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Title	Individualising Coaching in Olympic and Paralympic Worlds: An Applied Perspective
Type	Article
URL	https://clok.uclan.ac.uk/42135/
DOI	https://doi.org/10.1123/iscj.2021-0047
Date	2022
Citation	Simon, Scott and Richards, Pamela orcid iconORCID: 0000-0003-4242-981X (2022) Individualising Coaching in Olympic and Paralympic Worlds: An Applied Perspective. International Sport Coaching Journal. pp. 1-8.
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It is advisable to refer to the publisher's version if you intend to cite from the work.
https://doi.org/10.1123/iscj.2021-0047

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2   **ABSTRACT**

3 This practical advance paper outlines the complexity of simultaneously coaching in Olympic

4 and Paralympic disciplines of canoeing. The paper integrates applied experience from the

5 Tokyo Games, with a critical review of disability literature, to explore the importance of the

6 creation of Shared Mental Models to inform the development of a performance vision in elite

7 sport. The paper first addresses the design and development of complex performance visions,

8 which underpins the delivery of such elite programmes. Secondly, and perhaps more

9 importantly, the paper addresses the fundamental issue, that Paralympic sport is not a

10 microcosm of Olympic sport, and that performance visions and coaching processes created in

11 an able-bodied environment, cannot be cut, copied, and pasted into a Paralympic setting.

12 Offering applied insight, from this unique dual perspective the paper discusses the

13 complexity of designing a well-structured performance vision. We propose that although

14 such performance visions developed in Olympic and Paralympic context share some

15 similarities, the design of Shared Mental Models need to be bespoke to the performance

16 setting. The paper articulates the additional complexities of Shared Mental Models deployed

17 in a paracanoe setting and offers recommendations as to how we can better support the

18 construction of performance visions in Paralympic sport.

19

20 **Keywords:**

21 Shared Mental Models, Olympic, Paralympic Sport, Coach Education, High-Performance

22 Teams

23

Introduction

24

25   The operationalisation of a high-performance vision in the context of professional

26 elite sport, in which Shared Mental Models (SMMs) are developed within Paralympic Sport,

27 refutes the claim that Paralympic sport is a microcosm of Olympic performance. Instead, the

28 Paralympic landscape should be viewed and coached in an appropriate manner that integrates

29 the needs of athletes, events, environment, and coaches. Therefore, we should recognise that

30 individual and team performance settings have unique parameters appropriate to that context

31 and which influence the coach's vision or SMMs of athlete performance (Richards et al.,

32 2009). This paper will prompt discussions about SMMs complexity in elite sports and outline

33 how they can facilitate more effective coaching within this complex environment. More

34 specifically, readers should gain insights into the Paralympic performance environment and

35 how the complexity of the coaching process has been navigated.

36   In helping to set the naturalistic context of this practical advance, it would be helpful

37 to consider the Paralympic landscape in which it is set. The current growing literature on

38 Paralympic populations within elite sport, while useful in providing insight into coach

39 education, is not considered through a contemporary lens and fails to consider the specific

40 context of knowledge sources and the inclusion of parasport coaches (Fairhurst et al., 2017).

41 Crucially, within the context of this practical advance narrative, the dominant discourse

42 within the coaching literature remains misaligned to the effective individualisation of

43 parasport athletes. Such a discourse aligns with assumptions driven through a medical lens of

44 functional limitation of what the athlete can't do (Townsend et al., 2015). Further, historical

45 coaching literature may also be viewed through a non-disability prism that fails to consider

46 the person. Logically, this view would negatively impact the individualisation of the

47 coaching process within Paralympic populations.

48   Consequently, if the concept of SMMs described here is accepted as needing to be

49   unique or individualised to the athlete, these assumptions must be challenged to generate

50   adequate SMMs within a Paralympic context. Supporting this stance, within Parasport

51   populations, Townsend et al., (2015) argue that the reproductive nature of coaching should be

52   critically appraised and unpacked within the context and complexities of real-world settings.

53   Therefore, this paper contends that we cannot apply 'copy, cut & paste' SMMs to a

54   Paralympic athlete (or any athlete) within naturalistic settings, as effective SMMs must be

55   appropriate to the context and the individual. The paper outlines the additional complexity

56   surrounding the Paralympic context, rejecting a mirroring of information where knowledge is

57   transferred from an Olympic setting and misapplied directly to the Paralympic context. It is

58   this contextualisation of coaching that remains unappreciated within coaching (Jones &

59   Hemmestad, 2019).

60   In presenting this applied perspective the paper firstly explores how disability may be

61   conceptualised through a theoretical lens, before applying it to sports coaching. The paper

62   then presents SMMs, outlining their relevance to coaching as tools that can structure

63   information, and inform how knowledge is shared with the coaches, athletes, and other

