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1   An ecological insight into the design and integration of attacking principles of play in professional

2   Rugby Union: A case example

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16

17 **Abstract**

18 This is an exciting era for applied research in high-performance sporting environments. Specifically,

19 there are growing calls for researchers to work with coaches to produce 'real-world' case examples

20 that offer first-hand experiences into the application of theory. Whilst ecological dynamics has

21 emerged as a guiding theoretical framework for learning and performance in sport, there is a caveat

22 to its use in the field. Namely, there is a general paucity of applied research that details *how* expert

23 coaches have brought life to its theoretical contentions in practice. In light of this, the current paper

24 offers a unique insight into how a professional Rugby Union organisation set out to ground their

25 preparation for competitive performance within an ecological dynamics framework. More directly,

26 this paper details how the Queensland Reds designed and integrated a set of attacking game

27 principles that afforded players with opportunities in practice to search, discover and exploit their

28 actions. While this paper offers insight specific to Rugby Union, its learnings are transferrable to

29 coaches in other sports looking to situate their practice design within an ecological dynamics

30 framework.

31

32 **Key words:** Practice design; ecological dynamics; case example; applied sport science

Introduction

Over the last few decades, ecological dynamics has emerged as a guiding theoretical framework for learning and performance in sport (Button, Seifert, Chow, Araújo & Davids, 2020). While many of its theoretical propositions are established in the scientific literature, there is a limitation to this work; namely, there is a paucity of applied research that details *how* expert coaches have brought life to its theoretical contentions (some notable exceptions, McKay & O'Connor, 2018; Woods, McKeown, Shuttleworth, Davids, Robertson, 2019). In light of this need, the current paper offers a unique insight into how a professional Rugby Union organisation grounded their preparation for competitive performance within an ecological dynamics framework. More specifically, this paper details how the Queensland Reds designed and integrated a set of game principles that afforded players with opportunities in practice to search, discover and exploit their actions while in attack. This case example does not intend to offer a universal solution to performance preparation in high-performance sport, but rather to provide other coaches with a first-hand perspective of how an ecological dynamics framework can be applied to support athlete preparation. To frame this case example, a brief theoretical background to ecological dynamics will be provided, focusing on what it actually *means* for sports coaches in the field.

What does ecological dynamics <u>mean</u> for sports coaches?

At its core, ecological dynamics offers a framework to explain learning and performance (Button et al., 2020). Specifically, it blends ideas that primarily reside within ecological psychology (Gibson, 1979) and constraints on dynamical systems (Kelso, 1995; Newell, 1986) to situate concepts like skilled behaviour and learning as emergent properties of functionally adaptable relationships formed between an athlete and the constraints of his/her environment (Seifert, Button & Davids, 2013). Sports coaches working within this theoretical framework are, therefore, encouraged to reconceptualise their role in performance preparation; progressing away from the conveyers of declarative knowledge *about* how something should be done (by prescribing a pre-planned pattern of ball movement, for example), and moving towards the *designer* of practice activities that athletes

59 can interact with (Woods, McKeown, Rothwell, Araújo, Robertson, & Davids, 2020). In this sense,

60 athletes are afforded exploratory freedoms during practice and competition, deepening their

61 knowledge *of* a performance environment. What this means for the coach, is that to foster the

62 development of this relationship, they need to guide the attention of the athlete toward important

63 features of the environment of use to (re)organise action through carefully designed practice tasks

64 that *show athletes where to look, but not what to see*.

65 Founded on ideas from Brunswik (1955), in ecological dynamics, these propositions are captured

66 within the notion of *representative learning design*. Representative learning design indicates that

67 practice tasks should faithfully 'represent' (or simulate) the informational constraints experienced by

68 athletes in competition (Araújo, Davids, & Passos, 2005; Araújo Davids, & Hristovski, 2006). This

69 ensures the behavioral 'fit' between practice and competition environments, leading to a greater

70 learning transfer (Seifert, Button, & Davids, 2013). Accordingly, when designing representative

71 learning activities, coaches should consider sampling the informational constraints players

72 experience during competition (such as the movement of teammates and opposition, and/or task

73 objectives and intentions) to ensure they can be appropriately designed into practice tasks. This

