OLYMPIC & PARALYMPIC COACH
SPORT PERFORMANCE DIVISION

December 2019

VOLUME 30, ISSUE 3

IN THIS ISSUE

United States Olympic & Paralympic Committee

STUTTGART, GERMANY - OCTOBER 09: Samuel Mikulak of USA competes on Pommel Horse during the Men's Team Final on Day 6 of FIG Artistic Gymnastics World Championships on October 09, 2019 in Stuttgart, Germany. (Photo by Laurence Griffiths/Getty Images)

Message from the
Director of Coaching

Chris Snyder

With 2019 quickly coming to a close, we are approaching the home stretch toward Tokyo 2020. We are so energized with the possibilities the future holds for our Team USA Summer Sport athletes. Thank you for tuning in to Olympic and Paralympic Coach to read up on some of the news happening around the movement and learn about upcoming opportunities to advance your coaching education!

This winter season is already off to a busy start with competition and winter sport success for Team USA. We have seen many outstanding performances in the past few weeks as our USA Luge team captured five world cup medals in Lake Placid, New York. Alpine Skier, Mikaela Shiffrin, also had great success as she took home the gold in slalom at the 2019 world cup. It is amazing to watch the success of these athletes, so early into the season. We look forward to many more Team USA achievements as our athletes continue through the winter championships.

The start of the new year also comes the opportunity to sign up for various learning opportunities to elevate your coaching practices. Beginning in January 2020, applications will open for both our National Team Coach Leadership Education Program (NTCLEP) and Coaching Accelerator Program (CAP). The NTCLEP is open to national team coaches of any Olympic, Paralympic or Pan American sport. The program runs over the course of 18 months in which coaches attend 6 seminars where they will have the opportunity to hear from experts and their colleagues in this unique learning environment. CAP is a hands-on, 3-day program that provides national and junior national team level coaches with a foundational base of high-performance coaching knowledge and skills that are practical and scientifically based. If you are interested in applying to either one of these programs or hearing more, be sure to start the conversation with your NGB and be on the lookout for communication on how to sign up in the new year.

Please continue to let us know what you think and/or let know what topics you want to see included in the next issue.

Thank you again for your interest in Olympic and Paralympic Coach!

Chris Snyder
Director of Coaching Education

The Good Athlete Project: Long Term Development of Body and Mind

James Davis, Good Athlete Project

Coaches, we have some startling news: sports do not teach life lessons.

It's true. Sports don't teach life lessons; thoughtful teachers and coaches use sports as a platform to teach life lessons, but it does not happen automatically.

To swim faster or throw farther, to run with greater speed and endurance, though these are valuable results, they are outcomes for athletes, not lessons for life.

Saying that sports teach life lessons takes too much ownership off of us, the coaches. Sports are merely a classroom. They offer a unique learning platform filled with novelty, goal-directed behavior, and compelling social dynamics, but someone needs to design the curriculum and build for specific outcomes.

We need to be sure the lessons learned in athletics transfer to life after sports, and we should act fast as the athletic experience is fleeting.

Olympians who compete into their late 30s and early 40s are heralded and, simply put, unlikely (Anthropometry of Olympic Athletes, 2016). Even in those cases, when their career is over, the athlete might have 50 or more years left to live. If we teach lessons which fade away after the final competition, then we have missed a tremendous opportunity.

At the Good Athlete Project, our mission is to support coaches in maximizing the potential of that athletic experience.

Long Term Athlete Development

Although shooting a ball into a basket rarely changes lives, the sport of basketball has potential to do just that. The same is true for all sports. A community of young people, coming together under a shared motivation and the guidance of powerful mentorship, can learn resilience, self-management, and commitment to community, but only if the coach prioritizes these results. That would not happen if one is shooting baskets alone in the driveway.

And while performance outcomes will always matter, sports seem to be experiencing a refreshing reappraisal of priorities. Long Term Athlete Development (LTAD), which was brought back into public consciousness after a 2013 book by Istvan Balyi and colleagues, reminds coaches that development should supersede immediate results.

