiness. The findings from this study demonstrated that there is a relationship between certain personality traits and elite rugby league performance. The elite players scored significantly higher in five of the 29 scales (traits) of the CPI 260. The results of this study support the Necessity Traits theory developed from this study as a robust model for predicting elite RL performance.

Keywords: mental hardiness, necessity traits, psychological characteristic

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1. Introduction

This study set out to identify the personality traits a player needs to possess (at a particular score or ‘level’), to have the psychological characteristics to be successful at the elite standard of Rugby League (RL). For the purpose of

this study these traits are classified as Necessity Traits; possessing them does not guarantee sporting success; however, lacking them increases the likelihood of failure.

According to the Australian Secondary Schools Rugby League (ASSRL) website, 525 of the most talented 16- to 18-year-old rugby league players were selected to represent Australia at the schoolboy level over 30 years between 1978 and 2007. Only 39% (n = 207) of those are considered to have made a successful transition to Senior RL. Given there were only around 18 selected to represent ASSRL each year and they were the very best of their generation, the transition to the Senior RL remains relatively low with an average of 7 out of 18 advancing. As a predictor of making the transition from an exceptionally physically talented schoolboy player to being successful in the National Rugby League (NRL), selection in the ASSRL side appears to be a relatively poor indicator. Given that these young men were seemingly endowed with all the physical talents and attributes for the game to be the best of the best of their generation (at the time of being selected to represent their country at secondary school level), leaves questions surrounding their inability to make the transition to Senior RL.

- ***Lack of Knowledge in the Area of the Psychological Characteristics of Elite RL Players***

This current study sought to add to the limited body of research currently on the psychological characteristics associated with playing RL at the highest level. To date, there has only been one study published by Golby and Sheard (2001) that has considered the psychological characteristics or mental aspect in the performance of senior RL players. As such there is a very significant knowledge gap in this area, which this study seeks to address.

- ***Economic Cost of Poor Recruiting decisions***

According to the official website for the National Rugby League (2023) competition in Australia, NRL clubs operate using a salary cap system (which is the maximum amount a club can spend per year on the top 30 players on their roster) of \$11.45 Million AUD in 2023. This is a 22% increase of the cap placed on salaries the previous year. The minimum wage of a player in 2023 was \$120,000, doubled the 2012 minimum wage of \$55,000. Clubs are making an enormous investment in the players they contract and always spend the entire amount of their salary cap. Teams need to have proper recruitment to ensure money is well spent to avoid exceeding the salary cap and incurring unwanted

penalties. Moreover, one of the clauses under the collective bargaining arrangement (CBA) with the players association protects the players financial stability and employment within the league. According to the Sydney Morning Herald (2013), “clubs will no longer be able to terminate the contract of a player who is not playing the game or training conscientiously and to the best of his ability and skill”. This highlights the need for clubs to ensure that the players they sign are able to consistently perform to their expected ability, something that does not happen with quite a few players in each club every year.

2. Literature Review

• *Personality Traits*

According to Olson and Hergenhahn (2011), many personality theorist believe that personality traits are the characteristics that separate individuals in society. Moreover, trait theorists believe that an individual’s behavior remains constant over the course of a lifetime because personality traits remain relatively constant (Olson & Hergenhahn, 2011). Personality traits are considered the building blocks of personality (Cattell, 1945). Cattell (1945) uncovered two categories of traits, Surface traits and Source traits. Olson and Hergenhahn, (2011) indicated that, “surface traits are groups of observations that are correlated”, whereas, “Source traits are the causes of behavior, they constitute the most important part of a person’s personality structure and are ultimately responsible for all of a person’s consistent behaviour” (p. 226). Moreover, a source trait is capable of influencing several surface traits, while each surface trait is as a result of one or more or more source traits (Olson & Hergenhahn, 2011), Source traits can be referred to as the foundational elements of personality because they influence all human behavior (Olson & Hergenhahn, 2011). This study sought to identify the source traits of elite RL players. Olson and Hergenhahn (2011) posited that personality traits are used to accurately predict the behavior of an individual. Knowing the traits of RL players may therefore enable the prediction of their capacity for future playing performance (behaviour). Olson and Hergenhahn (2011) suggest that it is possible to predict the future capacity for elite RL players based on personality traits.

