Sports Coaching in an Online Space: What Can We Learn From Endurance Sport Coaches?

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Abstract

Within endurance sports (ES), a practice exists in which online remote coaching (RC) is a necessary construct. This study aimed to examine the processes of ES coaches to gain insight into the experiences of coaches engaging in RC before COVID-19 enforced others to do the same. To achieve this aim semi-structured interviews were conducted with ES coaches (N = 7; M = 6, F = 1). Transcripts were subject to thematic analysis, with three dimensions (i) Remote coach and endurance sport; (ii) Process of remote coaching and (iii) Delivery of training, online being identified. An additional 17 higher and 79 lower order themes were found. Results found that to be effective online, ES coaches utilized technology such as instant messaging and online software to increase presence and decrease the perceived distance from athletes. They aimed to create autonomous athletes both by choice and by necessity. The ease of access through technology had a negative and positive impact on work-life balance. A process was developed whereby only technology that served a purpose to further athlete outcomes was used and balanced with subjective feedback. Further research is needed to garner athlete expectations and experiences of RC.

Keywords: Endurance Sport, Coaching Process, Coaching Effectiveness, Remote Coaching, Coach-Athlete Relationship Online

Introduction

The COVID-19 Pandemic provided the catalyst for research into the online coaching processes used in the RC domain. In this new era, coaches have moved from the “playing field” to an online presence, delivering their sessions virtually to athletes (Bennett, 2021; Evans et al., 2021; Glen et al., 2020; Li, Gao, Liu, & Zhong, 2020; Samuel et al., 2020). This practice of RC came as a necessity for many sports coaches (Bennett, 2021; Glen et al., 2020; Samuel et al., 2020), as they were forced to deliver their daily coaching duties online due to international and local social distancing policies. Yet, for coaches, information on how to move in conjunction with this technologically facilitated change, is and was lacking. While the traditional office environment has seen emerging online technologies enable employees to stay connected to their colleagues from a distance (both pre and

during the Pandemic) (Messenger & Gschwind, 2016; Wang et al., 2021), this has typically not been the case for the sports coach. There has been limited research conducted in this area on the importance of how technology can support the learner with reference to pedagogical design (see Cushion and Townsend, 2019). This is further compounded when we observe Gen Z youth (those born after 1997). This group are known to have excellent technological skills (Twenge, 2017), yet for coaches, barriers are present, especially in relation to making connections and communications between the coach and their Gen Z athlete (Gould, Nalepa & Mignano, 2019). Expectations of coaches to operate with a well-developed coaching process in an online space may become the norm in the near future as emerging technologies continue to impact and alter the day-to-day life of people in the 21st Century. How this will impact those delivering coaching sessions in the next decade remains unclear.

The Coach Without a Playing Field

The very nature of ES involves a lack of a specific and/or, dedicated training environment. Athletes such as cyclists and triathletes will commonly train outside of a designated training facility, meaning the coach is often not physically present in the everyday training process. Claims by the Strava© site in 2020 that they had 50 million users, increasing to 100 million users in 2022 (Strava, 2020; 2022), shows the growth of endurance activity tracking software highlighting that endurance athletes and coaches at some level analyse training and receive feedback. In these circumstances ES athletes actively collect their own data via GPS, heart rate and/or power meters (Malkinson, 2009). This data is then uploaded to online platforms for coach analysis which assists the preparation and planning of training load (Halson, 2014). What is not yet known is what type of athlete might engage in ES coaching and whether the coaching process of a remote coach aligns to pre-existing literature around the (in-person) coaching process and coaching expertise such as Saury and Durand, (1995), MacLean and Chelladurai (1995), d'Arripe-Longueville et al. (1998) and Côté and Gilbert (2009). The context in which ES coaches base their coaching process lends itself to a hybrid/blended model of

55 learning whereby the coach may operate both in-person and via online, remote, or distanced means
56 through the use of technology (Larson & Maxcy 2011; 2013, Wakefield, Neustaedter, & Hillman, 2014;
57 Friel, 2016). Despite this, direct evidence of RC and its apparent co-dependence on online technology
58 is limited, with literature published pre-pandemic focusing mainly on the use of online applications
59 (e.g., Vos et al., 2016; Boratto et al., 2017). The main limitation of published literature in this area (i.e,
60 Hosseinpour & Terlutter, 2019) relates to how the coach facilitates motivation, relationship building
61 and learning in this space. Currently there is a dearth of research on how remote coaches use and
62 operate online based coaching and communication tools available to them, which may suggest that
63 some coaches are underequipped to fully utilize the array of software(s) in which athletes are already
64 technically proficient. At present, it is unclear what measures are in place to critic coaching
65 effectiveness in this setting therefore we are challenged to consider whether RC expertise can be
66 integrated into pre-existing models of in person coaching.

67 In ES such as cycling, technical elements have shown to be important to performance. Evans et
68 al. (2020) contend that, “In sport, where technique and physical skills are paramount, this (RC) could
69 limit the effectiveness of many kinds of coaching practice” (p. 90). Aspects such as aerodynamics
70 (Lukes, Chin & Haake, 2005; Faulkner & Jobling, 2020), bike handling (Zignoli et al., 2021; De Bock &
71 Verstockt, 2021), teamwork and race tactics (Torgler, 2007; Phillips & Hopkins, 2020) have all been
72 shown to have a measurable effect on performance outcomes and are coachable qualities. Yet, as
73 suggested by Evans et al (2020) in the RC context it is more difficult to coach these particular skills.
74 Research within the ES space has outlined “best-practice” technique, but how to translate this into
75 coaching actions (e.g., specific coaching ques, feedback etc.) respective of the RC context has not yet
76 been clarified. The exception seems to suggest using ES within a physical building or having a training
77 environment readily available, like swimming (Koop & Martin, 1983; Hannula, 2003; Moreno et al.,
78 2006). This specific hurdle has been discussed within RC literature during the COVID-19 pandemic, yet
79 ES coaches have been working with athletes in this way for decades. No information exists to date on
80 how ES coaches translate this technical skill-based knowledge into their RC practice.

