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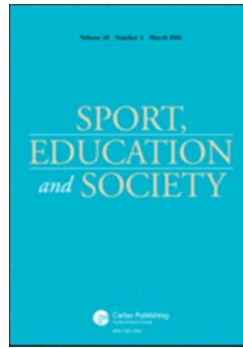
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3 Transforming, storing and consuming athletic experiences; a coach’s narrative of using a video app.
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Transforming, storing and consuming athletic experiences; a coach's narrative of using a video app.

Abstract

The analysis of sport performance in performance contexts has become synonymous with the use of a range of software applications and hardware e.g. heart rate monitors and gps systems. With the prevalence of technology in mind, a small but growing corpus of literature has begun to consider this phenomenon and its influence upon the coaching process. This study adds to this literature by detailing the autoethnographic experiences of a case study coach; Derek. A contextualised and richly described narrative account of Derek's experience of using coaching applications is provided. Analysis of Derek's narrative suggests that technology can be *a* useful means by which individuals make sense of their experience. Specifically, 1) technology can be a 'ready-to-hand' instrument that enhances the coaching process. Unfortunately, 2) technology may become *the only* and 'calculative' means by which individuals come to understand their performance. In such instances, it is important to note that 3) the videos we use to understand our performance are transformed and incomplete representations of lived athletic experiences. Thus, Derek's story illustrates how technology can be both an enabler *and* barrier to athletes who wish to holistically understand their own lived experiences and engage in coach-athlete relationships. The accompanying analysis draws upon concepts from Heideggerian philosophy to add insight into the use of technology within the coaching process. In so doing, the study prompts coaches to critically view their coach-athlete relationships as situated in a wider world which contains, and can be mediated by, technology. In addition, Derek's story (re)directs researchers and coaching practitioners interested in technology to a useful literature (philosophy of technology) which may further inform their understanding of coach-athlete relationships.

Key words: Technology, Coaching, Coach-Athlete Relationship, High Performance, Video Feedback.

Introduction

In recent times coaching practitioners have turned to technology as a means of dealing with the inherent complexity of sport coaching. Indeed, technology is increasingly recognised and universally used with the intention of enhancing the coaching processes (Groom, et al., 2011; Collins, et al., 2015). For instance, coaches may use every day social media applications to communicate with parents and players. Coaches have also utilised technology as a means of providing feedback with the aim of improving sport performance (Bampouras, et al., 2012; Wright, et al., 2013). In such instances, video applications have been used by coaches, athletes and sports scientists (Drust, 2010). Indeed, an abundance of software applications are now available for smartphone and tablet devices. These coaching apps (e.g. Hudl™ and Coaches Eye™) provide a mechanism for coaches to collect and record data on participants during performance (e.g. technique analysis). Additionally, GPS, heart

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3 rate, and power traces are now available to coaches through technological development (Collins,
4 Carson, & Cruickshank, 2015).
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7 Notwithstanding the dominant bio-scientific discourse that permeates sport performance,
8 sport coaching has been portrayed in academic literature as a complex, dynamic and relational
9 process that is concerned with helping individuals flourish in varied contexts (Evans, 2017; Jones, et
10 al., 2013; Miller & Cronin, 2013; Jones, et al., 2016). These varied environments include recreational
11 sports clubs, community centres, educational establishments such as schools, and professional
12 organisations (Sports Coach UK, 2015). Within these environments, coaches engage in relational
13 activities with athletes, parents, and fellow staff all of whom may have competing interests, values,
14 behaviours and ambitions (Barnson, 2014; Bowes & Jones, 2006; Bryson, Buraimo, & Simmons,
15 2017; Chase & Clickman, 2016).
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22 Despite its prevalence within coaching contexts, the influence of technology upon coach-
23 athlete relationships has received limited attention. Where technology has been examined, a small
24 number of articles have argued that technology may be problematic for coach-athlete relationships
25 (e.g. Groom, et al., 2011; Bampouras, Cronin & Miller, 2012; Mackenzie & Cushion, 2013; Nelson, et
26 al., 2014). Within this particular journal, Williams and Manley (2014) identified how technology may
27 threaten the learning potential of players because coaches are viewing their players as data rather
28 than human beings. Williams and Manley (2014) used the term 'machine mentality' to reflect the
29 feeling of dehumanisation that athletes experience when coaches predominantly assess them via
30 technology. In addition, it was suggested that in performance contexts coaches use technology as
31 'surveillance', and this may dampen player's intrinsic love of their sport (Williams & Manley, 2014).
32 In a direct rebuttal to Williams and Manley (2014), Collins, Carson, & Cruickshank (2015) emphasise
33 the potential for technology to add value to the coaching process by aiding coach decision-making
34 e.g. through the generation and appropriate use of data. It was also argued that technology has
35 much to offer athletes in terms of focusing on targets and empowering athletes to develop.
36 Moreover, Collins et al. (2015) declare that it is not technology per se that is of concern but coaches'
37 use of it. Collins et al. (2015) sociological determinism, contrasts with the technological determinism
38 present in Williams and Manley (2014). Both papers however, recognise the tentative nature of
39 their arguments and the paucity of literature that explores the influence of technology upon coach-
40 athlete relationships.
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54 This study directly responds to calls from Mackenzie and Cushion (2013) and Collins, et al.
55 (2015) who both argue for further consideration of sport coaches' use of technology. The study
56 proceeds on the basis that technology is prevalent in coaching (in both performance and
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3 recreational contexts), and its use may be problematic. More specifically, a narrative approach is
4 undertaken that presents the experiences of a case study coach; Derek. This provides an idiographic
5 and relativist account of using video-based technology in the context of a coach-athlete relationship
6 that is situated within the performance domain of coaching. Such accounts are precursors to further
7 theorising the use of technology in coaching because narratives may encourage readers to
8 (re)consider the influence of technology upon wider coaching processes. Thus, the article makes a
9 novel contribution by empirically detailing (through three vignettes) coach experiences of
10 technology as called for by previous literature. Research should not solely aim to raise questions
11 however, but to also answer them (Saldaña, 2014). Subsequently, the paper proceeds by introducing
12 Heidegger's (1977) seminal exploration of technology as a theoretical heuristic for the paper. To
13 date, neither Heideggerian philosophy nor the philosophy of technology have been widely
14 considered in coaching research. Nonetheless, these concepts are helpful in situating coach-athlete
15 relationships within a technologically influenced lifeworld. Thus, although the primary aim of the
16 paper is empirical, the following section and the discussion that accompanies each vignette make an
17 additional significant contribution by introducing *some*¹ philosophical literature that will aid
18 understanding and may prompt future studies of technology in coaching.
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32 **An introduction to Heideggerian Philosophy**