74 concurrently emphasizes an important pedagogical consideration for coaches within an ecological

75 dynamics framework – that of using a constraints-led approach to guide the attention of players, in

76 favour of continued and prescriptive verbal instruction. Importantly, however, the constraints-led

77 approach should not be viewed as another game-centered approach, as its theoretical roots within

78 ecological dynamics encourage coaches to place the individual-environment interaction at the core

79 of their learning designs (we encourage interested readers to consult Renshaw, Araújo, Button,

80 Chow, Davids, and Moy (2015) for greater distinctions between the two pedagogical approaches).

81 While these propositions are generally understood by those in the field, the integration of tactical

82 game 'models' typical to 'playbooks' of high-performance sport can indirectly counteract the

83 foundations of ecological dynamics by over-constraining the actions of athletes (Ribeiro, Davids,

84   Araújo, Guilherme, Silva & Garganta, 2019). While such models are perceived to provide a tactical

85   advantage, their rigid and pre-planned nature can disregard the interaction of (task, performer, and

86   environmental) constraints that shape skilled actions, thereby hindering performance (Buekers,

87   Montagne & Ibáñez-Gijón, 2019). To combat the overly constraining nature of game models in high-

88   performance sport, coaches can use game principles, which guide the attention of athletes, not

89   (overly) constrain movement solutions (Ribeiro et al., 2019; Buekers et al., 2019; van der Kamo,

90   Withagen & Orth, 2019). For example, in Rugby Union, where a game model may constrain passing

91   interactions around a global pattern of ball movement deemed to speed up an attack (pre-planned

92   movement 'solution'), a more principled guidance of attention would simply encourage players to

93   look for opportunities to move the ball with speed. How the players achieve this principled intention

94   is then based around the interaction of his/her action capabilities (i.e., what the athlete can do) and

95   the dynamical constraints of the environment (i.e., what the opposition is doing). Moreover, the

96   *search* becomes the goal of the practice task, not the repetition of some pre-planned model of

97   behaviour. To enact this more principled approach in practice, it has been suggested that coaches

98   adopt a more 'hands off' methodology by designing tasks and game principles that promote

99   exploration, creativity, problem-solving and adaptability (Orth, van der Kamp, & Button, 2019).

100   Having detailed what an ecological dynamics framework *means* for sports coaches, the next part,

101   and primary aim of this paper, is to describe *how* a coach may go about integrating it into practice.

102   To address this, the paper now adopts an intentionally practical, first-hand perspective. Notably, the

103   following sections unpack a case example from professional Rugby Union, written in first person by

104   the current attack coach at the Queensland Reds. Moreover, the following sections blend qualitative

105   perspectives from players with self-reflections made by an expert coach, to elaborate on how an

106   elite Rugby Union team sought to evolve their preparation for performance model in the 2020 Super

107   Rugby season. Further, this qualitive information is supported descriptive data relating to team

108   performance indicators, extracted from commercial providers to pragmatically show how changes

109   made to the team's approach on performance preparation may have manifested into on-field

110   performances.

111   **How concepts in an ecological dynamics framework are brought to life**

112   *Building toward a set of attacking principles at the Queensland Reds*

113   Whilst the Queensland Reds subjectively showed improvement and spirited performances in the

114   2019 Super Rugby season, the reality was that the club finished second last in the competition. Upon

115   re-joining the Reds coaching staff at the start of the 2019 pre-season, I brought with me my own

116   coaching pedagogy and distinct playing philosophy that has been gradually shaped by over 23 years

117   of coaching Rugby Union and from completing a Master of Education (Sports Coaching). The primary

118   intentions of my coaching philosophy, grounded in a non-linear pedagogy, are aptly described by an

119   ex-international Rugby Union player I coached:

120   *"My understanding of Jim's philosophy on attack was to create organised chaos*

121   *amongst the already chaotic nature of Rugby. Predominantly, we would train 15 v 15 in*

122   *game-like scenarios replicating the chaotic nature of a game. Often, Jim would introduce*

123   *extra defenders and we would play 15 v 16 or 17 to overload the defence or sometimes*

124   *we would reduce the width of the field. The pressure was on the players and key game*