Effectiveness and Expertise in RC

Accounting for the challenges and opportunities the RC environment may evoke, it is not yet known what an effective, or expert coach is within this specific context. For example, Côté and Gilbert (2009) state that effective coaching involves: "The consistent application of integrated professional, interpersonal, and intrapersonal knowledge to improve athletes' competence, confidence, connection, and character (4 C's) in specific coaching contexts" (p. 316). Creating competent athletes both in the techniques of their sport and also with the broader scope of life is crucial for effective coaching (Smoll & Smith, 2002) and aligns itself to the holistic understanding of coaching (Potrac et al. 2000). This specific form of coaching can be labelled as "athlete-centred" that is, a process in which "athletes gain and take ownership of knowledge, development and decision making that will help them to maximise their performance and their enjoyment" (Kidman & Lombardo, p. 13. 2010). There is limited evidence on the coaching context within ES, or on if the remote or online endurance coach is athlete centred in their approach. While overlap may occur between the professional, inter and intrapersonal knowledge of RC coaches and traditional coaches, the extent to which that overlap may occur is not yet known, and little is understood as to what extent coaches are being prepared for a move to the RC environment. In considering this, we are challenged to reflect on the extent RC can directly influence the 4 Cs in an athlete, and to what degree comparisons can be drawn from pre-existing coaching literature to both inform effective coaching practice and coach development in the RC context.

Parallels with Online Learning

The need to understand best practice within the area of online learning has been discussed extensively within educational literature (Berge, 1999; Eastin & LaRose 2000; Anderson, 2008; Rhim & Han, 2020; Chakraborty et al., 2020). With this in mind, Anderson (2008) has reported learners commence online learning opportunities with pre-conceived ideas from both formal and informal experiences they have had within the virtual environments. Therefore, athletes are now beginning to

gain experiences and develop pre-conceptions of the RC environment. These learners will bring their earlier experiences of communication into this online setting; some of which may not be facilitated in this online learning space, a point echoed in the more recent work of Rhim and Han (2020). Moore and Keegan (1993) state that distance education involves a separation between student and educator, a separation that entails a psychological and communications gap that must be crossed. Anderson (2008) notes that mutual presence in time and place may be more fundamental than a simple absence of body language or social presence between learners and educators. Rhim and Han (2020) suggest that in order to be effective online, the educator must decrease the social, relational and psychological distance between themselves and the learner. They must aim to elicit a sense of presence for the learner to decrease the lack of "place lessness" that exists online. Lastly, they must aim to motivate and empower their students in the creation of being an independent learner thus promoting a degree of autonomy.

Under the Watchful Eye

The ES coach does not always interact with the athlete in a physical space. This omission of coaching in a physical space aligns itself to the shift to RC which occurred during the COVID-19 Pandemic. Here research by authors such as Bennett et. al (2021) and Glen at al. (2020) has conveyed the challenges and opportunities coaches have faced in the RC environment. These challenges encompass hurdles such as technological constraints (e.g., internet stability for video calling) and a lack of engagement during lengthy RC sessions. Video-coaching was found to be that of a 'watchful eye'– "one that acted to organise, motivate, and reassure the athletes during an anxious stage of their preparation" (Bennett, p.10, 2021). This offsets renowned marathon coach Patrick Sang's statement, who claimed that during the COVID-19 pandemic he had lost his 'coaches' eye', believing that his decreased presence meant he could not 'see' the full picture of athletic performance (World Athletics, 2020). One aspect that emerged from the data, was that of the video coach being thought of as a form of surveillance by some athletes. Bennett et al. (2021) addressed this issue by stating that it could

reinforce a coach-athlete relationship with disproportionate distributions of power, in line with Galipeau and Trudel's (2006) work on communities of practice and the role of the coach. This element of surveillance with in-person coaching was also touched on in work by Lang (2010) and Taylor et al. (2017) who highlighted respectively that those feelings of surveillance left young swimmers at higher risk of short and long-term injury and psychological harm and that hockey players undergoing video analysis during every training session felt under pressure to perform and feared failure. Yet, there were also positive aspects associated with this element of surveillance proposed by Bennett at al. (2021) such as that of accountability and motivation, coupled with this an element of ease of access between coach and athlete and coach and parent in an online space. In the context of eastern coaching, Li et al. (2020) found that where these power dynamics were already present in coaching environments, pre COVID-19, were then essentially reversed. Here, the traditional hierarchy of power was removed when RC was present, transforming the relationship between coach and athlete to one of more equal and diversified communication. Opportunities with this element of video coaching were also present in areas such as breaking down language barriers and engaging parents of youth athletes due to the ease of access of communications. This element of surveillance and apparent ease of access with no 'worktime' restriction, for both athlete and coach, warrants further study, to examine whether this concept of surveillance is beneficial or inhibiting to athletic outcomes and coach mental health.