64   specialists working within a high-performance setting, We then describe SMMs and their

65   relevance to individualisation before presenting the paracanoe context in which they are

66   applied. Subsequently, we present exemplars as to the operational use of SMMs, discuss

67   individualisation and personalisation of coaching within the Paralympic context. Finally, we

68   offer five recommendations derived from the applied insight of preparing for the Tokyo

69   Games to support the advancement of coaching within parasport.

70   **Exploring Disability Through A Theoretical Lens: Overview Of Models Of Disability**

71   Within the sporting context, of this paper, the term *Parasport* will be used

72   interchangeably to define both competitive and non-competitive sporting activities for people

73   with a disability (Wareham, et al., 2019). Paralympic athletes are coached and supported by a

74   range of experts, including technical sports coaches and an athlete support team that may

75   include strength and conditioning coaches, physiotherapists, sport medicine doctors,

76   biomechanists, performance analysts and psychologists. However, professional training of

77   support team professionals such as physiotherapy is often delivered through a medical model

78   lens and focussed on textbook ideals which may become a barrier to effective athlete

79   individualisation. Importantly, in helping to overcome these barriers and understand the

80   world wherein this narrative is situated, it is relevant to consider how coaches and those

81   indirectly or directly supporting coaching, such as those within the athlete support teams,

82   conceptualise Paralympic sport.

83   In helping the paracanoe team to navigate the barriers described above, Townsend and

84   colleagues (2015) model of disability has proven useful. In researching coaching and coach

85   education practices within parasport, Townsend et al., (2015) examined and reviewed four

86   theoretical lenses through which disability is viewed. Understanding and utilising Townsends

87   (2015) model has provided the coaching team with an applied tool to deliver a coaching

88   coherence and expose coaching dogma within Paralympic sport. At a practical level

89   understanding models of disability has helped both technical and support team coaches (and

90   those they must collaborate with) consider how they conceptualise and position disability,

91   associated impairments, and how these factors influence their practice, development of coach-

92   athlete relationships (Jowett & Arthur, 2019) and engagement in the coaching process. It is our

93   view that understanding these lenses has greatly helped technical coaches and support team

94   staff transferring into the paracanoe team from Olympic disciplines. In short, it has allowed

95   alignment of the team around a central asset driven philosophy of what the athlete can do,

96   rather than what they can't. Townsend et al., (2015) theoretical lens of disability model is

97   presented below.

98   ***The Medical Model:*** Emerging from clinical practice and perhaps the most pervasive

99   model within disability research (Smith & Perrier, 2014), the medical model defines

100   disability by the functional limitations of an impairment (Swain et al., 2003). Viewed through

101   the medical lens, disability is something that should be fixed or cured and is something

102   abnormal. The lived experience of disability is ignored, and a person with a disability is seen

103   as socially and culturally 'different' and disadvantaged (Oliver, 1996). More simply, a person

104   with a disability is treated as someone who must be fixed and is judged by what they cannot

105   do. Thus, giving rise to coaching behaviour that judges a person against a preconceived

106   *normalised* ideal, encouraging a nonethical approach to coaching. Consequently, the medical

107   model ignores the formation of individualised or unique coaching knowledge, focusing

108   instead on the medical functionality of athlete limitations (Denison et al., 2017). Therefore,

109   coaching practice may be based on non-disability ideals, such as overlaying non-disabled

110   running gait patterns and training modalities to an athlete with through-knee unilateral

111   amputation whose impairment makes the overlayed pattern impossible to achieve.

112   ***The Human Rights Model:*** The human rights model was the first model to address

113   the diversity and equality rights of people with disabilities (Townsend et al., 2015). The

114   human rights model shifts the view of people with a disability as passive objects without

115   rights and towards facilitating basic freedoms that are taken for granted, such as access to

116   sport (Rioux, 2011). Therefore, participation in sport is a fundamental human right and

117   people with disabilities are entitled to participate in it. Consequently, the human rights model

118   champions inclusive policies, practices and environments that support people with disabilities

119   in sport (Townsend et al., 2015).

120   ***The Social Model:*** The social model suggests that disability is a social construct,

121   overlaid on top of impairment (Thomas, 2014). The social model argues that disability is a

122   collection of imposed barriers that exclude people with impairments (Thomas, 2014). These

123   barriers permeate all aspects of daily life, such as transport, housing, employment, and

124   accessibility to many buildings. Put more simply, all people could be considered equal until

125   society imposes a barrier on one of us. Social examples in sport include exclusion policies,

126   restricted venue access, inadequate changing facilities, etc. We would argue that the paucity

127   of parasport research and consequent stagnation within academia in associated coach

128   education and development could be attributed to a social model lens. In other words, the

129   dominant research approach within sports coaching is within the non-disabled population,

130   overlayed into disability fields.