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34 Martin Heidegger was a German Philosopher from the phenomenological tradition that values the
35 scrutiny of lived experience as a means for better understanding phenomena – including the
36 phenomenon of technology. Heidegger's philosophical work has been substantial for understanding
37 the ontological condition of 'being' human. While his philosophy is beyond the scope of this paper,
38 we are choosing to draw upon some of his key insights to better analyse our observations such as; 1)
39 noting that experience is a precursor to interpretation, 2) observing that our 'being' always occurs
40 within a lifeworld that both predates and survives our own existence, and 3) being-in-the-world
41 presents us with possibilities to be more authentic. These insights have influenced a gamut of
42 research that attempts to understand experience in areas such as education (e.g. Peters, 2002).
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49 For the above reasons, Martinkova and Parry (2016) have argued that Heidegger can offer
50 much for inquiries seeking to understand sporting activities that are embodied, relational and
51 situated in a wider sporting world. On this theme Cronin and Armour (2015, p. 7) acknowledge the
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55 ¹ It is recognised that these philosophical concepts are not exhaustive. Nonetheless, by introducing a seminal
56 philosophical consideration of technology, we hope to move beyond the impasse between Williams & Manley
57 (2014) & Collins, Carson, & Cruickshank (2015) and prompt philosophical discussions of technology and
58 coaching.
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3 value of Heideggerian philosophy in this field by recognising that coaches are “thrown into a
4 coaching world and are not isolated entities within it”. With this Heideggerian influenced conception
5 of the coaching lifeworld in mind, we can appreciate that the world in which coaches are ‘thrown’ is
6 pervaded by technology. Indeed, Cronin and Armour (2015) note that the coaching lifeworld
7 contains technology for evaluating performance, and it also exists through online experiences where
8 coaches communicate with athletes or fellow coaches.
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13 Heidegger (1977) was critical of the development of technology within the life world. In a
14 seminal exploration of technology, he explained that technology is not a neutral ‘tool’ or instrument
15 which we simply use, as is often interpreted via the Greek term *technē*. Such a narrow and
16 instrumentalist view has developed via the Latin of the Romans (Heidegger, 1971), which
17 emphasised the role of production and causation as per input/output models (Standish, 1997). For
18 example the use of a spreadsheet wherein technology facilitates the construction of graphs from
19 data. Instead, Heidegger (1977, p. 27) has identified that technology is usually ‘unseen’ and
20 uncritically adopted but is very influential in how various phenomena actually reveal themselves in
21 the world. Additionally the *thinking* which operates behind the uses of technological instruments are
22 very much present in how we understand our experiences. Consequently Heidegger argues that
23 *technē* ought to be understood as inclusive of *poiēsis*. *Poiēsis* refers to the virtuous and holistic
24 notion of understanding what ends are worthwhile pursuing. This might involve critically
25 understanding the thinking behind and purpose of a technological device (e.g. a spreadsheet) as
26 distinct from the mere skill of production or manufacturing. As such, Heidegger (1977, pp. 9-13)
27 argued that we should transcend the modern reduction of technology to a means/end relation and
28 to return to the more holistic notion of ‘bringing-forth’ which may even include the “poetic”
29 understanding of experience. From this perspective, Heidegger notes that modern technology
30 ‘Enframes’ (German *Ge-stell*) our experiences by providing a taken-for-granted framework, much like
31 Kuhn’s (1970) scientific paradigms, with their ‘normalising’ way of ordering understandings of
32 particular phenomena.
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47 According to Waddington (2005, p. 568) Heidegger’s work is seminal because it has
48 “pioneered a new way of thinking about technology”. Accordingly in this exploratory study, some of
49 his philosophy is used as a theoretical heuristic. This is warranted given, 1) the calls to use
50 Heideggerian philosophy as a means of examining coaching as a situated activity (Cronin & Armour,
51 2015), 2) Heidegger’s consideration of the influence of technology on the ontological notion of being
52 (a coach) (Heidegger, 1977), and 3) the call to use Heideggerian philosophy to view sporting
53 experiences within a wider lifeworld (Martinkova & Parry, 2016).
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Methodology