The Inability to Switch Off

Feltstead & Henseke (2017) suggest that remote work (RW) caused interruptions in work-life balance created by a greater inability to switch off from one's role outside of working hours. Modern technology, and with it, our constant connectedness to one another elicits pressure while engaging in RW to be constantly accessible and ready to respond (Matusik & Mickel, 2011). On a practical level this has manifested itself in behaviours such as engaging in emails outside of work hours, which has been linked to increased stress and inability to switch off (Chesley, 2010). All coaching populations experience various challenges within their roles such as; overload, work-home interference, social

isolation, substance abuse, and mental ill-health (Carson et al., 2019; Norris et al., 2017; Olusoga & Kentta, 2017; Roberts et al., 2019; Thelwell et al., 2010). While a more traditional coach may engage in facets of RW in relation to their role they also have distinct contact points and processes that involve in-person communications which may mean boundaries are easier to establish. A coach engaging solely in RC does not possess these aspects as their work is purely remote based. To date, no research exists on this possible work-life balance connotations of RC.

Therefore, the overall aim of this study was to provide a deeper understanding of the ES coach and the remote, online environment in which they operate. We attempt to examine the remote endurance coaching context, the coaching processes involved with RC and finally, attributes associated with work-life balance in order to provide information and a comparative analysis of a group of coaches who have been engaging in RC long before COVID-19 enforced others to do the same. To achieve this aim, literature from the coaching effectiveness and expertise domain (Côté and Gilbert, 2009) is used as a guiding lens by which data was gathered and analysed. The research attempted to inform practice, encourage debate and provide novel insights for coaches operating in this unique coaching context, by choice or necessity. This may aid researchers and practitioners to learn from mistakes made and experiences gained by this subgroup of coaches.

Methods

Participants

Following institutional ethical approval, data were collected from seven (N=7) endurance coaches (6 = M, 1= F) who self-selected into the interview process via a previous phase of research as part of a wider project examining RC. Participants were afforded the opportunity to self-select if they had previous or current experience of RC in ES. Participants had a range of experience levels, academic qualifications and coached endurance-based sports such as triathlon, cycling and long-distance running. Coaches worked with athletes from beginner to professional level, either solely online or as

a hybrid approach, which involved physical “in-person” training sessions or meet ups as well as online training and communications. Table 1 outlines participant information and relevant coaching history.

186 Table 1: Participant information from the semi-structured interview.

Participant No.	Gender	Variable						
		Age Range	Coaching Experience (Years)	Working Practice	NGB Level	3rd Level Education	Primary Sports Coached	Athlete Level
1	M	30 to 39	>5<10	Remote	N/A	MSc	Cycling	Recreational & Competitive
2	M	18 to 29	>3<5	Remote	1	MSc	Triathlon	Recreational, Competitive & Professional
3	M	40 to 49	>20	Remote	3	MSc	Cycling & Triathlon	Recreational, Competitive & Professional
4	M	50 to 59	>10<20	Hybrid	3	PGDip	Cycling & Triathlon	Recreational & Competitive
5	M	40 to 49	>10<20	Remote	1	MSc	Long Distance Running	Recreational & Competitive
6	F	40 to 49	>3<5	Remote	1	N/A	Long Distance Running	Recreational & Competitive
7	M	40 to 49	>3<5	Hybrid	N/A	BSc	Cycling	Competitive

187 *Note.* Athlete level: Recreational defined as, "athletes partaking in sport in the absence of non-organised competition from
188 a relevant governing body". Competitive defined as, "athletes competing in organised competition provided by/aligned to
189 their relevant governing body". Professional defined as, "competitive athletes (as above) who are earning a salary, grant,
190 and/or funding for their sporting careers". Long Distance Running defined as, "distances >3000M".

Procedures

For the purpose of this research an ontological approach was employed whereby the research team reflected upon their observations of real-world online ES coaches in an attempt to; explain behaviours and outline experiences from with the ES coaching environment. An interpretivist approach was adopted as the researchers accepted their influence (through knowledge, values and theory) could influence what was observed and/or reported. Following two pilot interviews with ES coaches to test and review the interview protocol, the researcher drew on an interview guide to inform the direction of questioning with each participant, this ensured focus and structure were provided for each interview (Sparkes & Smith, 2013). On consent to participate the interviews took place via Zoom, with both video and automatic captioning enabled. Transcripts were auto generated and cross referenced with the audio recording before analysis. The audio and video recording were then removed and deleted with all data anonymised. Mean interview time was 33.5 minutes (Range = 29:05 to 41:20).

Interview Guide

The design of this question template was threefold; (i) informed by existing research within the area of RC (e.g., Bennett, 2021; Evans et al., 2021; Glen et al., 2020; Li, Gao, Liu, & Zhong, 2020; Samuel et al., 2020) and coaches' welfare (Carson et al., 2019; Norris et al., 2017; Olusoga & Kentta, 2017; Roberts et al., 2019; Thelwell et al., 2010); (ii) drawing from research presented by Côté and Gilbert (2009) in the coaching effectiveness and expertise domain (coaching context, coaches' knowledge and athlete outcomes); (iii) industry informed (due to the experience level of the first author within the ES context, appropriate phrasing and context specific knowledge was altered and/or added to make the questions applicable to the online, remote environment). The interview guide was split into four overlapping, interwoven subsections: (a) context, (b) knowledge, (c) the athlete and (d) the coaches' welfare. Sample questions included, (a) What Sports are you currently coaching, is that remote, in-person, blended?, (b) Do you have any thoughts on the building of relationships in your specific

coaching context?, (c) Do you aim to make your athlete actively involved your coaching process?, and (d) Do you feel the demands of your coaching sometimes interfere with family or personal life? Probes were used to facilitate discussion around these subsections in line with methods outlined by Harrell & Bradley (2009).