Health, enjoyment, and growth should be the primary aims of an athletic experience. Results are recognized as the byproduct of that development. They are products of a well-considered process.

An essential element of that process is keeping athletes safe. Tommy John surgery is the proce-dure used to repair a torn UCL (ulnar collateral ligament) in the throwing arm of baseball players. This sort of injury is most common among pitchers and often attributed to overexertion at a young age. The frequency of this injury has been rising (White, 2018; Langager, 2015). From 1974-1994, there were 12 Tommy John surgeries performed in Major League Baseball (MLB). During a more recent 12 season span (2000-2011), there were 194 surgeries performed on MLB players and another 275 surgeries on Minor League players. Researchers attribute the climb in injury rate to early specialization in youth sports.

The phenomenon of early specialization points to an unhealthy focus on immediate results in youth athletes. If, for the sake of a Little League baseball title, a young pitcher is overloaded in a game, during the season, or both, they will subject themselves to potential injury. Extra emphasis on travel and all-star leagues, extra time spent with pitching coaches, and the over-prioritization of youth championships are far too common. The stress of pitching is not the issue, the lack of rest between outings is likelier to blame.

Challenge is necessary – a body will adapt to meet the demands imposed on it – but only if there is enough time to rest. We should create systems and teach lessons that allow for balance. The good news is, if coaches are willing to be patient for the sake of an athlete's health, they will also see increased competitive benefits – a well-rested athlete is a faster, stronger, better one (Mah, et al, 2011; Thun, et al 2015).

The priority should be on health, with an understanding that performance will be enhanced or de-graded by their ability to achieve this balance. If we do this well, we might set an athlete down the path to lifelong physical wellness.

These concepts also apply to an athlete's mind.

Long Term Psychological Development

Psychological development within the athletics setting will last far longer than any physical perfor-mance outcome. When strength fades, resilience can take over. When speed begins to decline, conscientiousness can determine the way a former athlete goes about their life.

These important psychological qualities can be learned through athletics, but only if a coach iden-tifies psychological enhancement as a primary outcome and creates a culture to support it. One example of this would be the cultivation of Carol Dweck's famed *growth mindset*.

"In a growth mindset, people believe that their most basic abilities can be developed through dedication and hard work – brains and talent are just the starting point. This view creates a love of learning and a resilience that is essential for great accomplishment," (Dweck, 2015).

To accomplish this, a coach must first identify growth mindset as a psychological capacity they would like to develop in their athletes. The decisions a coach makes should map onto that desire. Challenges and setbacks must be framed in a way that promotes these beliefs, and the coaching

staff must model a growth mindset themselves. Again, this is not an outcome learned from sports, but from thoughtful coaches using sports as a platform for education.

Assuming these lessons are happening as an automatic byproduct of sport is a mistake that manifests in a variety of ways. One phenomenon we have witnessed includes coaches creating cultures in the mold of their own athletic experiences, but with the intensity ramped up. If some are good then more is better, right? Unfortunately, that's not how it works.

"Burnout" was not an issue for young athletes at the turn of the 20th century. These days, it's a problem. For perhaps the first time in history, participation in youth sports is declining (NFHSA, 2019).

Dr. Tony Moreno, professor at Eastern Michigan University, believes that the decline might be rooted in a basic psychological idea. "Pressuring kids to specialize in one sport is an adult-inspired model. The number one reason kids participate in sport is fun. Early over-emphasis takes that fun away and enters them into a cycle of redundant practices, drills, tournaments, travel, and structure…" he adds that the reason for declining participation is "not a secret," (personal contact, 2019). Attrition is almost always the product of negative sports experience.