Like Casey and Schaefer (2016), this paper began not by prioritising any defined methodological stance but by valuing a shared experience. Specifically, Derek's experience of using technology within a coaching context was presented to the co-authors as part of a naturally occurring informal discussion in a casual setting. The conversation illustrated that "people can 'apprehend' the world narratively, and people can 'tell' about the world narratively" (Holley and Colyar, 2009, p.200). Therefore, it was decided that a more formal narrative approach should be undertaken to describe 'the who, what, where, and when', of Derek's experiences, whilst also illuminating the why and how (Denison, 2016).

Narrative research is loosely defined as "a family of methods that have in common a focus on stories" (Smith, 2016, p. 261). This encompassing definition is necessary as researchers have embraced narrative as both a unit of analysis (story analysts), and also as a vehicle for representing experiences (story tellers) (Smith & Sparkes, 2009). It is argued that individuals' narratives are a useful focus of analysis because performative beings such as coaches construct identities through narratives (Mason, Andrews, & Silk, 2005; Sparkes & Smith, 2011; Carless & Douglas, 2011). It has also been claimed that narrative representation can elicit reflection and action among readers and this provides a strong rationale for the narrative approach undertaken herein (Armour & Chen, 2012; Douglas & Carless, 2008; Gilbourne, Jones, & Jordan, 2014; Smith, Latimer-Cheung, Tomasone, and Martin Ginis, 2015).

Data collection and analysis

Actualising the strengths of narrative research identified above, was achieved through employing a structure utilised by Casey and Schaefer (2016) and first advocated by Connelly and Clandinin (1999). Specifically, narratives were viewed through three phases; living the story, telling the story, and retelling the story. A fourth concept 'reliving the story' is also advocated by Connelly and Clandinin. We have eschewed exploring this aspect as it is perhaps personal to each author and should the narrative move readers, they themselves will relive the story in their own coaching contexts.

- 1) Living the story

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3 The narrative presented is based upon Derek's storied lived experience. It was lived within a
4 particular relational, spatial, and temporal moment. As researchers we view Derek's story as
5 consistent with the intersubjective type of narrative, which is ontologically relative and
6 epistemologically constructed (Smith & Sparkes, 2009). Accordingly, it is important to detail some of
7 the subjectivities that Derek as a participant brought to the lived story and the setting in which it
8 took place².
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13 Derek is an experienced coach (over 15 years) who has worked across a number of sporting
14 contexts from community to performance. He is educated to post graduate level in a sport science
15 related subject and has successfully completed a number of formal coach education courses. Derek
16 regularly attends conferences and seeks out learning opportunities through coaches, books and
17 online blogs. The knowledge and experiences gained has open doors for him to mentor coaches
18 through workshop based activities and on a one to one basis. Derek first met Jack (the athlete in
19 Derek's story), Jack's coach and Jack's parents, whilst attending a workshop. From Derek's
20 perspective, Jack was a junior athlete with a disability who had just received funding from the NGB
21 and needed significant work to develop a technical, physical and psychological foundation from
22 which to maximise his potential.
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30 2) Telling the story

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32 In order to share this story, Derek completed a formal written account of his experience. This piece
33 (3000 words) provided him with space and time to elucidate his experiences, introduce the
34 characters, set the scene, and unfurl the plot. During this phase, we as a research team were acutely
35 aware that Derek was simultaneously engaging in both storytelling and a meaning making exercise
36 (Gubrium & Holstein, 2009; Clandinin and Connelly, 2000).
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41 3) Retelling the story