131   ***The Social-Relational Model****:* The social-relational model of disability (Thomas,

132   2014) views disability through the social-cultural and historic activities that influence

133   collective activity (Townsend et al., 2015). Therefore, disability is given meaning through

134   relational practices that shape how people interact with each other and experience the world.

135   The social-relational model allows coaches in parasport to utilise a dynamic process built on

136   a coach-athlete relationship that allows both agents to contribute to the coaching process

137   (Townsend et al., 2015). Through this model, the athlete can be viewed as a unique person

138   and is encouraged to contribute to the construction of knowledge, through sharing the

139   embodied experience of disability with the coach, in co-construction of a performance

140   solution (McMaster et al., 2012; Duarte, Culver & Paquette, 2020). More simply, a

141   personalised social-relational lens helps develop an asset-driven paradigm of what an athlete

142   can do, rather than what they cannot (coach the athlete not the disability). In this way, a

143   coach can respond to athletes' ideographic needs and think about creating a unique and

144   individualised SMM, even if underpinned by generic concepts. Consequently, if

145   individualisation is the goal of the coaching process, then an asset-driven philosophy of what

146   a person can do is critical in knowledge construction and practical truths.

147   **The Theoretical Models Of Disability Applied To Coaching:**

148   While a medical model may have some applications in the initial rehabilitation of an

149   acquired impairment, we argue that it is limited and outdated in a Paralympic setting. As

150   described earlier, the medical model focuses on normalised ideals and what the athlete cannot

151   do. The social model has a high application by considering disability through an athlete's

152   perspective and is thus useful in removing imposed barriers to allow participation and in the

153   coaching process. From a coaching perspective and through the generation of individualised

154   coaching, the social-relational model has proven the most useful. It follows an asset-driven

155   philosophy and positions an athlete at the heart of generating solutions and bespoke

156   interventions. However, all models are underpinned by the human rights model that provides

157   equity and equality as a basic right with the consequential policies, practices, and

158   environments provided. While presented and considered individually, all models have

159   limitations, such as a failure to consider athletes' experiences. However, if the concept of

160   disability could be considered as a whole, which is required for the construction of SMM

161   (discussed next), it may represent a theoretical lens fit for 21st Century Parasport. At an

162   applied level within the paracanoe example, Townsends (2015) model has proven important

163   in providing an agreed philosophical lens through which coaches and the athlete support team

164   can communicate, collaborate, define, and align performance collaboration.

165   For example, consider the Head Coach facilitating a conversation to improve athlete

166   performance with an athlete support team who may have recently transitioned in Paralympic

167   Sport from Olympic disciplines. The perception and lens that each person in the conversation

168   views disability may differ greatly. Some depending on their knowledge and experiences may

169   have a medical lens of what the athlete can't do and focus on the limitations of impairments.

170   Conversely, others may see opportunity and what the athlete could be capable of and focus

171   on unique asset driven individualised coaching solutions that would improve performance.

172   This incongruence may negatively impact collaboration, agreement, and alignment on the

173 direction of coaching interventions. Having explored the key concept of disability and

174 parasport and presented the theoretical models which shape our understanding of these

175 concepts, the paper will next explore the use of the Shared Mental Model (SMM) to

176 operationalise individualism. In doing so the paper will illustrate the importance of

177 individualising SMMs to the athlete and setting.

178 **What Are Shared Mental Models?**

179   The SMM may be defined as a verbal or pictorial cognitive knowledge representation

180 of the desired athlete performance (Richards, Collins & Mascarenhas, 2016; McGarry, 2009)

181 that the coach holds in memory and works from. A shared understanding of the performance

182 vision or task (Richards et al., 2016), allows teams to better explain phenomena, innovate,

183 draw inferences, and identify relationships between concepts (Stadifer & Bluedorn, 2003).

184 Consequently, in developing a shared understanding of the performance task SMMs within

185 this applied example have been used as a tool to unify theories, models and philosophies in

186 defining performance problem statements and considering solutions. Thus, aligning coaches,

187 support teams and athletes in the development of individualised performance interventions.

188   Within sport Richards and colleagues (2012; 2016) suggests the coach's initial SMMs

189 (alpha vision) are made up of two distinct elements, 1) psycho-motor, or *the what*, and 2)

190 psycho-social or *the how* that must be considered to allow SMMs to be operationalised. In

191 this way developing the SMMs has allowed team members to align and integrate their

192 expertise to collaborate and socially construct a shared model (Richards et al., 2016).

193 Accordingly, performance may be considered through the lens of distinct professions, yet

194 critically be understood and a shared situational awareness created within the team to agree

195 *(or not agree)* on a convergent team direction in developing shared athlete-specific SMMs of

196 performance. In effect, this convergence has allowed the coordination of effort and permits

197 each team member to contribute expert knowledge on an agreed area of athlete development.