Having fun does not occur in the absence of challenge. Athletes will grow with appropriate psychological challenge but, just like physical stress, it must be balanced by recovery. Consider the Tommy John concern applied to an athlete's mind. Instead of a ligament in the elbow, the "snap" might appear in the areas of trust, motivation, or self-worth. Coaches should identify, with a context-by-context appraisal, where the balance between rest and stress might exist.

The goal, first and foremost, should be to provide the athletes with a safe and enjoyable experience. In doing so, coaches might not just be on the side of an ethical right, they might also be setting students up for success over the long haul.

A slow, deliberate, and wide-ranging approach to development benefits students in a variety of ways. David Epstein, in his book *Range*, acknowledges that the highest achievers actually devote "less time early on to deliberate practice in the activity in which they will eventually become experts… they gain a range of [proficiencies]… only later do they focus in and ramp up technical practice in one area," (Epstein, p. 7). Denying the impulse to specialize early and allowing kids to heal and have fun not only keeps an athlete safer but might lead to greater performance outcomes over time.

Epstein's research dovetails with the research of Dr. Mihaly Csikszentmihalyi. Csikszentmihalyi's bestselling book, *Flow*, compiles decades of research in positive psychology to unlock a simple truth: success exists at the stable intersection of challenge and skill. He notes that the identification of such balance creates happier, more focused, more diligent workers. (Csikszentmihalyi, 1990; Moneta & Csikszentmihalyi, 1996). Embedding athletes in this sort of environment is good, teaching them to seek out and create that balance for themselves is even better.

Coaches must identify the psychological capacities they hope to build in their athletes. The nurtur-

ing of those capacities should include a flow-like balance of challenge and skill, a broad range of experiences to practice those capacities and, ideally, a focus on growth which includes resilience and a passion for learning.

When an athlete can no longer jump as high as they used to, these psychological abilities will keep them going.

Essential Developmental Stages

When Erik Erikson published his *8 Stages of Psychosocial Development* in the early 1950s, he changed the way many understood development over the lifespan.

Two of Erikson's Stages define the bulk of a career for most athletes from youth through high school participation. Stage 4, which he labeled Industry vs Inferiority, lasts from the ages of 5-12. During this time, a young person's primary influencers shift from those inside the home (parents, grandparents) to external sources like teachers and coaches. In Stage 4, positive reinforcement of an athlete's efforts will promote future industrious behavior, whereas an abundance of negative critique lowers initiative and limits future motivation (Erikson, 1950).

Stage 5, Identity vs Role Confusion, spans the ages 13-19. During Stage 5, a young person is increasingly influenced by peer groups while exploring different social roles, ultimately working through Erikson's famous term, the *identity crisis*. In Stage 5, as the intensity of athletic participation picks up, many dedicated athletes will find their identity through sport, making the coach – as mentor and designer of team culture – a key contributor to the development of those young people.

Erikson's stages align with Jean Piaget's developmental stage theory. In pre-adolescence and adolescence, young people are capable of hypothetical thinking and inferential reasoning. For the first time in their lives they can successfully imagine a future and envision how their decisions and behaviors might impact that future. There is a tremendous opportunity for the teaching of life-long lessons through this stage of development (Mitchell, et al, 2007).

Positive athletic experiences during these stages are why sports are often highly regarded in systems of education (Sport and Development, 2019). Young people find peer groups, motivation, healthy habits, work-ethic, resilience, and all the good things we prize about participation in sport.

But the athletic experience is not always positive.

In some cases, hazing, villainizing kids from the neighboring town, win-at-all-costs mindsets, obsessive compulsions, and sustained anxiety can negatively impact a young person's development (Fields, et al, 2010; O'Sullivan, 2015).

The longer a person is involved in athletics, the more these lessons, positive or negative, engrain themselves. The opportunity for coaches to be an influence here is massive.

Erikson's 6th Stage, Intimacy vs Isolation, lasts from ages 20-40. Here, a person works to understand who they are, selectively shedding prior experiences and developing new relationships that will influence the rest of their lives. The Olympic and Paralympic coach will guide an athlete through parts of Stages 5 and 6, which might be the most crucial in determining what sort of person that athlete will be for the rest of their life.