Tim Sheens, the Australian RL coach, claimed that success at the elite level in RL is determined by the players’ attitude and determination (personal communication, March 19, 2014). Sheens elaborated that those with some talent and a great attitude can make it, those with great talent and a reasonable attitude

may make it, those with great talent and great attitude will excel, whereas those with great talent but a poor attitude will invariably fail (personal communication, March 19, 2014).

- ***Previous Studies on Personality Traits and their Relationship to Sports Performance***

A study was carried out on Australian Rules football players by Aidman (2006) titled “the predictive utility of personality traits for high-stake selection in a case of athletic achievement” (p.1). The Sixteen Personality Factors Inventory (Form A; Cattell, Eber & Tatsuoka, 1970) was used to assess 32 elite junior players in their peak at a prominent club in the Australian Football League (AFL). According to Aidman (2006), personality factors produced a more accurate prediction of the junior players’ ability to transition to senior AFL (84.2% of players were correctly classified as successful transition makers vs drop-outs in a discriminant function analysis) than did the combined coach ratings of the players’ performance and their physical potential (59.4% accuracy). Regression analysis further revealed that predictions from personality measures were more accurate for longer-term outcomes: they explained just over 11% variance in the coach ratings of player performance in the junior championship, but nearly 61% of variance in the aggregate performance ratings over five seasons in the senior’s competition, and 99% of variance in the coach ratings on the construct struggling – cruising through senior 3 ranks. The results supported the role of personality in converting athletic potential into success. Similarly, MacNamara et al. (2010) suggested that psychological factors were crucial as an indicator of players that exhibited a level of excellence to accompany their talent. Moreover, the optimization of development and performance programs requires a greater emphasis on the application and progression of psychological behaviors. These studies further reinforce the benefit that can be derived from utilizing a measure of personality traits as a predictor of a RL player potentially succeeding at the elite level. It is important to remember that this study does not purport to say it can identify who will succeed, because there are so many other variables (such as physical abilities and skills or future personal problems) not measured by this study. Rather it seeks to identify those unlikely to succeed, because they are lacking in one or more areas of the personality traits that have a relationship to elite RL performance. The study refers to these traits as Necessity Traits.

Achievement in any endeavor, especially sporting activities, requires considerable time to be spent on the development of the skills needed to excel at the elite level. Tim Sheens advised that to succeed at the elite level in RL a player has to be willing to do the hard work and live the game 24 hours a day, 7 days a week (personal communication, March 19, 2014). Bailey and Morley (2006) suggested that attitudes and behaviors that facilitate deliberate practice are associated with effective development of physical abilities. Likewise, Baker and Horton (2004) posited that psychological characteristics play a central role and are necessary for the acquisition and manifestation of expertise. Such characteristics include; determination and persistence, motivation and autonomy, and are seen as necessary for facilitating the acquisition of the skills required to attain excellence by enabling the athletes to invest the time necessary to practice and maintain commitment to the process of developing their athletic ability.

According to Abbott and Collins (2004), psychological behaviors are the foundation needed to realize an athlete's glass ceiling. Additionally, learning strategies and motivation are critical indicators of developmental capacity and future sporting success (Abbott & Collins, 2004). These learning strategies and motivation are necessary to capitalize on the developmental opportunities present in their environment (Abbott & Collins, 2004). As stated by Abbott and Collins (2004), rugby players with superior physical ability can excel at the junior level; however, they may lack the required psychological components to excel as an adult rugby player. Abbott and Collins (2004) believed that an individual's capacity to convert potential into achievement is determined by their psychological characteristics.

This could very well explain why the ASSRL players have a low success rate of transition from the junior ranks to the NRL. Identifying relationships between personality traits and elite RL performance can provide further understanding of the low transition rate from ASSRL to Senior RL.

Gee et al. (2010), concluded that "Athletes who possessed the "top performer" profile on the SportsPro™ significantly outperformed those athletes who lacked in one or more of these attributes over the 15-year time period under evaluation" (p. 7). Additionally, personality profiles are significant contributors in the process used to identify talent and are used by coaches in conjunction with other popular scouting tools resulting in a comprehensive scouting process (Gee et al., 2010). Kruger et al. (2012), studied the importance of psychological characteristics in potentially talented adolescent long-distance

runners. The findings suggested that psychological characteristics separated elite long-distance athletes from non-elite long-distance athletes (Kruger et al., 2012). Gee et al. (2010) indicated that top performing athletes are motivated by challenge and reward, are highly competitive by nature, are coachable, possess high self-confidence and are capable of operating individually and as part of a team. Moreover, the removal of any one of the aforementioned traits appeared to reduce the likelihood of that player succeeding (Gee et al., 2010).