198   Psycho-motor elements (e.g., performance vision, technical elements) are concerned

199   with the team members valuing, perceiving and interpreting information in the same way

200   (Richards, et al., 2009). Psycho-social elements (e.g., common language, generation of

201   concepts, tactics, SMMs) integrated with reflective practice, enables the content of the SMMs

202   (psycho-motor) to combine to develop alignment of the team collective vision, around

203   performance goals. Nevertheless, what this literature has not yet addressed, are the challenges

204   and processes undertaken when a coach with an already existing and well-established initial

205   or alpha vision for performance (no matter how diverse it is), must adapt outside of these

206   parameters or collaborate to develop a bespoke individualised SMMs (Richards et.al., 2012;

207   2016). For example, when coaching an athlete for the first time, transferring into Paralympic

208   Sport, or joining a new coaching team.

209   In considering this transfer at the applied level, while the role of a coach has been

210   recognised in high-performance sport (Cushion, 2006), the role and influence of a wider

211   athlete support team, integral to the development of an SMMs of athlete performance, has

212   been neglected (Alfano & Collins, 2021). Critically, members of the athlete support team

213   either directly (such as the strength & conditioning coach) or indirectly (such as the

214   physiotherapist) support the delivery of technical and nontechnical coaching interventions.

215   Therefore, coordination of technical coaching and athlete support team expertise is essential

216   for maximising performance. Addressing the challenge of adapting SMMs to the individual

217   from the coach's perspective, this paper offers a unique applied contribution as to how

218   experts in the athlete support team can be empowered to shape SMMs and exchange

219   knowledge. Thus, resulting in an aligned and defined performance vision that enhances an

220   athlete's chance of success. Such insight has within this example helped shape the vision of

221   SMMs through empowering (Kidman, 2001) the relevant expert to lead the coaching process,

222   enhanced collaboration and innovation. Thus, informing coaching efficacy, professional

223   practice, and the development of specialist roles through the exchange of knowledge.

224   Such a collaboration is especially important in helping coaches transitioning into

225   Paralympic sport decipher multiple, inter-related factors they lack familiarity or knowledge

226   of (e.g., disability, impairment, equipment modification, etc) by expanding their education

227   support networks (Duarte 2020). The transitioning coach (at least initially) may be required

228   to move beyond the boundaries of their previous experience to address and solve the novel,

229   inter-related needs of a Paralympic athlete. Logically, the utilisation and integration of

230   experience and knowledge of a range of performance specialists, collaborating under the

231   leadership of the head coach would help to address the coaching impasse caused by the

232   boundaries of expertise. At a practical level, this impasse has been navigated by the head

233   coach within their leadership role, firstly adopting the position of social learning leader

234   (Duarte et.al., 2020). Secondly, empowering others to become social learning leaders.

235   Therefore, within the paracanoe settings, when faced with no definable athlete

236   problem statement, no objectively correct answer, and layers of uncertainty and complexity

237   (Maurer & Thomas, 2014), the solution has been found in developing an understanding of

238   how each team member contributes their expertise to and works from a unified performance

239   vision or SMM of the athlete. Through this contextual critical appraisal, knowledge is

240   exchanged, coaching practice is challenged, context is gained, collaboration facilitated, and

241   athlete experience enhanced.

242   **The Evolution Of SMMs For Paralympic Sport**

243   In common with many coaches working within Paralympic sport, the technical and

244   support staff within this applied perspective are non-disabled, highly experienced coaches, of

245   none parasport performers, who have "transferred" into the Paralympic domain from non-

246   disabled sport (Fairhurst et al., 2015). Consequently, most of these transferring coaches and

247 support staff have established, and sometimes very well established SMMs from non-disabled

248 sport developed through experience. However, although some similarities exist, the transference

249 of previous experience can be a limitation in that it cannot be simply overlayed or passed down

250 onto the unique needs of Paralympic the athlete, (Taylor et al., 2014).

251   This additional layer of complexity in the transfer of coaching knowledge across

252 domains results in information shaped by SMMs in the Olympic world being frequently made

253 redundant when applied to the bespoke Paralympic settings. For example, observational

254 performance cues of leg drive, frequently referred to in the Olympic Kayak forward paddle-

255 stroke context may be limited or redundant in a Paralympic setting owing to impairment

256 limitations. Instead, the effective Paralympic coach will be required to create innovative

257 individualised equipment and technical forward paddle-stroke modifications to address this

258 aspect (Simon et al., 2017). A further example can be highlighted with the use of language. At

259 an applied level within parasport, and particularly within Olympic and Paralympic paddlesport,

260 there are differences within coaching language, definitions and phases (Taylor et al., 2014) that

261 may hinder communication and collaboration within the athlete support team.