42 The research team began retelling (and therefore, reanalysing) the story by;
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46 a) The authors examining Derek's narrative as critical friends (Costa & Kallick, 1993). During this
47 phase, we questioned Derek's account and considered not just what was said, but how. This process
48 clarified any vague details such as his relationship with the governing body.
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52 b) Once details were clarified, the story was then reduced by the research team to three co-
53 constructed vignettes (to follow) which highlighted the salient points. This process involved refining
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56 ² We recognise that the reflexive disclosure here is inevitably only a partial account of Derek's subjectivities.
57 Nonetheless, they are presented here in order to aid readers as connoisseurs of research (Sparkes & Smith,
58 2009).
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3 word count, character, plot, and tone in order to elicit reader's interest and encourage
4 contemplation (Coulter and Smith, 2009; Holley and Colyar, 2009). These recommendations draw
5 upon Gubrium and Holstein's (1997) concept of 'emotionalism', which posits that interest can be
6 generated from readers by editing and reconstructing texts in order to describe the emotions,
7 perceptions, and meanings of subjects.
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12 c) Following retelling, Derek individually revisited the 'vignettes' to question and 'consider' the
13 verisimilitude representation of the narrative³.
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16 Despite Derek's role in the study (1, 3a and 3b above), the vignettes are not presented as neutral or
17 realist tales. Rather, the vignettes presented are co-constructed accounts. Also, while co-authors
18 and Derek were questioning of each other's contribution they were not neutral. For example, in
19 keeping with Denison (2016 p.9) the research team agreed that an absence of theoretical content
20 "can forge a separation between expression and theory, story and analysis, self and other and mind
21 and body". Accordingly, in order to provide insight we also engaged our academics voices. As will be
22 apparent in the discussion that accompanies the vignette, these academic voices predominantly
23 used Heideggerian influenced philosophy to elucidate the vignettes. This decision was taken after a
24 prolonged period of immersion in the text, using analytical memo's throughout the text, and critical
25 conversations as a research team (Thompson, Potrac, & Jones, 2013).
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32 33 **Limitations**

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35 Other individuals, in addition to Derek, are also present in the text (e.g. athletes, parents).
36 Representations of these individuals are co-constructed, creative and relativist, rather than a realist
37 verbatim account of what individuals actually said, did or who they are. Accordingly, other
38 characters within the vignettes such as athletes and parents might (re)present themselves and this
39 story differently. Consistent with this subjectivist construction and interpretation of narrative, we
40 argue that generalisation from the narrative should be cautious, analytical, and done through the
41 natural attitude of readers as connoisseurs (Sparkes & Smith, 2009).
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48 The discussion which follows the narratives, introduces Heideggerian influenced concepts
49 and literature. Heideggerian philosophy and the philosophy of technology are extensive areas which
50 are beyond the scope and capacity of this study. The discussion therefore does not claim to be
51 informed by a complete or definitive account of either. Rather the philosophical concepts introduced
52 are used because of their relevance and insight which may be valuable to coaches and coaching
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57 ³ We recognise from arguments concerning member checking that this does not confer a realist notion of
58 validity upon the story.
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3 researchers. Other concepts and perspectives are also available. Thus, the discussion and article in
4 general should not be judged as an exhaustive philosophical treatise, but as an empirical study that
5 utilises some philosophical concepts to aid our understanding of the coaching process.
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8 **Ethics.**

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11 Following the initial and informal interaction with Derek, institution ethical approval was sought and
12 provided. Ethical confidentiality of participants was addressed from a relational perspective (Ellis,
13 Adams, & Bochner, 2011). Pseudonyms were used for Derek and other individuals in the story to
14 ensure confidentiality. Other details such as the athlete's disability, events, and competitions were
15 also obscured.
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20 Another issue that arose is ownership of the story. While Derek told the original story, the tale
21 presented here is co-constructed with the researchers. The relationship between Derek and the
22 research team inevitably leads to a power dynamic (Carless, Sparkes, Douglas, & Cooke, 2014). In
23 order to somewhat mitigate this, Derek was involved throughout the project by producing texts and
24 reviewing drafts.
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29 A final ethical issue also arose during the analysis and writing processes. Heideggerian-influenced
30 hermeneutic phenomenology looms large in this study. Therefore, it is important to inform readers
31 that prior to, during, and post-World War Two, Heidegger led a controversial political life. It is widely
32 accepted that at this time, Heidegger's politics were disturbingly consistent with far right National
33 Socialism (Clarke, 2014). Accordingly, it is important to clarify that the research team only used this
34 literature on the basis that they could also wholly denounce and refute Heidegger's political views.
35 As a paper focused on technology, Heidegger's influence on this study is, therefore limited to
36 relevant concepts that are used as an explanatory tool rather than advocacy for his political stances,
37 his philosophy as a whole, his actions or activism associated with nationalism.
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Findings and Discussion

Vignette 1: Starting the relationship (Derek's Voice)

I (Derek) started coaching Jack by saying:

So that's agreed, I will start to coach you until the international tournament. At that point, we will do a review and we might go separate ways. I don't know what management think yet but as far as I am concerned you need a coach because Bob is not there for you and I have capacity. So let's see if it works, for a period of time.