Use of the Californian Psychological Inventory (CPI) instrument with athletes

The CPI has been used to profile athletes in women's basketball, field hockey, golf, bowling, male athletes in track and field and American football players (Packman, 2008). Several trait studies utilizing the CPI assessment, including Schaubhut et al. (2006) and Packman (2008), provided an insight into the psychological characteristics of NFL players. Schaubhut et al. (2006), carried out a study on the personality profiles of players in the National Football League (NFL). They used a sample of 812 participants over a three-year period (2002 – 2005) who completed the CPI 260 TM assessment. Likewise, Packman (2008) also utilized the CPI instrument and the study into the differences between drafted and undrafted NFL players.

Given that NFL football, with its extreme physical contact, is one of the closest sports to rugby league, this current study elected to utilize the CPI 260TM instrument as part of the process to identify the psychological characteristics related to elite RL performance. Schaubhut et al. (2006) noted that whilst research has been conducted on college (junior) players and, differences in personality between the unsuccessful and successful players, however, the study did not account for or identify the personality characteristics of NFL players. Schaubhut et al. (2006) distinguished between offensive & defensive players, and within these 2 groups, the various specialist positions. Personality differences were observed based on the playing position.

Nickel (2011), in her review of the study conducted by Schaubhut et al. (2006), interviewed players from each of the various positions and each player agreed that the personality traits of the players in their position were somewhat different to those in other positions on the team. This could enable position specific profiles to be developed to assist with the identification of players best suited to certain positions and further reinforces the benefit that can be derived from a study into the personality traits of athletes, including elite RL players

Previous Studies on Psychological Characteristics of Rugby League players

Golby and Sheard (2004) was one of the first studies on personality traits of rugby players. The study titled "Mental toughness and hardiness at different levels of rugby league" used the Psychological Performance Inventory (PPI; Loehr, 1986) for Mental Toughness, and the 18 item Personal Views Survey III-R (PVSIII-R; Maddi & Khoshaba, 2001) for Mental Hardiness. Golby and Sheard (2004) concluded in their study that there was a correlation between scoring higher in hardiness and mental toughness as their study had defined it, and player performance. Those players playing at the highest level scored significantly higher in all three hardiness subscales and in two of seven mental toughness subscales (Golby & Sheard, 2004). It is for this reason that the current study incorporated the mental hardiness test into the survey for the analysis of personality traits amongst elite RL players.

Cupples and O'Connor (2006) in their study into position-specific indicators in elite youth RL suggested that cognitive skills are positive indicators for determining the players that will achieve long term success compared to those will fail to progress in RL. Additionally, Cupples and O'Connor (2006) recognized that previous studies failed to consider the influence of perceptual and cognitive factors on RL performance. Communication and mental toughness were two of the top three indicators that were categorized under cognitive traits (Cupples & O'Connor, 2006). The study defined mental toughness as the ability to cope with repeated collisions in a contact sport and the ability to remain composed, concentrate and perform under immense pressure; however, determining an objective measure on mental toughness is difficult. Similarly, Jones et al. (2002), acknowledged that there is a lack of clarity and consistency on the characterization and construct of mental toughness in the literature. Despite 'mental toughness' constantly being referred to by athletes and coaches alike as a determining factor in success, given the uncertainty around what constitutes mental toughness, the study sought to examine mental toughness as a combination of several traits rather than a standalone trait. Cupples and O'Connor (2006) highlighted the importance of cognitive factors such as attitude, personality, discipline, and the ability to learn, as critical components to becoming an elite athlete. Physiological characteristics did not guarantee success; however, cognitive factors increase the likelihood of a player making it to the elite level (Cupples & O'Connor, 2006). Previous studies indicated that personality traits can predict one's behavior, and are related to elite sports

performance. Only one study has been published on the psychological characteristics of elite RL players and accordingly there is a substantial knowledge gap in this area, and this study aims to add to the body of work in this area.