Data Analysis

Data were compiled and analysed using the qualitative data analysis (QDA) software ATLAS.ti Desktop (Version 22.0.11.0). QDA software has been used widely in previous literature, examples including MacNamara and Collins (2015) & Jones, Bezodis, and Thompson (2009). Data were analysed through the six-phase approach to thematic analysis (Braun & Clarke, 2006 & Braun, Clarke & Weate, 2016). This style of QDA has been used in numerous pieces of literature within the sports and exercise psychology domain (e.g., Hindley, 2022; Ferguson, Swann, Liddle & Vella, 2017 & Coyle, Gorczynski & Gibson, 2017). First, author one cross checked interview transcripts with recordings to check for accuracy, interview transcripts were read and re-read by the research group to gain familiarity with the data. Secondly, codes were generated and clustered to identify patterns, data were then subsequently grouped under low order themes at a semantic level whereby these themes were generated from the explicit meanings of participants responses (Braun & Clarke, 2006). Higher order themes were constructed in line with the interview guide subsection headers. This was chosen to aid in the presentation of results and organize the data. These higher order themes were inserted under dimensions representing three key points relating to the data collected. Thus a hybrid approach was used whereby an inductive approach assisted in the development of key concepts, lower order themes and codes while a deductive approach based on an existing framework of coaching expertise (Cote & Gilbert, 2009) allowed a frame of reference for discussion. Data from these interviews generated three dimensions (The Remote Coach and Endurance Sport, The Process of Remote Coaching and Delivery of Training Online), 17 higher and 79 lower order themes.

Establishing Rigour

A number of steps were taken to enhance the rigour and trustworthiness of this research. Participants were given copies of transcripts to check for accuracy and misunderstandings in language given the multicultural nature of the sample. After each stage of data analysis interpretations of the data were shared with the research team during a process of peer debriefing and feedback (Creswell & Miller, 2000). The use of a "critical friend" (Smith & Gannon, 2017) was also used during both pilot and analysis phases of this research, with author one drawing on ES coach contacts active in the RC area to pilot and discuss interpretations of data. One example here was that of the critical friend suggesting more appropriate phrasing of questions, in particular around the coaching knowledge subsection. This included segmenting the questions into their three distinct areas and having examples for each aspect of knowledge specific to ES. The significant experience of the interviewer within endurance coaching allowed a good understanding of the overall context, terminology, and cultural norms within this subgroup of coaches.

Results

The results presented encompass key aspects to inform practice, encourage debate and provide novel insights for coaches operating in this unique coaching context, by choice or necessity. The results aim to enhance a deeper understanding of the ES coach and the remote, online environment in which they operate, providing examples of the coaching context, processes involved with RC and attributes associated with work-life balance. To achieve this, data are presented relative to (i) The Remote Coach in Endurance Sport, (ii) The Process of Remote Coaching and (iii) The Delivery of Training Online. These findings are visually represented in table 2, with rich verbatim quotes integrated into the main section to support understanding.

Table 2: Representation of key themes.

Dimension	Higher	Lower
The Remote Coach in Endurance Sport	The Unique Nature of ES	Early Evidence of RC
		Demands of ES
		The Business of RC
		Supplying a Service
The Process of Remote Coaching	The Coaching Context	Efficiency
		Athlete Type
	Acquiring Knowledge	A Scientific Process
		Education
		Informal Sources
	Athlete Outcomes	Communication
		Prescriptive Training
		Promoting Autonomy
Delivery of Training Online	Experience	Recognizing Constraints
		Work-Life Balance
	Software & Hardware to Facilitate RC	Using Data
		Technological Aids

Note. ES = Endurance Sport, RC = Remote Coaching.

The Remote Coach in Endurance Sport

The Unique Nature of Endurance Sport

Both before and during the COVID-19 Pandemic, and outside of certain sports (such as swimming), ES athletes would generally train within a flexible environment; on open roads, tracks, and trails and because there is often no physical venue ES coaching can be conducted from afar. Endurance coaches who worked with athletes competing and actively participating in endurance-based sports such as cycling, triathlon and running. An array of age categories were enlisted by these coaches, such as masters' athletes, youth athletes and age-group athletes. The coaches sampled in the interview process outlined early evidence of RC pre-covid-19 with participant three highlighting that they "started remote coaching in 1999", suggesting that the "internet had progressed enough" for this to be a reliable option to coach. Likewise participant six stated that "even prior to Covid-19 we've always been remote". Some coaches used Covid-19 as a catalyst to further their involvement with RC, such as participant five who worked in a hybrid fashion before the pandemic until "everybody disappeared [from their existing training venue], so what I did then was move everything we did online". The demands of ES were outlined by these coaches, suggesting that ES encompasses a unique milieu of coaches, athletes and broader support networks all working in tandem, from a distance. Due to online communications availability and the ease of monitoring in ES, the access to technology and ability to measure training with a high perceived degree of accuracy. "It's pretty interesting [The Context of ES] because I would say that cycling is very suited to or maybe even just endurance sports is very suited to this online coaching" (Participant Seven). The athletes who utilized RC were both proximal and distanced from their coach. For those proximal to their coach, coaches tended to favour opportunistic in-person meet ups such as that described by participant seven: "the athletes I have… they live all over the country so the majority of the time it is distance coaching and then we'll meet for a training camp or at a race." For athletes distanced from their coach, an array of hurdles needed to be overcome in order to facilitate the coaching process. Participant three discusses hurdles such as time zones, while participant six highlights a need for communication with the athlete to ensure the

coach knows the terrain that may be available for training and addresses specific skill deficits. Overall, within ES, there existed an environment in which RC was a necessary technique for the vast majority of endurance athletes to receive coaching due to their physical distance from experts in the area.