We recently met with an Olympian who was self-medicating his physical and psychological pain. He was well-known, celebrated in his sport, and found a lucrative job in finance immediately after his athletic career. By many objective accounts, he had it all, but was still unhappy and couldn't figure out why.

At the end of a long athletic career, he was left with a shelf full of trophies but lacked the capacity to manage his own life. He was admittedly lacking direction. Self-discipline was never a problem as an athlete, but self-management in professional and social settings had become a large concern. Without a coach, a timetable, an eating plan, a workout routine, and a sports psychologist in his ear, he wasn't sure where to turn.

Our initial consultation examined his experience in youth and adolescent training. As outlined in Erikson's Stages, this can shed important light on where and why things went wrong, as well as identify areas of missed opportunity. In this case, it was clear that a lifetime of athletic achievement entrained this person to seek outside validation in a very tangible way. The rules of prior athletic engagement were clear, and so were the outcomes. Trophies and medals were the measures of success, and the real world wasn't handing out awards.

Through that understanding, we worked toward reframing unhealthy concepts and developing positive habits. We decided to be empowered by the accumulation of positive habits. Sleeping well was its own reward, finding time for family and friends became a real-world trophy, and pursuing a purposeful profession became a benchmark of true success.

Think of this as a long-term project. It is slow and sometimes difficult work, just like coaching, but it's worth it.

Call to Action

Olympic and Paralympic coaches, you occupy a unique space in an athlete's life. You are mentors in one of the world's most powerful learning platforms and during the most important stages of an athlete's psychosocial development.

You might also be their final hope.

Once an athlete's career is over, the identity crisis faced during adolescence will reappear. The initial answer to the identity question, athlete, is no longer viable. Many post-career athletes report entering second adolescence once the bright lights are behind them. They are no longer heroes. They no longer have coaches, teams, and clear goals to guide them.

The longer the athletic career lasts, the more difficult the transition will be.

The motivation of the regular day-to-day world is absent of the poignant, goal-driven pursuits of an athletic career. Professional, Olympic and Paralympic athletes have one final learning opportunity where the motivation is high, the expectations are clear, and the mentors (you) are powerful. Coaches, we must take this charge seriously.

Though it may sound strange, it is sometimes helpful to not refer to people as "athletes" at all, or only in certain circumstances. Refer to them instead by name, or in general as people. After all, "Rebecca" might be the coxswain of a crew, every bit as important as those around her, and together they are a team and in the moment, they are rowers, but they are people who will hopefully live long lives once the boat has been pulled out of the water.

Can they be intensely focused and hyper-dedicated to their craft? Absolutely. That's how the elite tend to operate. But remembering that athletics is something you participate in, not who you are, will allow that person to be their best over the long haul.

There is no direct prescription in this call to action – we have no judgment regarding principled processes and ethical outcomes, and there are no methods to ensure positive results – only the hope that a coach will reflect on two basic questions:

1. **What is your purpose?** Many people get into coaching for the love of the game. That is a fine starting point but insufficient as a professional purpose. What do you really want for those you work with? Name it. Be explicit. Be willing to adjust this purpose over time but be sure to think about it. After deliberating, many coaches identify some version of fulfilling their potential that allows them to help others reach their potential as well. That's always a good place to start.
2. **Does your behavior match your goal?** This is the cornerstone question of the Good Athlete Project. Confronting this question for sake of analysis and without judgment is the only way. If you want to be healthy but you eat Dorito's with lunch every day, does your behavior match your goal? If you are a coach who hopes to teach life lessons but degrades athletes in front of their teammates, you'll have to confront the same logic.

If your behaviors consistently match the goal of teaching life lessons, you will have accomplished something that is meaningful beyond measure. You will have inspired the ripple effect that happens when a good person inspires another good person to be good. That person will carry your work forward.