- ***Research Questions***

- Is there a Relationship between (certain) Personality Traits and elite RL performance such that they could be considered as predictors of elite RL performance?
- What, or Which Personality Traits (PT's) are present in elite RL players, current and past?
- What are the 'Scores' of these predictor Personality Traits in these elite players.

3. Method

- ***Participants***

The population for this study were those RL players who had played State of Origin RL for Queensland (n = 177). State of Origin is regarded as the very pinnacle of world RL, even more so than international RL (M.N. Meninga (AM), personal communication, April 1, 2014). The number of participants (n = 67) in this study (mean age 42.7; range from 25-63 years; SD = 10.22) were sufficient to produce a statistically reliable result given the operation of this study. Although a greater sample was preferred, the response rate of nearly 40% was acceptable for a convenience sample.

- ***Design***

A quantitative study design was employed using two self-report questionnaires. This method of data collection enabled participants to identify personality traits that had a significant relationship to elite RL performance in the quickest timeframe and the most objective manner. The study used convenience sampling as the method to obtain participants. The disadvantage of the convenience sampling is that it did not allow generalizations to be made from the results, thereby limiting the application of the findings to the population of the study. The dependent variable was RL performance. Participants were allocated into dichotomous categories of the dependent variable: 1 = Elite Origin - the best of the best, players who had generally played more than 6 games over a number of series, and 0 = Fringe Origin – those who had played 6 games or

less. The independent variables were the 33 personality traits measured by the two instruments utilized for the study.

- **Materials.**

The survey used for this study was a self-report questionnaire, made up of three parts:

CPI 260TM. The CPI 260 assessment was a 260-item questionnaire, which participants responded to each question with a True or False answer. It is used to measure 29 distinct psychological constructs (traits) with average reliability across the 29 traits of .72. The CPI260 has validity of .94 with the CPI434 instrument from which it was derived, which in turn has validity of .4 to .8. The 29 traits are grouped into 6 scale categories. The range of score values varied from trait to trait (scale to scale), but with an overall range of 0-36. There is no total score for the CPI 260.

Personal Views Survey III-R. The PVSIII-R (Maddi & Khoboshaba, 2001) assessment has an 18-item questionnaire used to measure overall mental hardiness, as well as three 6-item sub scales: a) commitment, b) control and, c) challenge. Scores were recorded on a four-point likert scale (range 0-3) for: “not at all true”, “somewhat true”, “true”, “very true”.

- **Procedure**

Permission was obtained by the coach of the Queensland team from the Queensland RL (QRL) to conduct the survey. For privacy reasons, players, past and current, were contacted by email by a member of the Queensland State of Origin coaching staff who was a former player himself and well known to all players, on behalf of the head coach. The players were invited to participate in the study and were informed that the process was part of the planning for future State of Origin players and participation was voluntary. Participants were not offered, or provided, any inducement to participate, and were old enough to provide their own consent. Players were provided with a copy of the authorization letter from the university. The link to the website housing the questionnaires were emailed to the participants where they completed the first questionnaire (CPI 260) and were automatically directed to the second part (PVSIII-R) upon completion of the CPI 260. The 67 participants (players, past (n = 53) and current (n = 14), completed part 1 (CPI 260) and 63 completed part 2 (PVSIII-R).

Once completed, the questionnaires were scored by the respective organizations responsible for each instrument. Scores were provided to the researcher for the 29 traits of the CPI 260 in an SPSS file, whereas scores from the PVSIII-R were provided in an excel spread sheet for the 4 traits this measured. The data was reviewed to ensure it was accurate and true for data analysis to be completed. This study was to assess the relationship between the categorical ($n = 2$) dependent variable of elite RL performance and the continuous independent variables of personality traits ($n = 33$). In accordance with Brace, et al., (2009), binomial logistic regression was the appropriate test used to analyze the data as it is designed to detect relationships between a categorical dependent variable with two groups, and continuous variables on an interval scale.