> For me if I have 10 athletes that I'm working with I can't be training with all of them every day, it's impossible. One guy's doing a four-hour ride in (Another Country) one guy's doing a two-hour ride across the country in (Coaches Home Country), I can't be there. (Participant seven).

For RC to work in this case endurance coaches tended to have a preference of athlete type as discussed by participant three.

> I need them to be an active participant [the athlete] because all the modifications, tweaks, and adjustments. They need to be on board with that, they need to help direct that not only because it ensures that they're going to feel the most comfortable getting it done but they have the most ownership in the process…. the most buy-in because they end up the most well-rounded at the end of the day and able to perform as well as possible.

RC is also a *business*, and for many, their main form of employment. There were forty-seven coded references to the business of coaching across the sample of coaches. Coaches used terminology such as "supplying a service", "value for money" and "marketing strategies". Each athlete paid the coach directly for their services, so more athletes equated to greater income. Coaches also sold training plans and operated tiered models of coaching whereby athletes could avail of differing services and levels of communication. Participant seven stated that "when I'm doing the coaching, usually there's these… kind of like… I don't want to call them packages or whatever, but they know what they're buying, and they know what they're paying for". They stated that they "just try to stick to that (the tiered model) and do the best I can do". In contrast participant six highlighted that "the bronze plan we offer doesn't really do any face-to-face [Online Video Teleconferencing], but I do sometimes break that rule". Coaches expressed that there is a balance required to provide their services efficiently in order to earn sufficient income while also being confident in the coaching they are delivering.

Participant one summarizes this balance point, “I know people who also have hundreds of athletes, there's a guy who has four-hundred athletes I can't imagine how that is, you know…. I have forty and I think it's a lot, it's double amount of people that I would like to work with”. Elaborating on this point participant one notes that when they have too many athletes it is more difficult to keep a mental record of each athletes individual needs, requests and training. In order to conform and adapt to the constraints and opportunities in their context remote coaches working in ES developed and honed a unique coaching process in an aim to be effective in this environment.

The Process of Remote Coaching

The Coaching Context

To be effective in their context ES coaches explained how efficiency in their process was important. ES coaches engaging in RC worked with athletes in different countries, time zones and thus experienced delays in communication channels. When combined, this presented a logistical challenge that coaches solved with processes that were heavily reliant on information flow in an online space. Participant two states that they are working on ways to improve their efficiency by finding “ways that I don’t have to call the athlete every week because it gets tiring”, examples here included use of online feedback forms and instant messaging within training software. In contrast, participant five explains how they believe “one of the key success indicators is the speed in which your athletes get an accurate answer” so they aim to be as efficient as possible in order to be responsive. Participant seven describes the type of athletes a RC coach may work with. While actively working with athletes in different countries there is a need to give them “stricter training, like, you need to do this today”. Other coaches referred to the type of ES athlete they work with and how a common request is to write the training plan, do the training plan and give feedback with participant two summarizing “some don’t care [about feedback and relationships], some just say give me the plan and I’ll be fine”. Participant five talked about the beginner athlete needing more prescriptive type training online than the more advanced athlete. Yet, when probed in other areas coaches appeared to also favour an athlete-centred approach

promoting autonomy and mutual decision making as a necessity for successful relationships and positive outcomes in RC. Participant six emphasizes the importance of communication within their relationship, with an athlete in another country. Stating that in order to enhance the planned sessions the athlete will suggest local training routes and roads in order to best their needs.

Acquiring Knowledge

Coaches also respected the need for a "scientific process" toward their coaching. Participant one alludes to the fact that they are "always looking at science…. always trying to be updated". Participant two highlighting the need for a "good sound knowledge on basic physiology, nutrition and strength and conditioning". Participant three, the most experienced of the sample, refers to the fact that they need a basis in the scientific process, but it cannot be the focal point:

> Certainly, it's an area [sport science] that I spend a lot of time every day just because of what I do, endurance sports coaching, it's very heavy in the physiology but I try to make what I do from a coaching perspective focused on who they are as athletes and what they're trying to do.

A common value which interlinked and informed these coaches was that of education. Education was heavily valued as shown by participant four's journey through the certification and third level education space.

> I was focused on my five-year plan, it involved me in 2020 completing my level three, [World Triathlon] then I was going to start my master's in sport performance coaching. Also, there was my level two diploma. Getting that done in 2019 was the first one, then the level three [diploma] then the masters and then sort of go from there.

Yet, obtaining this knowledge also came from informal sources too such as those described by participant two, who was also completing a PhD at the time; "I follow the researchers and coaches [On Twitter] and read what they are saying…. that is where I get the most knowledge." Participant

three refers to Twitter conversations with coaches-based thousands of miles away in reference to networking and learning opportunities, while participant seven notes that “Twitter is one thing that I use to informally build the knowledge because there are a lot of coaches and sports science people sharing their opinions on there”.

Athlete Outcomes

Athletes were only a technological aid away from contact with their coach. For ES coaches monitoring, control, communication and feedback were valuable tools in the absence of physical presence. The ability to monitor each individual aspect of athlete performance and training data allowed coaches to be heavily prescriptive in their planning. Communication and the value coaches placed on it was due to the RC environment. Nuance and inferences which could be made from casual conversation and presence in “normal coaching” are not possible, so coaches appeared to account for this via emphasised communication. Communication was facilitated online through technological aids. Participant one vouched for “free contact” with “no limitation, we can talk at any time”. Participant five talks about learning new communication skills to move solely online, “I’ve had to learn a couple of different skills to be effective in my coaching moving from offline to online, when you're working one-on-one with somebody [in-person] you can quickly judge whether or not the words that you use are landing or are being received in the way that you have intended”. While technology and online aids allowed coaches to be prescriptive in their training outline, coaches appeared to also heavily value promoting autonomy with their athletes. Participant three explains how their philosophy revolves around “generating autonomous athletes”, by letting them “guide themselves” and have experiences on their own. Participant four explains how they are in “observation mode” with one of their athletes where the athlete sets the training, and the coach gives feedback and guidance. Participant four explains how their cultural context bleeds into their RC process and outcomes for athletes, “In these Nordic countries it's really taught through the coaching education that these athletes should be involved in their own training”.