After a 3-month period of mentoring Jack and his coach Bob, Jack's parents approached me to take over the lead role for their performance funded athlete. This was not a straight forward decision. I was contracted by the sport to support Jack and his coach Bob. Bob, however had started to distance himself from us and didn't respond to email requests for programmes. In addition, there were no records of the volume, intensities and modes of training. His major competition was coming up in a few months and he needed somebody. I was already involved so why not?

Jack was in limbo. He lived in a remote town over 4 hours away from my home and so I was concerned about delivering effective coaching to a funded athlete. I was also anxious about the amount of travel his parents would have to do given the distance, their jobs, and their wider family responsibilities. Jack's parents were quite persuasive however. They said:

We love Jack very much and as parents we will always want the best for him and whatever he wants we will support. We like the way you work with him and the other athletes and so it's no problem to drive down. Whatever contact you need, we will happily accommodate.

I (Derek) sought further counsel from Dave the NGB manager. He did not provide the clarity and reassurance that I desired. But he did leave me with a parting thought that festered.

Dave said:

Athletes see your sport science support. They see your focus on technical development and the way you use technological equipment to do the analysis. This is different to what they are used to receiving. So be careful. The technology is glamorous and appealing. Is that why they want to work with you?

Problem solving

The technique video analysis programme was the answer to all my (Derek) coaching challenges. It was like finding the holy grail of apps as my fingers swiped through the

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3 different screens and options. The ability to capture athlete's movements and review their
4 technique in slow motion was simply bliss. Better still, I could draw angles and calculate
5 contact and flight time. *You geek* I thought. It was like putting a kid in a sweet store, it was
6 like we were made for each other. This was the key to helping Jack develop.
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10 Jack is an athlete with impairment who has a unique running gait. As my eyes were
11 transfixed by the slow motion replay of Jack's first run, I felt somewhat humbled by the
12 shear complexity of his movement. In real time, one can often take for granted the human
13 body's ability to find its own way to overcome limitations. But in slow motion I was truly
14 amazed that Jack didn't fall over as he powered along the grass. Questions rushed through
15 my mind. *Where do I start? What is most important? How do I communicate all this stuff*
16 *across the three hour distance? What can be improved? What is fixed?* I had never
17 constructed an annual plan for someone as unique. In fact, the amalgamation of a complex
18 impairment, the uncertainty that teenage maturity brings and the geographical distance
19 between us meant this was a challenge.
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27 **Theoretical discussion 1: Technology as a ready at hand instrument to enhance the coaching** 28 **process (Academic Voices)** 29

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31 With Heideggerian understanding of technology in mind (Heidegger, 1977), Malpas writes (2000, p.
32 205) "of all the ways in which modern technology has brought about a transformation in the world
33 and our experience of it, it is in our relation to space-and thereby also time-that its effects have been
34 most striking". Malpas cites the development of the locomotor engine, combustion engine, and
35 airplane as evidence that technology has changed our relationship to time and space. As a result,
36 family members who live in different towns, cities, or countries can use technology to connect with
37 each other. In colloquial terms, technology means individuals are 'not as far away as they used to
38 be'. Similarly, but much more recently, the development of social media, high speed broadband, Wi-
39 Fi and the internet in general, has continued to alter our experiences of time and space. Video based
40 technology such as 'skype' can be a means by which people, objects, and places that are far away
41 come into our homes via television, computers, and phones. Indeed, it was a combination of the
42 internet, hardware, and software that enthused Derek at the outset of this relation with Jack.
43 Technology such as Skype would ensure access to Jack would be frequent, plentiful, and not
44 inhibited by space or time. In this sense, technology becomes a means by which Derek can positively
45 develop a coach-athlete relationship and improve Jack's performance.
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56 From a Heideggerian perspective, the utility of the technology (precision, connection,
57 timeliness) means that for Derek the hardware and apps are 'ready-to-hand' objects. They are more
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3 than a *means* to an *end* because they also include the thinking, desiring and purposes which lie
4 behind the uses. Ready-to-hand is a Heideggerian concept that defines and differentiates objects,
5 which are merely present in our world (present-at-hand), from those (ready-to-hand) that we use to
6 further our experiences within the world (Walters, 1995). To illustrate this dichotomy, Heidegger
7 famously provides the example of an experienced carpenter who skilfully and smoothly wields a
8 hammer to further his (sic) existence. This is contrasted with the novice who defines a hammer by its
9 colour and weight as an object rather than the expert who sees its possibilities within a totalising
10 world – as per Enframing. Similar to the carpenter and the hammer, the app and associated
11 hardware enabled Derek to further his existence as a coach within the world of performance sport.
12 Technology is not a neutral object, but is intrinsic to the actual relationship with Jack, involving not
13 just potential improvement of his technique and performance, but also the actual nature of their
14 relationship in total and how it is experienced and understood by Derek, Jack and the governing
15 body. Indeed, Derek incorporates the technology to further his existence as a coach who is a human-
16 in-relation-with-others. In so doing, technology was not “the mere application of modern
17 mathematical physical science to praxis. Rather, machine technology is itself an autonomous
18 transformation of praxis” and frames how “man [sic] in his relationship to himself and to everything
19 that is” is understood (Heidegger, 1977, p. 27 & 116).
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34 **Vignette 2: Making progress (Derek’s Voice)**

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36 Derek: Hi Jack how are you today?