125   *drivers to implement our game style and execute it under the same or greater pressure*

126   *than we would face in a game. It prepared us incredibly well for games!"*

127   While I had a clear understanding of my coaching and playing philosophy, it was evident on

128   reflection that I applied it in the 2019 (pre)season without enough due consideration and prior

129   knowledge of the individual members of the current playing or coaching group at the Queensland

130   Reds. Accordingly, it was apparent leading into and during the 2019 season that we lacked a

131   thorough knowledge of attacking principles and an ability to manage opposition and situational

132   pressure that emerged in competition. Moreover, a robust critique and review of our own attack

133   (both empirically and experientially) at the end of the 2019 season highlighted some areas of

134   concern, four of which being:

135   1) Players needed more clarity regarding the *framework* that shaped their intentions in attack,

136   2) There was an increased need for education surrounding *roles and responsibilities* of the

137   players in attack, especially given that the Reds were the youngest team in the competition,

138   3) We could create space but lacked an ability to *exploit* it and capitalise on *opportunities* to

139   make territory and score points in *unstructured moments*,

140   4) We recorded almost the lowest average number of passes and offloads in the competition,

141   indicating a *stagnant ball movement*.

142   After this review, I decided that we also needed more information about opposition performance

143   tendencies and game plans. So, I set out to investigate and identify the attacking trends and features

144   applied by the leading teams in Super Rugby and the northern hemisphere. This period of reflection

145   coincided with me embarking on a return trip to England that included professional development

146   with numerous Rugby clubs and coaches, enriching my perspectives on the development of game

147   principles in attack at the Queensland Reds.

148   Having deepened my knowledge of the Reds playing group, and in accord with the areas of growth

149   highlighted in our internal review of our attack, I set upon establishing and refining a set of attacking

150   game principles. Indeed, Jose Mourinho (Head coach of Tottenham Hotspur FC) strongly asserts that

151   clear game principles are essential to enhancing levels of organisation and understanding (Bordonau

152   & Villanueva, 2018). Importantly, however, given that I view my coaching pedagogy through a more

153   ecological lens, it was imperative that these principles *guided the search* activities of the players

154   while in attack. I actively wanted to help the players unlock the synergies (i.e., interactions and

155   relationships) formed between each other and the defence, exploiting them during performance to

156   gain territory and score. Thus, these principles were intended to support the players search in

157   attack, not by telling them what actions they had to perform in a pre-planned model. To educate

158   and train these principles, I developed a bespoke framework in attack categorised into:

159   1)   IN POSSESSION: Scenarios where we start with possession of the ball – *e.g. a structured scrum*

160   *and line out*,

161   2)   REGAINED POSSESSION: Moments where we win the ball from the opposition, thereby

162   transitioning from defence to attack – *e.g. turnovers and kick receipt*.

163   Further, and I believe essentially in support of a revised framework for attack, a select number of

164   principles were identified to underpin our play. While I do not wish to share our extensive set of the

165   specific principles for obvious reasons, they generally focused on:

166   1)   Structural formations to help us find and move the ball into space,

167   2)   Passing and support play, including offloading, to keep the ball alive and moving.

168   *Piloting these game principles in attack*

169   At this point, it is necessary to mention that in addition to my role at the Reds, I was also appointed

170   the head coach of Brisbane City in 2019 who competed in the National Rugby Championship (NRC)

171   competition. This provided an ideal ecosystem in which to pilot and implement the principles

172   encapsulating the previous focus points. Encouragingly, the results were immediate, with Brisbane

173   City reaching the finals of the NRC competition in the 2019 season; an achievement not reached by

174   the team in the three seasons preceding.