Delivery of Training Online

Experience

Participant five highlights that to be effective online with a feedback loop that is "interrupted" (i.e., delayed feedback, coaches' response times and lack of physical contact due to distance) one needed "to be very specific" in the language used to ensure a coaching cue is actioned. Participant three also references this delayed feedback and communication process when working on technical skills, stating that they "farm out some of the skill stuff" to coaches proximal to the athletes. Participant five who keeps skills coaching "in-house" highlights that one such positive of this RC process is that of creating a "safe space" for athletes to digest your coaching and practice without fear of failure, in an instance where the learner does not feel the pressure of group norms. When probed to reflect on whether this form of communication could be a downfall, participant three describes that for them as a remote coach it has not been "a limiter over the last whatever 20, 25 years". They go on to further emphasise the tone shift in how modern-day athletes communicate, "It's funny, I'm about to say this out loud and I'm almost disturbed by it, but I feel people are getting so good at communicating like this (online) that they can get stuff across pretty well".

Technology's Impact on Work-Life Balance

The apparent ease of access which online technology such as instant messaging allowed for "no limitation [to communication]" whereby one "can talk at any time" (participant one). On one side this was viewed as positive by the coaches as it allowed for quick and efficient feedback and communication with their athletes. On the other side, this ease of access via online means also became a hindrance in the area of work-life balance for the coaches with numerous coaches alluding to little to no free time and the feeling of being constantly available, this is discussed by participant two who contrasts RC to that of their more traditional coaching; "they [the in-person athletes] don't expect you to get back to them as quickly… whereas if I'm working remotely with people and they're paying for a service they expect a quick response". This expected response time was common across a multitude of coaches some of whom attributed their value to how quick they could respond. This

ease of access sped up communication channels but also inhibited coaches' boundaries. Work-life balance appeared to be an issue which caused much internal conflict. Coaches discussed how the flexible lifestyle afforded by RC allowed them to work, via online means "anywhere in the world, anytime" (Participant two) and set a routine dictated by themselves yet participant two makes numerous references to "it [RC] impacting your life" by "having no days off". More experienced coaches noted the importance of balance or prioritization with participant three reflecting that a lot of their colleagues in the field coaching "are one or two days away from burning themselves out" and that everyone "works a little too hard in this field". Overall technology both helped and hindered work-life balance for these coaches, it allowed efficiency in the coaching process but also created an environment whereby the coach was always available and "always on", in service to their athletes.

Software and Hardware to Facilitate RC

Endurance coaches availed of a host of technological aids and used data to facilitate communication and training provision to the athlete, the two most common aids being instant messaging services and specific training software. Surveys, phone calls, social media, training hardware, video-based communication and voice notes were also mentioned by coaches. A breakdown of technological usage noted in phase two by these coaches can be seen in table 3. Participant five makes reference to this ease of technological availability in ES; "Yes I get all your data from the watch that gets uploaded to [Training Software], it's easy for me to assess the sessions and to analyse those metrics but I always emphasize that I really like the [online] comments and the quality feedback that they give". An interplay of hardware, software, and subjective athlete feedback forms a complex feedback loop that permits the coach to review, analyse and communicate with the athlete.

However, RC was not always the preferred option for these coaches. ES coaches acknowledged instances where technology and data could not form an adequate replacement for in-person coaching. Participant three suggested that he "often farms out skills (to an external in-person

coach) if the athlete needs to develop a specific skill". Participant four suggested a similar approach of "training with a club" to avail of "social learning".

In order to facilitate training, endurance coaches used technology and the data it generates to monitor and mark progression in athletes. Coaches used a combination of surveys and scales to collect data coupled with training hardware and software and online communications. Therefore, data was used to observe and monitor training to ensure adaptation and completion. Coaches stated that there could be a lack of accountability in the RC context due to the decreased presence of the coach and that data helped to account for this. While not always adequate to hold athletes accountable, as participant four reflected on a recent encounter with an athlete where the nuance of technology and being a step removed distanced from the athlete meant he sometimes "let them off" with poor training sessions. He references that "one of the biggest things he (the athlete) said to me is you don't hold me to account enough, if I don't manage to make it, you just accept it and just you know move on rather than really questioning and grilling down on me".

Table 3 Technology usage by ES Sport Coaches to facilitate training remotely.

Technology Type	Grounded	Predominant Usage
Instant Messaging	14	Quick Communication
Online Survey	3	Initial Data Capture
Phone Call	3	In-Depth Discussion
Social Media	6	Networking
Training Hardware	4	Data Capture from Session
Training Software	18	Data Analysis & Feedback
Video Based Technical	10	Demonstration of Skill
Video Call	8	In-Depth Discussion with Body Language
Voice Notes	3	Communication at “Any Time” & A Recorded Note
Webinar	5	Education

Note. Grounded refers to frequency in which these technology types were coded in the interview data.