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38 Jack: Hey fine

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40 Derek: Cool that’s good, how was training?

41
42 Jack: Fine

43
44 Derek: Ok, so how did you feel?

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46 Jack: Fine

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48 Derek: Any soreness?

49
50 Jack: No all fine

51
52 Derek: Ok, how was the video?

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54 Jack: Right this is what I saw ...

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56 Jack was a geek, like me. Our small talk was awkward but once I asked about the videos he
57 switched on. He started asking questions about how we got those improvements. He was
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3 interested in anything that could improve performance. Using the videos of training
4 sessions, I was able to explain the consistent movement patterns that Jack was producing.
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6 This seemed to capture and fuel his imagination. I knew this was going to be the best way to
7
8 communicate to him.
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10 Jack was still learning about his ability. Videoing his different functional movements was
11 helping him. The 'I can't do that attitude' was soon swept away as he saw himself do things
12 on the iPad that he had considered hard or impossible. The video application provided a
13 mirror to a world of possibility. It also highlighted plenty of biomechanical 'flaws' but gave us
14 hope that overtime these could be addressed. But Jack was unique and this was important
15 to remember. I soon recognised that I couldn't predict Jack's development one month
16 ahead, never mind in 12 months. I did not know how he would react to changes in training
17 volumes and intensities. So we decided to video every session and review them on a weekly
18 basis. We would build a programme on a month by month basis using the app.
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28 ***Theoretical discussion 2: technology not neutral but a product of calculative thinking (Academic***
29 ***Voices)***
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31 The promise of technology to enhance Jack's sport performance is a clear example of what Collins, et
32 al. (2015, p. 1096) argue are the benefits of technology;
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35 technological tools are often sensibly employed within elite coaching environments because
36 they are able to satisfy the need to plan, predict, monitor and revise coaching practice
37 across different timescales
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41 For example, following the somewhat awkward opening discussion, the video produced with the app
42 allows Derek to connect with Jack. Thus, technology not only provided a means of communication
43 across time and space, but also a source of data which was a shared resource and a focal point for
44 Derek's interactions with Jack. Moreover, the videos constructed with the app enabled both Derek
45 and Jack to explore 'biomechanical flaws', and determine volume and intensities of training. In so
46 doing, Jack's ontological understanding of what it means to be a runner was enhanced by the
47 calculations within the app. In that sense, the app also became a ready-to-hand object for Jack in
48 that it enabled him to connect with Derek and to further his existence as a runner.
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55 For Heidegger, Derek and Jack's use of technology to understand their own working
56 relationship, represents what he regards as 'calculative thinking'. This is the sort of an ordering of
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3 the world – and of course data. What concerned Heidegger (1966, p. 56; 1968, p. 171) was that a
4 particular reductive frame of understanding gained through technology becomes the *only* way of
5 understanding. He saw this as problematic because human persons are often reduced to the role of
6 being a ‘standing reserve’ as raw materials for the input to a particular assembly-line of production
7 (Heidegger, 1977, pp. 4 & 23) and thus become less-than human.
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12 It is important to recognise that Derek is a centrally funded coach who operates in the world
13 of high performance sport. In the UK, this culture has been characterised by a policy of ‘no
14 compromise’ where funding decisions are made on the basis of performance outcomes and detailed
15 analysis of medal opportunities (Cruikshank, Collins & Minten, 2014). For readers familiar with the
16 dominant bio-scientific and positivist discourse in performance sport, the wide spread use of
17 technology as a *means* to particular ends of monitoring and directing athletes will not be surprising
18 (Nelson & Groom, 2012). For those not familiar, technology is often used in performance sport as
19 part of a bio-scientific ethos where incremental improvements in performance are measured in
20 order to contribute to performance outcomes. As an ambitious athlete, Jack was seeking to enter
21 this world. Given this wider macro context, it is perhaps understandable that both Jack and Derek
22 envisaged technology as merely the *means* to incremental and measurable improvement of
23 technique. Furthermore, it is perhaps understandable that Jack came to understand his body as a
24 resource (i.e. ‘standing reserve’) to be developed. Therefore the very human relationship between
25 coach and athlete can be reduced to a mere production of outputs using particular inputs, which can
26 be felt by both parties as rather de-humanising.
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37 **Vignette 3: *What is going on here? (Derek's Voice)***