175   Of particular interest were the positive outcomes and affirming player feedback relating to an

176   improved framework of play in attack. For example, a then player at Brisbane City stated:

177   *"Jim provided us with a clear and simplified attack system of play and focussed on a few*

178   *key points. Players could draw upon their already established skill sets and improve*

179   *dramatically. Jim started with smaller 8 v 8 sided games and then focussed on 15 v 15*

180   *activities with multiple phases, with each team competing against each other. Jim would*

181   *constantly change the width of the game, duration and number of players on each team*

182   *– which would all aid in creating fatigue amongst the players. By doing so, players were*

183   *given the best chance to compete, and to test their skills under pressure. XX managed to*

184   *draw upon senior players and game drivers to dive deeper into the concept of 'Brisbane*

185   *City Attack'. By doing so, Brisbane City attack helped us win multiple games."*

186 In support of this insight, Brisbane City scored the third most tries (39) and recorded the second

187 most offloads (81) in the NRC competition in the 2019 season. Looking more closely into player

188 comparisons across the competition (n = 279 players), three Brisbane City players featured in the top

189 five for total offloads performed in the competition. Apart from the wins, I felt this experiential and

190 empirical evidence supported the shift in our attacking mindset and training pedagogy by

191 exemplifying the two focal points of the principles of play detailed earlier.

192 *Integrating these game principles in attack at the Queensland Reds*

193 Following on from the 2019 NRC competition, and in preparation for the forthcoming 2020 Super

194 Rugby season, the next step was to integrate and educate the Reds playing group on the reasoning

195 behind these revised game principles in attack. It is necessary to acknowledge that we are currently

196 (at the time of writing this paper) the youngest and least experienced team in the Super Rugby

197 competition. I felt because of this, it was important to accommodate a more balanced approach

198 towards education and practice time both on and off the field. Further, in addition to introducing

199 these attacking principles and training pedagogy to the players, I also had to embed them

200 throughout the broader professional Rugby department of support staff at the Queensland Reds in

201 order to unify practice.

202 Moving into the 2020 pre-season, further refinements to our attacking game principles took place.

203 To give credit, concerted discussions took place with the head coach, helping to solidify a deeper

204 level of understanding, commitment and unification to proceed. Of particular note, a lot of

205 collaborative work was done between myself and the attack leaders in the playing group. This rich

206 coach-player dialogue led to greater buy in and ownership of how they wanted to play, as the

207   refined principles were 'co-designed' (Woods, Rothwell, Rudd, Robertson & Davids, under review)

208   between myself and the players. Co-operatively, and in conjunction with the four areas of growth

209   from the previous season's review, we (myself, the other coaches, and key members of the playing

210   group) felt like we now had a bespoke attack framework that guided the intentions underpinning the

211   search of the players, but afforded them with the freedom to identify and exploit emergent

212   affordances (opportunities for action; Gibson, 1979) during the game. Clearly, the challenge now

213   was designing training activities that afforded players the opportunities to learn and exploit these

214   attacking principles, thereby deepening their knowledge *of* them. While this is a process that is

215   continually evolving, I will share two examples of what these practice designs encapsulated.

216   *Practice designs to deepen knowledge of attacking game principles at the Queensland Reds*

217   As a coach who views himself through an ecological lens, I see my role in training is to design

218   practice tasks that guides the search and exploration of players. Further, by acknowledging that no

219   scenario is identical, I actively design activities that create varying levels of 'safe uncertainty' and

220   controlled chaos in practice to promote the emergence of adaptable and creative performance

221   solutions (Figure 1). Note that the conditions of 'safe uncertainty' (top right hand quadrant in Figure

222   1) characterised the way we sought to design player interactions in practice, ensuring that they felt

223   'safe' (i.e., empowered) to explore performance solutions which may or may not be effective, under

224   practice constraints which simulated the challenges of the competitive environment (i.e., creating

225   problems and decisions for players to resolve). In this respect, it is important to understand what is

226   meant by 'controlled chaos' in practice designs: it is not the random variation associated with the

227   technical definition of a chaotic system, but rather is used here to refer to 'constrained variation'

228   designed in by a team of practitioners seeking to simulate the challenges of the competitive

229   performance environment in Rugby Union.

230   ****INSERT FIGURE ONE ABOUT HERE****

10

231   To help facilitate practice designs, I regularly manipulate (i.e., vary) constraints within practice tasks,

232   such as time, space, opponent tactics, defensive formations and interpersonal distances between

233   players and the ball. Here, I share some specific examples of how the XXXX coaching group

234   integrated 'continuity of attacking play principles' into our training sessions. The overarching aim of

235   the examples was to design practice tasks that enabled the manifestation of our attacking principles

236   of play in order to embed learning into context. This is important, as the principles alone (i.e.,

237   considered and practiced in isolation) are somewhat limited, thus we endeavoured to foster a

238   constant relationship between our attacking principles and the way we designed practice. The intent

239   of this was ultimately to help players manage the emerging pressures (both physically and

240   situationally) of the competitive game environment; an area highlighted above as needing

241   improvement from the 2019 season.