4. Results

binomial logistic regression analysis was performed with RL performance (0 = Fringe, 1 = Elite) as the dependent variable and the 33 personality traits as the predictor (independent) variables. A total of 63 responses were analyzed initially due to 4 of the 67 participants having failed to complete the PVSIII-R. The full model of all 33 traits significantly predicted elite RL performance status (omnibus chi-square = 71.40, $df = 34$, $p = .000$). The model accounted for between 67.8% and 100% of the variance in RL performance status, with 100% of the elite Origin and 100% of the Fringe origin successfully predicted, therefore overall, 100% of predictions were accurate.

Subsequent analysis of the relationship between RL performance and the personality traits was carried out one trait at a time to identify predictor traits that had a significant relationship to the dependent variable of elite RL performance. Analysis was completed on all 67 responses for the 29 CPI 260 traits and the 63 responses that included the PVSIII-R. This analysis identified 5 traits, all from the CPI 260, as having a significant relationship to RL performance: Law enforcement orientation; (omnibus chi-square = 9.75, $df = 1$, $p = .002$). The model accounted for between 13.5% and 19.7% of the variance in RL performance status, with 95.9% of the elite Origin and 27.8% of the Fringe origin successfully predicted and overall, 77.6% of predictions were accurate. Well-being; (omnibus chi-square = 5.99, $df = 1$, $p = .014$). The model accounted for between 8.6% and 12.5% of the variance in RL performance status, with 95.9% of the elite Origin and 22.2% of the Fringe origin successfully predicted

and overall, 77.6% of predictions were accurate. Management potential; (omnibus chi-square = 5.71, $df = 1$, $p = .017$). The model accounted for between 8.2% and 11.9% of the variance in RL performance status, with 95.9% of the elite Origin and 11.1% of the Fringe origin successfully predicted and overall 73.1% of predictions were accurate. Fulfillment; (omnibus chi-square = 5.71, $df = 1$, $p = .017$). The model accounted for between 8.2% and 11.9% of the variance in RL performance status, with 95.9% of the elite Origin and 11.1% of the Fringe origin successfully predicted and overall 73.1% of predictions were accurate. Good impression; (omnibus chi-square = 4.49, $df = 1$, $p = .034$). The model accounted for between 6.5% and 9.4% of the variance in RL performance status, with 98.0% of the elite Origin and 11.1% of the Fringe origin successfully predicted and overall 74.6% of predictions were accurate.

With respect to Law enforcement orientation (LEO), the values of the coefficients reveal that an increase of one in the score for LEO is associated with an increase in the odds of being an elite origin player of 1.45. Well-being (W-b), the values of the coefficients reveal that an increase of one in the score for W-b is associated with an increase in the odds of being an elite origin player of 1.36. Management potential (MP), the values of the coefficients reveal that an increase of one in the score for Mp is associated with an increase in the odds of being an elite origin player of 1.21. Fulfillment (V3), the values of the coefficients reveal that an increase of one in the score for V3 is associated with an increase in the odds of being an elite origin player of 1.16. Good impression (GI), the values of the coefficients reveal that an increase of one in the score for W-b is associated with an increase in the odds of being an elite origin player of 1.17.

5. Discussion

The aim of this study was to determine if there was a relationship between personality traits and elite RL performance. Results indicated there is a significantly positive relationship between the independent predictor variable scores of: Law Enforcement Orientation (Leo), Well-being (W-b), Fulfillment (V3), Management Potential (Mp) and Good Impression (Gi), and the dependent variable of elite RL performance. The results of this study are consistent with previous findings regarding personality traits being a predictor of success in sports performances (Cupples & O'Connor, 2006; Aidman, 2007; Golby & Sheard, 2004; MacNamara et al., 2010; Bailey & Morley, 2006; Baker &

Horton, 2004; Gee, et al., 2010; Kruger, 2012; Packman, 2008), and enhance the limited body of research on RL players.

Whilst the confirmation of a relationship between personality traits and elite RL performance is consistent with Golby and Sheard (2004), there is a difference to the results of that study which identified the 3 mental hardiness traits of commitment, challenge and control as being significant. By contrast, this study failed to identify a significant relationship between any of the mental hardiness traits, or the overall mental hardiness score, and elite RL performance. It is unknown as to why there is this variance between the two studies using the same instrument and further investigation is required.