Discussion

The aim of this study was to provide a deeper understanding of the ES coach and the remote environment in which they operate. This developed in a bid to examine a subgroup of coaches who have been operating in a remote sense long before COVID-19 forced the rest of the coaching world to do the same. Results are discussed in relation to the unique coaching context of RC particularly in endurance sports; the effectiveness of coaches utilizing RC (through exploration of coaching process, coaching knowledge, and athlete outcomes) and the work-life balance implications of RC.

The RC Context and Coaches Knowledge

RC presents a simple way for athletes to avail of coaching in the ES space. Endurance sport athletes regularly seek out coaches who suit their needs, as opposed to a traditional club environment where athletes have access to coaches that may not fit their individual criteria. This allows the athlete within the RC environment free choice to select a coach that will support their perceived coaching needs. A common aspect of this is that the spatial aspect of coaching moves from a physical to a digital space, placing distance of hundreds of miles or different continents between them. Findings presented here suggest both typical and atypical coach-athlete interactions. This may require a more unique view of the coach-athlete partnership whereby the athlete pays for the service and may at any time leave the coach if the relationship is not working. In their work into coach athlete relationship appraisal in remote contexts, Li et al. (2020) suggests the lack of coaching presence positively affected the athletes by removing the traditional hierarchy of power and transforming the relationship between coach and athlete to one of more equal and diversified communication. While it must be noted that Li et al. (2020) was contextualized in a Chinese Boarding School Environment and not interlinked with the more Western Cultural context of this research, it seems a similar construct of "equalness" between coach and athlete exists within RC where one is dependent on the other. To date limited evidence exists if, in fact, the remote or online endurance coach is athlete-centred in their approach or does the distance between athlete and coach coupled with the theme of a "coaching businesses" turn this relationship into a more directive and/or transactional experience for both

parties. In the transactional instance the follower (athlete) is given something (training/coaching) by the leader (coach) in exchange for something the leader (coach) wants (Kuhnert & Lewis, 1987). In this case the want may be a successful coaching business and successful coaching outcomes for the athlete. The coach's views presented here from interviews, would suggest the former, i.e., athlete-centred, yet the complex interplay between running a business, security in one's profession and guiding an athlete warrants further study. This specific facet of the RC context highlights levels of intrapersonal knowledge and reflection within the cohort studied, with coaches questioning; "is it really coaching? Well yes of course it is you know, just because you're not stood there with a stopwatch and a clipboard doesn't mean you're not coaching. I'm still interacting a hell of a lot with the guys I coach". Participant three pondered the interpersonal relationships with their athletes and if blind spots existed within RC stating that "sometimes I ponder like well could you do a better job of creating good relationships with people, for example if you were right there with them, but honestly with the number of years I've been doing this I mean I've been with people through births of children and divorces and marriages and so I actually feel like I've developed pretty, surprisingly, good relationships with people even though in many of those cases I've never met the person in person".

New emerging technologies continue to force coaches to adapt and alter their processes to increase this unique facet of professional knowledge needed for their role. Endurance coaches used technology to best suit their needs, possessing well-formed opinions about the technological aids they do and do not use. This viewpoint is unique given that the majority of RC research to date exists mainly on the video coaching domain (i.e., coaching via video link) (Bennett, 2020; Glen et al., 2020). ES coaches instead, opted for a blend of data to monitor athlete progression coupled with subjective feedback in order to ensure they were not missing any nuance in the athletes' experiences. They achieved this using various software such as specific endurance coaching platforms, instant messaging and online video conferencing as well as utilizing training hardware to monitor training outcomes while not in the physical or virtual presence of the athlete. This element of being under surveillance for every session or performance related outcome has been shown to be detrimental (Lang, 2010).

Positives of this element of surveillance within Bennett at al.'s (2021) work included increased motivation and accountability, yet within the dataset presented here accountability still appeared to be a hurdle. This is perhaps explained by the fact that training is and was always conducted online meaning the change in environment by COVID-19 did not alter these athletes' motivational relations with training.

Technology usage was not always easy, ES coaches routinely encountered hurdles in the technology space, such as lack of quality actionable information and reductionist approaches. However, through experience many of the coaches interviewed combined a multitude of technologies in order to gain their desired outcome. When technology did not permit adequate athlete outcomes coaches tended to "farm out" aspects such as technique-based work to a coach who could work in-person with the athlete. Coaches were aware of the limitation's technology can and do have when it comes to physical presence and technique-based coaching and were not against leaning on the expertise of other coaches to facilitate and remove this hurdle.

Athlete Outcomes

The 4 C's (competence, confidence, connection, character/caring) outlined by Côté et al. (2010) were all facets touched on either directly, or indirectly from the coaches who engaged with this study. Through the discussion of their coaching context and knowledge, these coaches provided evidence that would suggest the RC environment necessitates an athlete-centred approach i.e., one in which gain and take ownership of knowledge, development and decision making (Kidman & Lombardo, 2010). This point was also echoed in more recent work by Szedlak, Smith & Callary (2022) where coaches operating in an online environment promoted and supported an athlete-centred approach. However, some of the responses were conflicted by these sentiments, and a philosophical juxtaposition between coaching as a business and effective coaching process emerged. The overall sentiment to increase an athlete's competence in the RC context was to provide support from an athlete-centred perspective similar to traditional coaching environments. There are obvious

546 constraints to developing athlete competence in particular, the technical delivery of specific skills.
547 Given the sample size of this study, it is important to note that this is solely the view of the coach,
548 further study would lend itself to that of the athletes who use RC.