242   <u>Practice Task 1: Continuity Play (Keeping the Ball Alive)</u>

243   *Task goal and design*

244   Working in smaller groups (with total numbers ranging from 8 and beyond), this activity invited

245   players to explore ways of performing continuity skills to keep the ball in motion. Specifically, players

246   were encouraged to explore ways of:

247   1)   Evading opponents

248   2)   Offloading and passing (i.e., before and post contact)

249   3)   Performing supporting play actions

250   4)   Coordinating between each other based on local interactions to continuously drive synergy

251   formation.

252   The activity consisted of two sub-groups: Group 1, the Defenders (four players), were required to

253   spread themselves randomly across the playing channels (25m long x 5-10m wide), while Group 2,

254   the Attackers, broke up into foursomes and placed themselves at the top end of the first channel.

255   The activity started with an attacking foursome advancing the ball forward down the first channel,

256   then immediately turning around and working back up the second channel. The defenders could

257   only move forward or sideways within the same channel – they could not spread into other

258   channels, which, numbers permitting, was defended by another set of four players. Once the first

259   foursome reached the end of channel 1, the next foursome could go, with this process being

260   repeated. Regulation Rugby rulings governed play and were enforced throughout.

261   *Why was this practice design used?*

262   Firstly, by working in smaller groups of four and constraining the space within a channel, I found the

263   players were able to gain maximal exposure to ball and opponent interaction in a representative

264   manner – simplifying a full game, but still faithfully preserving fundamental information sources that

265   shape player actions (Verheijen, 2014). Secondly, by allowing the defenders to randomly position

266   themselves, I actively encouraged 'repetition without repetition' (Bernstein, 1967), in which the

267   continuously dynamic positioning of the defenders required the attackers to adapt behaviours to

268   maintain continuous play.

269   A separate caveat here is that I encourage other coaches reading this to appreciate that such an

270   approach looks different each time a repetition is performed. Thus, as long as the task intent is

271   achieved and the task is designed in a representative manner, how the repetition is performed

272   should not be a point of concern. Further, while the task goal actively encouraged players to search

273   for ways of continuing the play through offloading, passing and support play, the movement

274   solutions available to the players were not delimited to just these actions. Moreover, players were

275   encouraged to search, discover and exploit the most inviting means of advancing the ball forward as

276   quickly as possible. Lastly, in addition to the physical pressure imposed from the opposition, I sought

277   to design in affective constraints. Notably, if the practice broke down due to a passing error resulting

278   in a turnover, or the defence was able to generate a turnover, the attacking foursome were required

279   to stop and start the task again, thereby adding performance pressure to keep the ball in motion.

280   While acknowledging transition components are central to our attacking principles, this activity was

281   not the place for its practice, which leads us to the second example.

282   <u>Practice Task 2: Team play</u>

283   *Task goal and design*

284   This activity intended to challenge an attacking team's capability to demonstrate continuity of ball

285   movement as they explored ways to breach the defensive line and score. This activity intent was

286   grounded in match contexts, with two opposing teams of up to 15 players being used on a full field.

287   However, this activity should not be confused as simply being match play, as a few constraints were

288   manipulated to promote the continuity of ball movement for the attacking team. For example, the

289   activity was initiated in an unstructured, yet controlled and chaotic situation (e.g. a ball being

290   randomly kicked or passed into a field position favouring the attacking team). The attacking team

291   were then challenged to advance the ball up the field toward their try-line in an effort to score. In

292   accord with our principles of attack, the players were free to achieve this task goal and keep the ball

293   in motion by exploring a range of different running, passing and/or kicking actions. Importantly,

294   transition moments from turnovers and kicks (i.e., attack to defence and defence to attack) were

295   frequently enabled in this activity, thereby encouraging the game to be played in a state of continual

296   movement and chaos. To generate turnovers, I would often randomly call a penalty and loss of

297   possession for the offence, or add another ball into the activity, giving it the defending team (note,

298   these are non-exhaustive examples). The ball carrier was afforded an allowance to be touched twice

299   from an opponent: one touch afforded an opportunity to immediately play the ball (pass or offload)

300   whilst remaining on feet, while the second touch simulated a tackle, in which the player dropped to

301   the ground to 'pop pass' the ball.