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39 Today my (Derek) conversation with Jack was bitter sweet. As usual, he went through the
40 video explaining the positions that he was happy with and that he was not happy with. Great
41 stuff, but when it came to my turn, I felt I could not add a single thing. He had hit all the key
42 technical points from today's session. My boy had learnt well and learnt fast. He knows the
43 technique inside and out. He knows exactly what to look for and he could see the errors.
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48 But hang on, I am investing a lot of time into this relationship and I enjoy coaching him, so I
49 hope he sees that coaching is more than just knowledge of biomechanical principles. In fact,
50 there is so much more to develop and to teach. Come to think about it, I really want him to
51 learn to listen to his body, its aches, pains, and rhythms. After all, it is his body but he only
52 knows it through the screen. I am a little concerned that his enthusiasm for learning and
53 progressing technique may narrow his focus. For example, the training video can't tell me
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3 how he is feeling. His feelings are equally as important as the hard evidence. He needs to
4 feel his race and not just see it afterwards.
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9 *A few weeks later: A crisis*

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11 We (Jack and I) have come to the end of the block of training and our review of the videos
12 did not show the desired progression I had hoped. After some initial neurological
13 adaptations, signs of progression were starting to taper off. Although I had tried to focus on
14 developing intrinsic awareness to supplement the videos, the power of imagery has over
15 shadowed this desire. I reassured Jack that his commitment was first class, that his learning
16 curve was huge and that each training session was money in the bank to be drawn out at the
17 right time. But it doesn't wash with Jack. He knows what to look for in technical
18 development. He has the videos and if he doesn't see any immediate improvement, it
19 affects him. I have in a sense 'created a monster', that needs to be fed with external
20 evidence based feedback. What seemed to start out as a learning tool, now feels like a whip
21 across my shoulders. If the video does not show improvement then I am a bad coach! I feel
22 somewhat at a loss in terms of how to respond to Jack. I know that the direction of travel as
23 far as the programme is going is correct, but I am uncertain of when things will *noticeably*
24 improve. The video is now a 'monkey on my back'. I am so pleased that Kevin's (another
25 coach at a local club) athletes are doing well, but this seems to add another layer of pressure
26 to get things right. I know that Jack will eventually produce the right performance results but
27 it is hard to keep reminding a young enthusiastic athlete to be patient. *Will he trust me to*
28 *stay with him? Will he keep focusing on the damn videos? Will he notice the*
29 *improvements in Kevin's athletes? Will he switch coach again?*
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43 **Theoretical consideration 3: Transformed, stored, and dehumanised representations of**
44 **performance.**

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47 Heidegger (1977) noted that although technology is usually developed in order to bring us closer
48 together, it can, depending on our use of it, provide greater distance from others and even from
49 ourselves as human persons. For example, despite the passage of time, Jack's relationship with
50 Derek struggled to move beyond awkward niceties and the data. Additionally, Derek suggests that
51 for Jack the app was not *a means* to furthering his understanding of his own performance. Rather,
52 the technology appears to have become Jack's *only means* of understanding his performance. In that
53 instance, Derek's story illustrates, as Heidegger argued, that when used excessively, calculative
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3 thinking that is associated with technology can negatively influence an individual's understanding
4 and appreciation of her/his own existence.
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7 Heidegger (1977) speculated that technology and calculative thinking may be a barrier to ontological
8 understanding and authenticity because it frames things for us in a way that is transformed, stored,
9 and to be consumed. In Jack's case, his lived experience is transformed into a video, stored on an
10 iPad, and consumed as *the* way of examining his performance. Malpas (2000 p. 206) argues that
11 such reductionist and transformative processes can "obliterate difference and render everything in a
12 one-dimensional sameness". These issues have previously been alluded to by Williams and Manley
13 (2014) who argued that if coaching is thought to be an athlete centred practice (Cushion, 2011;
14 Jenkins, 2011), where the coaching activity is perforated by social interactions and emplaced as
15 social practice (Cushion, Armour and Jones, 2006), then athletes rather than quantitative
16 measurements, should be at the heart of the process. For instance, one of the participants in
17 Williams and Manley's (2014, p. 8) stated;
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26 coach [David] is the main man, and you've got 15 robots and they are all doing what he says
27 ... It's more sort of ... I'm the chief, I want to know everything about you, and I want to
28 monitor you all times, it's a 24/7 job you've got ... I don't like it ... I don't think it gets the best
29 out of you. It's the way the modern game is working, technology and all this.
30