549 **Work Life Balance**

550 The area of work life balance contained inferences to both the positives and negatives that RC
551 produce in this area. As a whole ES coaches could see both the positive and negative aspects of the
552 RC that they engaged in. RC produced a positive effect on work life balance for the ES coach mainly
553 through its flexible working practices. Coaches could live and work from the comfort of their own
554 chosen environment, engage in family duties during typical nine-to-five hours providing them with a
555 sense of freedom and they got to choose and determine their own hours. In the field of remote work
556 this autonomy over your own schedule has been discussed at length (Montreuil & Lippel, 2003; Ter
557 Hoeven & Van Zoonen, 2015). On the opposing end of the work-life balance spectrum the ease of
558 access via technology left these coaches feeling “always on” with no distinct boundaries. Participant
559 two summarised the general consensus of the research cohort stating, “your always on, there’s no
560 time off”. Although these coaches outwardly discussed feelings of pressure and being constantly in
561 service of their athletes the positive aspects of RC, alongside some coaches communicating certain
562 boundaries with athletes allowed them to keep this working practice going. To advance the discussion
563 of burnout and the occurrence of mental ill-health in coaches as a sub-group, further research could
564 be completed (Carson et al., 2019; Norris et al., 2017; Olusoga & Kentta, 2017; Roberts et al., 2019;
565 Thelwell et al., 2010) as it would appear that RC and role overload are closely interlinked within this
566 sample. In the field of remote working this issue has been highlighted extensively with research
567 showing that remote workers experience pressure while engaging in RW to be constantly accessible
568 and ready to respond (Matusik & Mickel, 2011) and find it extremely difficult to switch off (Feltstead
569 & Henseke, 2017). Both themes which appeared common across this sample of remote coaches.

Longitudinal studies on coaches working within RC environments may provide further insight into the hurdles faced by RC.

Limitations

This research attempted to capture views of RC coaches who had been working in this environment previous to the outbreak of Covid 19. Coaches in this study were asked about athlete expectations and their experiences of them in their RC role. While due credit must be given to the coaches' interviews, and their experience level, it cannot be taken for granted that their view of athlete expectations aligns with the actual expectations of athletes availing of RC. Therefore, further research would be well served to look at the coach and athlete relationship as a pairing by gaining viewpoints from both parties, in the case of the youth athlete parents and guardians should also be included. From this a clear picture into RC processes and athlete wants and needs in this environment can be drawn. This study would also have benefitted from a higher sample size and a better gender balance to give a more accurate idea of the phenomena highlighted here.

Applied Recommendations

Coaches engaging in RC may be well served to take onboard the viewpoints and practices of coaches who have had experience within the area. There exists a new, ever-changing environment in which online technology both helps and hinders progress. With the myriad of technology available it is easy to become overwhelmed. Effective ES coaches working remotely developed a process whereby only technology that serves a purpose to further athlete outcomes is used, all the while this technology is balanced with quality subjective feedback from the athlete. Establishing boundaries and garnering an expectation of what athletes in RC settings require from you as a coach is also a worthwhile exercise in preserving a positive work-life balance, and better serving positive athlete outcomes. A practical recommendation would be that future coach education modules should aim to ensure they are addressing the gap in knowledge and proficiency for coaches newly utilizing RC.

Conclusion

In summary, ES encompasses a unique milieu of coaches, athletes and broader support networks all working in tandem, from a distance. The unique nature of ES with its venue-less training environment has meant that RC has been commonplace for decades, before COVID-19 forced other coaches to do the same. In this vein ES coaches working remotely may provide the experience and knowledge to help inform and guide practice for those coaches partaking in RC as new emerging technologies and more technologically engaged athletes force us further into this practice of working. The RC coaching process and the relationship that exists between coach and athlete in the RC environment could be seen as simply transactional with training advice as the currency, whether it goes deeper is yet to be ascertained. To be effective in online education Rhim and Han (2020) suggest that decreasing one's distance from the learner, increasing their sense of presence and creating independent learners is crucial to enrich learning experiences. Therefore, RC requires the coach to decrease their physical distance, by finding innovative ways to increase their presence and create independence of the athlete by establishing athlete-centred contexts within the technological space. Technology played an integral role in delivering coaching online, some coaches going so far as to say it could not be done without certain software(s), yet open and transparent subjective feedback seemed to be the one integral part of making the online coaching process work in this sample. Coaches used technology to serve their needs and stimulate a sense of presence for the athlete. This sense of presence and with it an increased ease of access opened communication and dialogue channels. However, there were also negative impacts on the work-life balance of the coach that needed to be managed. Coach development practices are vital for coaches to gain a better understanding of how the needs of an athlete can be met in this space. If the coach engaging in RC is to be effective, then, it is imperative that they understand the context that they are coaching in, use technology to their benefit and finally, aim to set boundaries in respect of the ease of access the RC environment affords between athlete and coach.

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Appendix Interview Protocol

Context

1. How long you have been working in endurance sport?
2. What Sports are you currently coaching, is that remote, in-person, blended?
3. Where does the majority of your coaching take place?

Knowledge

1. How important are things like knowledge of training methods, rules/regulations etc. to you?
2. Do you have any thoughts on the building of relationships in your specific coaching context?
3. Do you regularly take part in things such as reflective practice?

The Athlete

1. Do you aim to make your athlete actively involved your coaching process?
    a. Can you provide me with an example of when this was the case?
    b. Is this an active choice (athlete involvement), are there barriers to this?
    c. Can you expand on your thoughts about the coach-athlete relationship in this area?

Coaches Welfare

1. Within our initial survey coaches indicated they wished to have more contact with fellow professionals in their domain, what are your thoughts on this?
2. Do you feel the demands of your coaching sometimes interfere with family or personal life?