302   In addition to these design features, I routinely manipulated task constraints to challenge and

303   channel the problem-solving of the team in possession of the ball. Whilst non-exhaustive, I have

304   listed some examples of these constraints and their rationale below. However, I would like to stress

305   the importance for coaches manipulating constraints to appreciate the rationale behind why they

306   are doing so. Such reasoning, I have found, enables greater clarity with the constraints needing to be

307   manipulated to encourage, promote or challenge certain movement solutions in practice.

308   • The attacking team must pass the ball at least twice on each sequence of play. While risking

309   over-constraining, I found constraining the number of passes during a sequence encouraged

310   the continuity principles of passing and support, leading to an emergence of more offloads.

311   • Manipulating the playing numbers both in attack and defence. I found this channelled the

312   attention of the players and helped them to identify when they possessed a number

313   superiority (overload) or inferiority when in attack (and thereby defence). This, I found,

314   encouraged a deeper situational awareness, with the players learning to identify when they

315   had an overload in attack, focusing on how to exploit it to score or gain territory.

316   • Varying the width of the field. I found this helped the players search for, create and then

317   exploit available space. Further, by making the field wider, the players were encouraged to

318   'stretch' the defence when attacking, creating gaps in the defensive line they could probe

319   and explore.

320   • Manipulate the number of phases 'allowed' to gain territory and score. I found that when

321   phase numbers were reduced, attacking players were challenged to find more creative ways

322   of gaining territory (e.g. by 'kicking') relative to when an unlimited number of phase

323   attempts were allowed. This encouraged them to explore movement solutions they would

324   not usually consider, thereby extending their action capabilities.

325   *Preliminary on field results from these attacking principles and practice designs at the XXXX*

326   While I wish to state that these game principles for attack are still being refined through practice

327   tasks such as those listed above, I do think it is important to finish this paper with a brief pragmatic

328   insight into some of the results we have already observed at the Queensland Reds in the 2020 Super

329   Rugby season. At the time of writing this paper, the first seven rounds of the Super Rugby

330   competition had been completed, and given the global pandemic pausing the competition, I will only

331   touch on empirical support for these attacking principles from these completed games.

332   Table 1 shows descriptive, mean, comparisons of some key indicators of our attack from the 2019

333   and current 2020 seasons. Of particular note, we averaged 140 passes (ranked 12th in the

334   competition) and nine offloads (ranked 14th in the competition) per match in the 2019 season. Thus

335   far, we have seen these values improve this season to an average of 157 passes (ranked 3rd in the

336   competition) and 16 offloads (ranked 2nd in the competition). Of further note, we are scoring nearly

337   1.5 more tries on average per game relative to the 2019 season, which increased our competition

338   ranking in this indicator from 9th to 2nd. Indeed, while positive, these results are merely descriptive

339   and could have been impacted by a range of additional factors (such as playing roster changes

340   between the 2019 and 2020 seasons, and/or team continuity throughout the 2020 season). As such,

341   they need to be interpreted though a pragmatic and preliminary lens. Nonetheless, the initial on

342   field performance in response to our (re)designed and integrated attacking principles, grounded

343   within an ecological dynamics framework, is incredibly promising.