Law enforcement orientation was the most significant trait. This trait was designed to measure those people who would be comfortable working in law enforcement and includes persons seen as being hardworking. Those scoring well on LEO are likely to be disciplined and willing to adhere to rules, such as those imposed by coaches, managers and, clubs. This discipline and adherence to rules are vital for characteristics required for athletes to succeed at the elite level in a physically demanding sport. This is consistent with Bailey and Morley (2006), who identified attitudes and behaviours that facilitate deliberate practice as being associated with effective development of physical abilities. Similarly, Baker and Horton (2004), noted that athletes needed to invest the time necessary to practice and maintain commitment to the process of developing their athletic ability by facilitating the acquisition of the skills required to attain excellence.

The lowest scores of each of the 5 significant traits observed in the study were identified across the participant pool. These are the minimum scores a player would be expected to score if he is to be an elite State of Origin player, thereby enabling the identification of those players who have the psychological characteristics to succeed at this level of the game. These scores are known as Necessity Traits. A Necessity Trait is defined as a variable (in this study it is predictor personality traits) that is almost always present at a certain score in the target group (in this study it is the elite RL players). Having those Necessity Traits at or above the minimum scores identified does not guarantee an athlete will progress to the elite level. This is due to the personality characteristics alone not determining the ability of a player to perform at the elite level given there are several other variables (physical size, athletic ability, fitness, etc.) that contribute to becoming an elite athlete. The statistical evidence from the results

suggests that the Necessity Traits approach is a robust model for predicting elite RL performance.

A limitation of this study is that it is unknown if players outside of those who participated in this study, scored below the minimum scores and become elite players. Another limitation is the minimum scores identified by this study for State of Origin players may not be applicable for those playing in the NRL where the playing standard is not as intense or high as State of Origin. It is recommended that the study be repeated in a club setting with several clubs to ensure a sufficient sample size to enable a norm to be developed for the NRL competition. The Necessity Trait theory could then be more reliably utilized at this level to assist clubs with their talent identification and development programs, ensuring their limited resources (finances and coaches) are best directed towards those junior players who have the personality traits to succeed in the NRL. A longitudinal study to enable the testing of the Necessity Trait theory identified in this study would provide reliability and validity as the athletes with the Necessity Traits are tracked overtime. This recommendation (3) would support the teams investment into groups of highly talented juniors from NRL clubs and ASSRL teams with the Necessity Traits. This may be best done following implementation of recommendation 2, of this current study being repeated at the NRL level to establish a norm to measure against. A further limitation of this study is that it did not look at those highly talented (elite) junior players who did not make the transition to senior RL. Analyzing the scores of players who failed to make the transition to senior RL would provide valuable insight in comparison to the already established elite athletes.

Whilst the CPI 260 instrument identified traits that have a relationship to elite RL performance, only 5 (17%) of the 29 traits measured had significance. In addition to a substantial portion of the CPI 260 instrument not producing results of statistical significance in the study, thus limiting the applicability of findings. There does not seem to be an instrument that does measure more of the traits expected to be associated with elite RL performance. Accordingly, it is the final recommendation (5) that a qualitative study be undertaken to better identify the additional traits associated with elite RL performance as part of the process to develop a psychometric instrument for RL, or at least 'collision' sports, for use in future studies of a similar nature.

6. Conclusion

In conclusion, evidence gathered from previous research indicated that there is a strong association between personality characteristics and success on the sporting field. This in turn supported the concept of utilizing personality traits as a predictor of elite RL performance. The research showed elite players scored significantly higher in five of the 29 scales (traits) of the CPI 260 instrument: law enforcement orientation, well-being, fulfillment, management potential and good impression. The statistical evidence from the results supports the use of a Necessity Traits model as discussed in this study, to predicting elite RL performance. Accordingly, whilst this model is in the early stages of development, it can, in association with input from coaches on the physical attributes of a player and other in game requirements, be utilized for talent identification of elite RL performance. This is consistent with the findings of Aidman (2006) and will assist teams or clubs in selecting those players they wish to retain or acquire as it will enable them to identify the players unlikely to perform at the elite level and who therefore should be avoided. Further research in this area to validate the findings from this study will substantiate the implementation of the Necessity Traits model in assisting clubs identify those players unlikely to perform at the elite RL level. This will enable clubs to better allocate their limited financial and human resources towards those players who have the characteristics indicating they are most likely to succeed.