262   In addressing the examples above, the transferring coach (technical and support staff)

263 faces a lack of formalised educational resources to aid coaches in creating or identifying, the

264 declarative knowledge in adapting SMMs for the athlete (Taylor et al., 2014; Fairhurst et al.,

265 2015). Equally problematic is a lack of training in the skills that allow the coach to derive that

266 knowledge from their own experience (Taylor, et al., 2014) In addition, gathering and making

267 sense of (Weick, 1995) parasport specific experience can be a long, isolated and lonely

268 experience if the coach lacks a suitable support network (Collins et al., 2019). In practice, the

269 lack of formal or relevant education and the time taken to develop applied experience have

270 generated the need to seek informal experts and mentors as sources of knowledge in creating

271 parasport SMMs. Through a two-way process of collaboration, experimentation and gaining

272   experience, knowledge is generated and transferred into the parasport context, exchanged and

273   made useable. In optimising collaboration, the alignment of the team members behind an agreed

274   and understood conceptual asset driven philosophy (Wareham et al., 2019). Such alignment

275   allows individualised athlete solutions to be considered through a similar lens, whilst retaining

276   the distinct diversity of professional critical thinking in defining and developing SMMs.

277   Consequently, the leadership and decision-making as to the development of SMMs can be

278   empowered to the most suitable expert (Kidman, 2001).

279   Accordingly, it is important that the challenges facing parasport coaches are recognised

280   and that these processes are sufficiently addressed within the coaches (and other performance

281   specialists), coach education, training and professional development. Consequently, this may

282   then assist in the coaches' ability to utilise experience but effectively address performer needs,

283   apply knowledge in context, design SMMs for individuals in a bespoke manner relating the

284   parasport context to improve performance. So, in the applied nature of this paper, it is relevant

285   to provide an exemplar of how the use of the SMMs have been employed in a sports context to

286   operationalise individualised coaching.

287   **Paracanoe: Contextualising The Landscape**

288   In helping to understand the context of this applied perspective, we need to outline

289   unique factors that differentiate Paracanoe and Olympic Canoe Sprint. The first consideration

290   is that the Olympic and Paralympic events have subtle knowledge contextualisation

291   differences in canoeing. Paracanoe and Olympic Canoe Sprint share commonalities in an

292   integrated competition format and environment, racing in lanes from A to B on a flat-water

293   regatta course. Olympic Canoe Sprint events are raced at over 200m, 500m, and 1000m

294   distances in single, double, and four-person kayaks. Paracanoe is raced over the 200m

295   distance exclusively in single Kayaks. Within the shared 200m distance, Paralympic race

296   times compared to Olympic Canoe Sprint events are between four and 24 seconds longer in

297   relative duration, depending on the boat class (explored next). Both Para and Olympic canoe

298   contexts require similar athlete preparation and race plans to support the physical

299   performance and energy system. However, the additional complexity of the impact of

300   impairment and strategic delivery of a race plan (bespoke to the individual and their

301   impairment) may greatly influence, what initially at least may appear a similar task in terms

302   of the application of this strategy and athlete preparation. While both disciplines may share

303   principles, these principles are related to the demands of the sport such as race distance,

304   energy system requirement etc. However, these principles need to be tailored to Para athletes

305   to affect the approach taken within the coaching process, thus shaping SMMs.

306   Secondly, the equipment is different for Olympic and Paralympic canoeists.

307   Paracanoe kayaks, while equivalent in regulatory length, are wider than Olympic Kayaks to

308   provide additional stability and help mitigate the impact of impairment. Consequently, the

309   drag factor (the resistance of water) the athlete must overcome to propel the kayak is greater

310   for a Paralympic athlete. Therefore, to achieve an equivalent boat speed, a Paracanoe athlete

311   must exert a greater force than their Olympic counterparts. Additionally, a Paralympic athlete

312   may need boat modification to be better supported at the seat, footrest, etc. to stabilise the

313   kayak and transfer force to the water through the paddle. Understanding additional Paracanoe

314   equipment demands require a coach to consider how an athlete either modifies or adapts their

315   technical or tactical models, in the context of their impairment to achieve success. For

316   example, providing a high-backed seat and strapping to support a spinal cord injury.

317   The third consideration is related to individuality, as we cannot take a nomothetical

318   approach. Therefore, while individualisation is relevant to athletes, the impact of impairment

319   requires SMMs personalisation. Principles generating a core amount of information within

320   the coaching process are transferable across individuals, with the key technical points

321   delivered generically to all athletes. For example, within kayaking, the placement and

322   sequence of leg drive into the footplate of the kayak, or gait patterns in walking or running to

323   move efficiently (Collins et al., 2019). However, within a Paralympic setting, such core

324   information either does not exist or is difficult to decipher, as athletes' impairment may make

325   information redundant. Therefore, technical points need to be individualised, via an

326   ideographic approach in the form of delivery and considered through an asset driven, social-

327   relational lens of what the athlete can do. Such a process requires designing the technical side

328   of the SMMs according to Paralympic athletes and their impairment needs. Through the

329   personalisation of information and delivery, coaches and specialists within parasport settings

330   can better understand the functional ability, physiology, psychological, and psycho-social

331   components of athletes (what they can do) and support asset-driven SMMs (explored later).