344   ******INSERT TABLE ONE ABOUT HERE******

345   **Concluding Remarks**

346   This paper offered a unique case example to the sport science literature with applied pedagogical

347   insights into how a professional sporting organisation has actively sought to align its practice within

348   an ecological dynamics framework. Specifically, in response to a thorough review of their 2019

349   season, this case exemplified how the Queensland Reds went about redesigning and integrating a

350   set of attacking principles of play that guided athlete behaviours, while affording them the freedom

351   to search, discover and exploit in response to a range of dynamically changing constraints. This

352   paper presents some unique preliminary evidence to support the integration and practice of these

353   principles, with future work being needed to more comprehensively substantiate their positive

354   impact. Nonetheless, this paper offers a first-hand experience of an expert coach who set out to

355   integrate an ecological way of performance preparation in professional sport. Although the case

356   example is specific to Rugby Union, the learnings are transferrable to other practitioners interested

357   in understanding how to support performance preparation through the theoretical guidance of

358   ecological dynamics. Specifically, the first-hand perspectives elaborated on by the attack coach

359   throughout this paper should act as a guide for other coaches interested in establishing a

360   preparation for performance framework aligned to an ecological dynamics framework. Moreover,

361   the practice task examples detailed should act as a mediator for understanding how non-linear

362   pedagogical concepts predicated on ecological dynamics, such as a constraints manipulation, can be

363   brought to life in practice.

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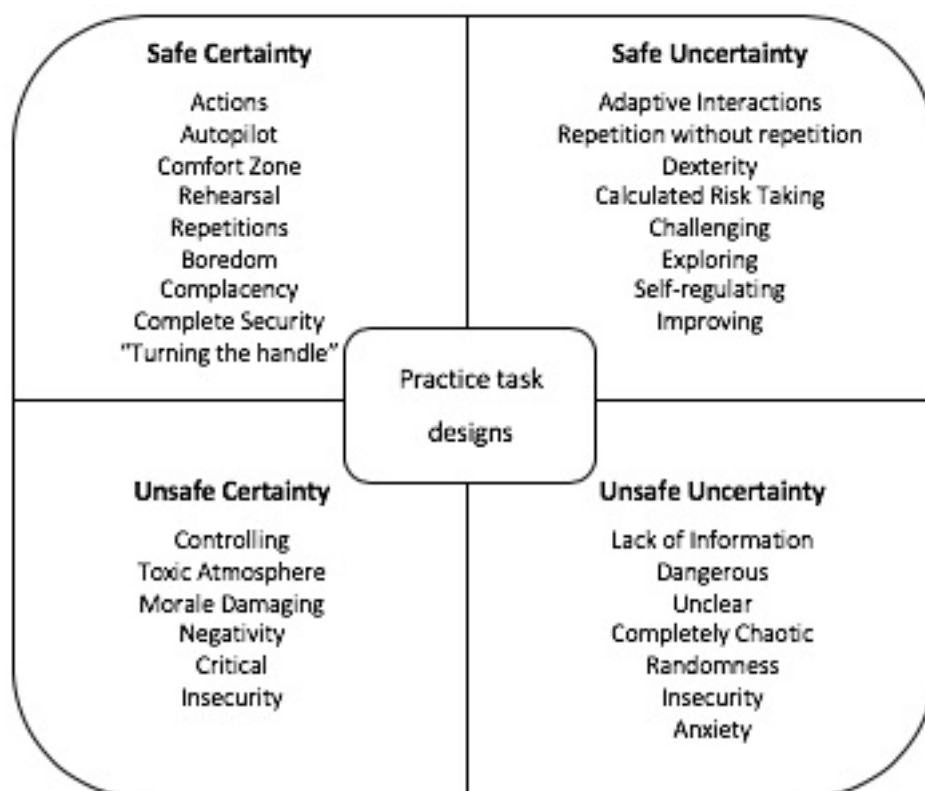
Figure 1. The safe uncertain quadrant for training task designs

Table 1. Average attacking performance indicators from the 2019 and 2020 (rounds 1-7) Super
Rugby seasons

Indicators	2019 season		2020 (rounds 1-7) season		
	Average	Ranking	Average	Ranking	Change in ranking
Points Scored	23	10th	32	4th	Up 6
Tries Scored	3.06	9th	4.57	2nd	Up 7
Line Breaks	8	7th	9.71	2nd	Up 5
Defenders beaten	26	2nd	27	3rd	Down 1
Offloads	9	14th	16	2nd	Up 12
Passes	140	12th	157	3rd	Up 9

Note: These statistics were obtained from Opta Sports and can be found publicly
(www.foxsports.com.au/rugby/super-rugby/stats).

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