- ***Declaration of interests***

☒ The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

☐ The authors declare the following financial interests/personal relationships which may be considered as potential competing interests:

- ***Disclosure Statement***

There were no conflicts of interest to disclose.

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- ***Data Availability Statement***

The raw data supporting the findings from this research study are available upon request from the lead author.

References

- Abbott, A., & Collins, D. (2004). Eliminating the dichotomy between theory and practice in talent identification and development: Considering the role of psychology. *Journal of Sports Sciences*, 22, 395–408.
- Aidman, E. V. (2007). Attribute-based selection for success: The role of personality attributes in long-term predictions of achievement in sport. *Journal of the American Board of Sports Psychology*, 1, 1–18.
- Aidman, E. V., & Bakerman, M. (2001). *Predicting achievement and performance in Australian rules football: The role of self-concept, emotional stability, achievement orientation and stress appraisal*. Paper presented at the 10th World Congress of Sport Psychology, Skiathos, Greece, May 28–June 2, 2001.
- Australian Secondary Schools Rugby League. (2021, December). *Australian Schoolboys representative sides since 1972 up to 2021*. <https://assrl.files.wordpress.com/2022/06/australian-schoolboy-teams-1972-2021.pdf>
- Bailey, R., & Morley, D. (2006). Towards a model of talent development in physical education. *Sport Education and Society*, 11, 211–230.
- Baker, J., & Horton, S. (2004). A review of primary and secondary influences on sport expertise. *High Ability Studies*, 15, 211–228.
- Cattell, R. B. (1945). The description of personality: Principles and findings in a factor analysis. *The American Journal of Psychology*, 58(1), 69–90.
- Cattell, R. B. (1957). A universal index for psychological factors. *Psychologia*, 74–85.
- Cupples, B., & O'Connor, D. (2011). The development of position-specific performance indicators in elite youth rugby league. *International Journal of Sports Science & Coaching*, 6, 125–140.
- Gee, C. J., Marshall, J. C., & King, J. F. (2010). Should coaches use personality assessment in the talent identification process? A 15-year predictive study on professional hockey players. *International Journal of Coaching Science*, 4(1), 1–10.
- Golby, J., & Sheard, M. (2004). Mental toughness and hardiness at different levels of rugby league. *Personality and Individual Differences*, 37, 933–942.
- Gough, H. G., & Bradley, P. (2005). *CPI 260™ manual*. CPP, Inc.
- Jones, G., Hanton, S., & Connaughton, D. (2002). What is this thing called mental toughness? An investigation of elite sport performers. *Journal of Applied Sport Psychology*, 14, 205–218.
- Kruger, A., Pienaar, A. E., Du Plessis, E., & Van Rensburg, L. J. (2012). The importance of psychological characteristics in potentially talented adolescent long-distance runners. *African Journal for Physical, Health, Education, Recreation and Dance*, 18(2), 413–422.
- MacNamara, A., Button, A., & Collins, D. (2010). The role of psychological characteristics in facilitating the pathway to elite performance: Part 1—Identifying mental skills and behaviours. *The Sport Psychologist*, 24, 52–73.
- National Rugby League. (2013, November 5). *Salary cap breakdown*. <http://www.nrl.com/nrlhq/referencecentre/salarycap/tabid/10434/default.aspx>

- Nickel, L. (2011, April 19). Personality traits matter in NFL, but how much? *Journal Sentinel*. <http://www.jsonline.com/sports/packers/120251309.html>
- Olson, M. H., & Hergenhahn, B. R. (2011). *An introduction to theories of personality* (8th ed.). Prentice Hall.
- Packman, S. F. (2008). *Relationship between psychological characteristics and performance in professional football* (Doctoral dissertation). ProQuest Dissertations and Theses.
- Proszenko, A. (2013, May 13). Sky the limit as salary cap hits seventh heaven. *Sydney Morning Herald*. <http://www.smh.com.au/rugby-league/league-news/sky-the-limit-as-salary-cap-hits-seventh-heaven-20130513-2ji1f.html>
- Schaubhut, N. A., Donnay, D. A. C., & Thompson, R. C. (2006). *Personality profiles of North American professional football players*. Poster presented at the Annual Convention of the Society for Industrial and Organizational Psychology, Dallas, TX, May 5–7.