332   Consequently, through personalisation of the SMMs individualisation can be operationalised.

333   **Operationalising Individualisation**

334   Paralympic Sport is prestigious, highly competitive, professional, and elite (Bellini,

335   2015; Wareham et al., 2018). From our applied experiences of working with elite Paralympic

336   athletes, an important aspect of individualising the coach's SMMs is the expert knowledge

337   and insight that the athlete support teams offer. However, professional training of allied

338   professions such as physiotherapy is often delivered through a medical model lens. Thus,

339   neglecting asset driven SMMs and focusing on textbook ideals. Consequently, the lens

340   through which sports specialists frame an athlete or performance may be incongruent within

341   the athlete support team. For example, competing medical and social-relational models of

342   disability. Supporting practitioners and those involved in the creation of the SMM to

343   understand and reframe their expertise to an asset-driven social-relational model is important

344   in developing philosophical alignment to support individualised SMMs in parasport. Through

345   this alignment, allied professionals and athletes can be empowered to engage in, and lead the

346   development of a secondary or *beta* vision of performance (Richards et al., 2016).

347   In helping a transitioning coach to create, adapt, and apply these unique knowledge

348   representations relating to performance into bespoke SMMs, knowledge obtained through

349   collaboration with other specialists and experts is required (Simon et al., 2017). Such a

350   process integrates multiple SMMs into one congruent SMM relating to the specific

351   performance/athlete and context. For example, the agreed athlete support team goal may be to

352   lower an athlete's 200m time by two seconds over a season. The technical coach may

353   interpret this as the athlete needing to rotate their body to place their paddle further forward

354   relative to the torso, to increase stroke length and sets this as the performance vision or

355   SMM. The physiotherapist may contribute their expertise to activate as much trunk

356   musculature as the impairment allows. The strength & conditioning coach may also

357   understand how they can contribute to an aspect of the SMM by identifying an intervention

358   that then allows the athlete to tolerate greater force through an increased joint angle so that

359   the movement pattern does not default under fatigue.   Consequently, the technical coach can

360   connect 'dots' through the use of expert knowledge, gain clarity and context and leverage the

361   team's expertise to innovate a bespoke intervention. Therefore, creating an adapted or *beta*

362   SMM (Richards et al., 2016) with clarity on which expert is empowered to lead or own that

363   phase of the coaching intervention. Therefore, we suggest that collaboration is more than the

364   provision of acquisition of knowledge, but collaboration is the alignment of a shared vision of

365   asset-driven philosophies rather than knowledge only. Consequently, the need for support

366   staff and coaches to not only have a shared understanding and vision of SMMs for the event

367   but to tailor this shared vision to meet complex needs of the individual and Paralympic

368   landscape helps drive innovation and the development of beta SMMs (Richards et al., 2016).

369   **Coaching Paralympic Athletes**

370   Coaching a Paralympic athlete is about having a blueprint that is relevant to all, but

371   also having the ability to adapt and personalise it to the person in front of you. Accordingly,

372   individualising coaching practice to the bespoke needs of an athlete (Chow et al., 2016).

373   Therefore, we suggest that individualisation requires alignment of philosophy and integration

374   of interdisciplinary information, principles, and structures of coaching to meet the

375   performance and event demands that create SMMs of performance or blueprint (Richards et

376   al., 2009). Within the technical components of SMMs (psycho-motor; Richards et al., 2017)

377   coaches must understand technical elements of the sport. Expanding on the work of Richards

378   (2012; 2017), in the context of Paralympic sport, the biomechanical templates, kinematic

379   ideas, physiological training zones, and strategic aims can then be *individualised,* and, as

380   such, SMMs can be prescribed to the athlete to help narrow performance gaps.

381   However, in Parasport, coaches need an additional understanding of the nature of an

382   athlete's impairment against the demands of the sport, to generate individual solutions and

383   provide optimised individualisation (Morriën et al., 2017). In discussing athlete impairment,

384   the first author's anecdotal experience suggests the need for psychological safety may be

385   particularly heightened and relevant as a coach, support personnel (or athlete) transfers into a

386   Parasport performance environment. A psychologically safe environment allows personal

387   risk-taking without fear of ridicule or loss of face (Edmondson & Harvey, 2017). For

388   example, the coach acknowledges a lack of technical knowledge or asks for help when the

389   cultural expectation is they must have the answer. Consequently, the quality of the

390   connection between coach and athlete is improved, (Jowett & Arthur, 2019) the two-way

391   discussion of disability enhanced, and the exposure of coaching dogma derived from

392   overlayed able-bodied coach education and societal taboos regarding disability removed.