31 This specific quote highlights how technology has the ability to reduce autonomy and authenticity
32 within a coaching setting, to the point where players feel 'dehumanised' and as a result less
33 motivated. From a similar perspective to Williams and Manley (2014), Derek argued that the app did
34 not account for Jack's embodied feelings. For Malpas (2000), this situation is not surprising because
35 complex relations, cognitions, emotions and even 'poetic' desires and aspirations that are associated
36 with the lived experience of running (Allen-Collinson & Hockey, 2011) cannot be transformed, stored
37 or consumed via apps and screens. Quite simply, because these complex facets of running were not
38 represented via the app, Jack did not explore or come to understand them. In this sense, and from
39 Derek's perspective, what Jack came to know was a consumable, transformed and stored
40 representation of running rather than his 'own lived experience' in a holistic and very 'human' sense.
41 More worryingly, because the technology that Derek initially prescribed with enthusiasm became
42 Jack's *only means* of knowing his performance, the technology paradoxically served not to bring him
43 closer to Derek or closer to understanding his performance, but to divorce him from his own
44 meaningful and lived experience of running. In essence, as Heidegger predicted and as Derek would
45 come to see, the representation on the screen did not capture the complete multidimensional and
46 affective nature of running.
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3 From Derek's perspective, the excessive zest with which Jack embraced and utilised the technology
4 actually became a barrier to developing a more productive relationship and he felt "usurped by the
5 app" (Derek's words). Consequently, as Jack developed a greater understanding of technical running,
6 Derek felt a change in his value to Jack as a human coach as part of a relationship. He wondered if
7 his role was diminishing;
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11 I felt I could not add a single thing. He had hit all the key technical points from today's
12 session... I am investing a lot of time into this relationship and I enjoy coaching him, so I hope
13 he sees that coaching is more than just knowledge of biomechanical principles
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16 Technology therefore did not only become a barrier between Jack and his own lived experience, but
17 in time and through excessive consumption became a barrier between Jack and Derek. This is an
18 important finding as to date authors (Williams & Manley, 2016; Bampouras, et al., 2012) have noted
19 how technology may dehumanise coach-athlete relations from the perspective of the athlete, but
20 the dehumanisation of coaches has not been considered.
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27 ***Final considerations and conclusion.***

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29 For fear of being labelled luddites, we begin this conclusion by once again emphasising that we do
30 not see the development of technological devices as a problem for coaches. On the contrary, we
31 argue that technology itself is not a problem and can add much value to the experiences of both
32 coaches and athletes e.g. as an instrument to overcome time and space. Additionally, we agree with
33 Dreyfuss (1995), and Collins, et al. (2015) who assert that technology can encourage a more rational,
34 objective, and quantified view of human performance. This may aid sporting performance due to its
35 specificity.
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42 Nonetheless, as illustrated in Derek's story, if a rational, objective, and quantified view
43 derived from technology becomes *the only means* by which we see ourselves, then we might only
44 come to know a transformed, stored, and dehumanised representation. In such instances, where
45 technology is used as the *only* source of feedback, then it renders us as "a resource to be used, but
46 more important to be enhanced—like any other" (Dreyfuss, 1995, p. 28). The athlete who only views
47 running experiences solely through a performance analysis application loses touch with the pain, joy,
48 comradeship, and freedom that comes with running. The athlete is rendered as a technological
49 rather than human being. The overall purpose of training i.e. to have a better running experience,
50 and the moment in which it was performed, is superseded and divorced by a singular focus on what
51 'the app will show'. The overreliance and isolated use of technology can therefore disaggregate "our
52 identities into a contingently built up collection of skills" (Dreyfuss, 1995, p. 171). In essence, the app
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3 may serve to dehumanise the athletic experience, reduce it to a series of technical representations
4 (e.g. heart rates, distances, speeds), and remove us from holistic coach-athlete relationships.
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7 To avoid a technologically influenced ontological crisis, Malpas (2000) argues that we need
8 to consider our experiences in an existential sense such as 'being in love', being in the army', or
9 being in a coach-athlete relationship. Such experiences evoke feelings, thoughts, and memories that
10 are sensual, affective, relational, and human. From this perspective, technology such as performance
11 analysis software can serve a useful function as a means of providing *some* understanding of lived
12 experiences and connecting us to others. Nonetheless, *other* means of understanding athletic
13 experience such as athlete diaries and reflective conversations with others who dwell in the moment
14 (e.g. coaches) have much to offer those who wish to holistically understand their lived experiences.
15 From this perspective Dreyfuss (1995, p. 26) states that technology is "not a problem for which there
16 can be a solution". Rather the use of technology as the *only* means of understanding being is an "an
17 ontological condition from which we can be saved". In this vain, we caution that watching a
18 performance on a screen will be an incomplete and transformed imitation of an athletic lived
19 experience, and thus should not be the *only* means of representing performance. We therefore urge
20 coaches and others to be cautious in the face of a fetish pursuit of numbers and control that
21 accompanies technological accounts of performance. Such representations have the potential to
22 distort lived experience and dehumanise both the athlete and the coach. Instead, we urge coaches
23 to view technology as one part of a more complete consideration of what it means to be an athlete
24 and to be in coach-athlete relationships. Such holistic consideration may be positive for the
25 fraternity of performance sport, and may also illuminate others in wider society who are involved in
26 similar relationships e.g. teacher-pupil, practitioner-performer and mentor-mentee.
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