393   Consequently, a psychologically safe environment (Gosai, et.al., 2021will aid SMM

394   communication and collaboration through facilitating a greater understanding of the unique

395   nature of the athlete as a person and their disability.

396   Accordingly, individualised SMMs relating to performance must be created for each

397   athlete, and, therefore, a shared understanding of performance is understood and

398   operationalised by the coach, athlete, and support staff. Importantly, while a deviation from

399   an idealised technical psycho-motor norm into a bespoke SMMs might be more obvious

400   within parasport, kinematic and kinetic differences such as height, weight, muscle type, and

401   lever lengths in non-disabled athletes are equally worthy of consideration if individualisation

402   is to be achieved, maximising any athlete's performance. If individualisation is the goal,

403   bespoke SMMs are critical for coaches, athletes, and their support teams. More simply, we

404   are all unique and should be considered that way.

405   **Personalising The Coaching Process: Coaching The Person**

406   Within the sports coaching literature, individualisation or differentiation has a wide

407   range of meanings and definitions. However, there is a consensus that individualisation is a

408   method of working and catering for a wide range of individuals (Bon, 2009). Therefore, we

409   adopt the stance that individualisation means coaching an individual where the principles,

410   organisation, and structures can be applied on a bespoke basis, accounting for the individual's

411   needs, characteristics, and attributes for attaining performance goals. Elements such as

412   physiological training principles or kinematic ideals that create technical frameworks can be

413   prescribed differently based on the bespoke and unique needs of an athlete. However, it

414   should be ensured that athletes are not just doing 'the same thing differently'. Consequently,

415   individualisation of the coaching process could be made unique, or tailored in a bespoke

416   manner, not only technical prescriptions but also psycho-social prescriptions, information

417   sharing and communication (Richards et al., 2016). Such factors include pedagogy, coach-

418   athlete relationships, and psychological and environmental understanding of developing the

419   'what, how, and why' of coaching. Therefore, individualising SMMs through considering

420   athletes' needs from multiple expert perspectives will help support an athlete and coaching

421   team to identify the 'what, why, and how' of the SMMs.

422   Emphasising SMM's individualisation, we suggest the individual expert in terms of the

423   individual Paralympic athlete, is the athlete who has lived experience of their impairment.

424   Logically, the athlete is and should be viewed as an expert on the impact of their impairment

425   and within this narrative, it has proven essential to integrate an athlete's voice in the design

426   and development of individual SMMs in collaboration with experts, as part of finding effective

427   solutions. Therefore, an athlete should be a part of an integrated interdisciplinary approach to

428   address both technical and non-technical elements of a performance. In doing so, the initial or

429   'alpha vision' is remodelled into a unique, individualised, and personalised SMMs referred to

430   as an adapted or 'beta' performance vision (Richards et al., 2016).

431   **A Bespoke Individualisation of Coaching**

432   The following section presents five recommendations derived from the head coaches

433   applied experiences of preparing the team for the Tokyo Olympic and Paralympic games. It is

434   hoped the recommendations be considered as a learning leader (Duarte, 2020) to facilitate

435   discussion within the coaching and research community in supporting the next generation of

436   Paralympic coaches and specialists. The nature, context and opportunity presented above

437   piercingly call for both shared practical advances and research that not only adds to the paucity

438   of Paralympic research but also offers interdisciplinary learning to technical coaches, support

439   teams and coach educators in non-disabled sports.

440   ***Coaching: Transitioning To The Bespoke****:* The first recommendation considers the skill set

441   of a transitioning coach from non-disabled sport to Parasport. The Parasport coach

442   transferring from an Olympic discipline faces challenges in accessing formal knowledge

443   sources for creating bespoke SMMs (Collins et al., 2019). Therefore, a transferring coach will

444   be forced to default to their experience of what has worked in non-disabled sport such as

445 generic technical blueprints. Or for example, at a more operational level be unaware of the

446 support an athlete may need to transfer from a wheelchair to a kayak. This specifically (or at

447 least initially) relates to understanding the impact of impairment within the performance

448 setting. Therefore, coaches are reliant on SMMs created from experience and coach

449 education (specialist CPD) established with non-disabled athletes. These generic SMMs are

450 formulated through structured non-disabled coach education (considered to be more generic

451 in the context of this paper, as there is less variation of individual SMMs in non-disabled

452 sport) and are frequently used as a common template in Paralympic settings. The use of

453 generic non-parasport SMMs makes them too rigid for parasport athletes and the context they

454 compete due to the lack of bespoke design. Consequently, an inexperienced coach, found

455 within the Paralympic landscape may be over-reliant on existing non-disabled SMMs. Coach

456 education, therefore, needs to support the transitioning coach, with their refinement of

457 SMMs. This can be achieved by increasing the non-technical (philosophical lens) and

458 technical (impairment and event) understanding of disability. Thus, supporting coaches with

459 meta-cognitive abilities and sharing experience within the Paralympic setting.

460 ***Using Multiple Lenses To Perceive Disability:*** The second recommendation suggests that it

461 is essential to understand the framing of disability. Owing to the focus on the medical aspect

462 of disability and the inclusion of multiple medical specialists, the lens of the medical model is

463 valuable, but perhaps overinflated. We propose that enhancing the understanding of disability

464 models, through coach education (and CPD for specialists), would urge us to view

465 performance vision through a dichotomy of a lens. More simply, philosophical alignment

466 operationalises the ability to consider asset driven individualised SMMs which are holistic in

467 their design and, therefore, more effective.

468 ***Coach Education Resources:*** The third recommendation is related to the development of

469 appropriate learning material and expert knowledge to context, to enhance the effectiveness

470   of individuals working within a Paralympic setting. Hence, developing social learning leaders

471   and making knowledge exchange permeable between professions, (technical coach,

472   physiotherapist etc). The formulation of knowledge structures requires access to not only

473   education resources that are representative of the performance setting, but also experts and

474   mentors that facilitate connections to be made. In doing so, working silos are removed and

475   solutions generated for the individual athlete and context. Using resources from non-disabled

476   coaching materials and overlaying them in a disabled context is not effective. We argue that

477   this slows the developmental journey of a coach, as material should be context-specific to

478   maximise learning. Learning resources and access to learning leaders, experts, and mentors

479   specific to the parasport world would support the coach's transition to the new environment,

480   while simultaneously removing potential barriers due to theoretical models of disability.

481   *Psychological Safe Environment*: The fourth recommendation suggests that performance

482   setting requires a psychologically safe setting, where an athlete, coach, and specialist can feel

483   comfortable with asking questions, seeking new knowledge, and sharing expertise, (Gosai et

484   al., 2021). The effect of a disability may heighten sensitivity surrounding the impairment, its

485   effect on the athlete, how this is discussed within the team and the honesty and openness of

486   the conversation to remove taboos. Providing a psychologically safe environment has

487   allowed the athlete, coach, and specialist to support each other in developing a truly

488   understood and individualised SMMs, and hence the performance context more effectively.

489   This takes time and is strongly connected to the final and fifth recommendations below.

490   *Head Coach Facilitating Distributed Leadership*: In overcoming these performance

491   problems, coaches experienced in working with Parasport athletes are required to engage in a

492   high level of sensemaking (Klein, 2015; Weick, 1995) to understand 'what's going on' and to

493   start to notice critical information relative to the athlete and frame it in the context of the

494   performance. Therefore, the coach can start to connect dots, run mental simulations, and

495   develop adapted beta SMMs (Richards et al., 2016). For this to occur, the athlete, coaches

496   and support staff should utilise each other's expertise to develop permeable boundaries and a

497   shared understanding of the individual, to develop bespoke SMMs that are truly unique. This

498   approach requires a distributed, transformational leadership (Gosai, 2021approach and

499   creates social learning leaders, (Duarte, 2020). Consequently, who leads and drives the

500   performance conversation, is driven by the most expert in (or out with) the team that is best

501   positioned to inform the delivery of performance. The ability of the head or technical coach

502   to empower other specialists and hand over the task leadership requires trust and a

503   psychologically safe setting (Gosai, 2021). When for a particular period in time (part of the

504   coaching intervention), the intervention can be led by the most appropriate expert, and not

505   necessarily the technical coach. The construction of SMMs and the facilitation of a

506   psychologically safe environment relating to these enable distributed leadership to occur.

507   However, such a process requires an understanding of these integrated elements which need

508   to become part of the formal coach education processes. More simply, if leadership is a

509   function of managing an integrated support team, so coaches should be supported to develop

510   this skill set.

511   **Conclusion:**

512   Addressing the environment of Olympic and Paralympics the paper provided the

513   reader with an understanding of the complexity of SMMs in shaping the delivery of

514   performance visions in elite sports. Specifically, it outlined how SMMs within the

515   Paralympic landscape are essential in allowing teams to define and align in supporting the

516   development of the 'what, why & how' of performance, and hence athlete. Within a

517   Paralympic setting, the variation in athlete movement may demand a higher level of

518   modification of SMMs than in an Olympic context, owing to the complexity and nature of

519   athlete impairment. It is hoped that the five recommendations offered within the paper

520　encourage discussion within the coach education community as to how best we can support

521　specialists working in parasport.

522

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