The long-term development of high-quality human beings might be the most satisfying pursuit one can imagine. The reward of that pursuit will last far beyond the podium.

To all who have taken up the charge of coaching, thank you. And if you ever need support, or just want to talk through ideas, feel free to reach out: goodathleteproject.com or on social media @ coach4kindness.

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UNIVERSAL CITY, CALIFORNIA - NOVEMBER 19: USA Women's Water Polo players attend the 2019 Team USA Awards at Universal Studios Hollywood on November 19, 2019 in Universal City, California. (Photo by Frazer Harrison/

Getty Images)

Optimizing Performance Through Energy Management Strategies for Olympic and Paralympic Athletes

Jen Schumacher, Performance Psychology Trainer, United States Military Academy

At the highest levels of sport, the vast majority of athletes are putting in similar amounts of training time and equally intense effort. Elite athletes are constantly butting up against that edge of what is humanly possible – how much training can one withstand without risking injury or burnout? That fine line is where most Olympians and Paralympians live. What, then, separates the very best? The ability to consistently train at the edges of human capabilities without breaking down; in essence – individuals who prioritize recovery so they can go to the outer edges of their limits every morning and come back and do it again later in the day. Progress in one's sport is certainly made in training; however, it is what the athlete consistently does between those training sessions that separates the good from the great.

Stress and Energy

It is often helpful to think of stress and energy alongside one another. Despite the often-negative connotation associated with stress, stress is simply the nonspecific response of the body to any demand placed upon it (Selye, 1974). Such demands, known as stressors, can be various events, situations, environmental factors that cause us to experience stress, the cognitive, physical, or emotional response to stressors (Selye, 1974). Stressors can be both positively perceived (eustress) and negatively perceived (distress) – regardless, energy is mobilized in order to meet the demand. Given that, the demands of high-level athletic pursuits require significant energy payouts from the athlete, between multiple practices, lifts, individual coaching, competition, travel, film, and any other requirements they may have. Several studies have examined the various sources of stress placed on elite athletes (e.g., Gould, Jackson, & Finch, 1993; Park, 2004; Scanlan, Stein, & Ravizza, 1991). These stressors include both competition-related and noncompetition related events and comprise both daily hassles and major life events (Lazarus & Folkman, 1984; Scanlan et al., 1991). Each of these stressors requires the mobilization of energy, necessitating the need to recover energy throughout the day and week in order to be fully charged for quality practices.

Try asking your athletes: If you were a smartphone, what percent charge would you be at right now? Ask yourself that same question too. Like athletes, coaches also experience significant levels of stress associated with their performance (Fletcher & Scott, 2010). For most smartphone users, it is unthinkable that they might allow a drained battery to just sit if given the option to plug the phone in, even if they knew they did not have adequate time to achieve a full charge. Yet, we do this with ourselves all the time. Even if we cannot fully "recharge the battery", there are still plenty of ways to "plugin" to recover energy for the next training session or competition.

Quick Little Recharges

Essentially, stress is the activation of the sympathetic nervous system (SNS), which you may know better as "fight or flight" (Jansen, Van Nguyen, Karpitskiy, Mettenleiter, & Loewy, 1995). This is the more metabolically costly arm of the autonomic nervous system (ANS), which is in part why stressors require energy payouts and drain our batteries. The oppositional branch of the ANS is the parasympathetic nervous system (PNS), or "rest and digest", and the SNS and PNS cannot both be "on" at the same time (Baron, Moullan, Deruelle, & Noakes, 2011). Activating the PNS, even for a brief period of time, can help restore homeostasis, promoting the recovery of energy to head into the next practice or event. When selecting strategies to recharge from stress, it may sound counterintuitive to relax, but often the activities that tap into the PNS, quieting the SNS momentarily, are our greatest asset. Try these strategies:

- *Diaphragmatic breathing*: Try a longer exhale, such as a 5-7 breath, inhaling to a count of 5 and exhaling to a count of 7, which stimulates the PNS and induces greater feelings of relaxation.
- *Systematic relaxation*: Scan the body from the feet towards the head for tension and remind oneself to relax each muscle group.
- *Body Scan*: Regularly practicing systematic relaxation can lead to proficiency at full-body relaxation in just a few breaths.
- *Progressive muscle relaxation*: Systematically tense and release each muscle group of the body and contrast the associated feelings to increase body awareness and stimulate relaxation (Jacobson, 1938).
- *Autogenic training*: Repeatedly suggest sensations associated with PNS activation until a relaxed state is entered, such as "my arms are warm and heavy" and "my heartbeat is slow and steady" (Schultz & Luthe, 1959).
- *Imagery*: Experience yourself executing with control and composure, or image a relaxing situation or environment to recharge.
- *Biofeedback*: Various tools can help athletes achieve this relaxed state through visual, objective measures of physiological states, such as heart rate variability and galvanic skin response.
- *Meditation*: Focus the mind on a particular object, thought, or activity, like a mantra or the breath, refocusing when needed to develop concentration, awareness, and emotional control.
- *Additional*: Some individuals may find journaling, drawing, music, socializing, outdoor walks, games, or other enjoyable activities to be highly relaxing and restorative.

Matching Energy Recovery to Specific Stressors

The stressors we face can essentially be broken down into three categories: physical, cognitive (mental), and emotional. Often, our stressors cover more than one of these three categories. For example, a difficult training session may be both physically and emotionally exhausting. Coaching a tough practice can also be both cognitively and emotionally draining. Whenever possible, matching the type of recovery to the type of stressor can further enhance our ability to recharge the batteries. For example, if an athlete is emotionally drained, a phone call to a loved one or spending quality time connecting with a coach or teammate might be exactly what they need to ready themselves for practice that day. If a competition was particularly physically demanding, progressive relaxation or a massage might be the best way to recover energy for the next day. Coaches who are mentally stressed after a day of film editing, writing practice, recruiting, and scouting might benefit from a

leisurely walk or listening to music before heading out to practice. Some recovery techniques, such as meditation and relaxation strategies, can be leveraged for physical, cognitive, and emotional recovery, making them ideal triple-threat recovery tools every high-level performer should have exposure to.

How to Finely Tune your Energy Levels to Optimize Performance

Awareness of one's energy level heading into practice and competition is only one piece of the puzzle. Having an understanding of energy levels – also called arousal or activation in the sport psychology literature – in relation to one's optimal level of arousal is another component to elite performance (Hanin, 1997; Hanin, 1995; Weinberg & Gould, 2018). Symptoms of low arousal include lethargy, apathy, and heaviness, while symptoms of high arousal include excitement, enthusiasm, and energy. While high arousal can at times be interpreted as anxiety due to physiological changes, far more important is the performer's interpretation of the arousal than the level of arousal itself (Kerr, 1985; Kerr, 1993). Athletes who experience high levels of activation yet view that as facilitative to performance will experience performance-enhancing benefits from that choice of interpretation, and the converse is true (Kerr, 1985; Kerr, 1993). The following are examples of affirmations performers can repeat to reinforce the idea that their nerves and activation are facilitative:

- "This is my body's way of getting me ready to perform"
- "I'm nervous because I care"
- "I've competed with butterflies before, I can do it again"
- "I'm a good enough athlete that I don't have to feel perfect to perform well"
- "The nerves mean I'm ready!"

In addition to efforts to view arousal as facilitative, athletes can also engage in self-regulation strategies to either induce or reduce arousal levels based on their optimal level for peak performance. The table below includes several strategies for each.

Arousal Induction Strategies	Arousal Reduction Strategies
Energizing Breathing	Relaxing Breathing
Physical activation	Systematic relaxation
Energizing breathing	Relaxing breathing
Physical activation	Systematic relaxation
Pre-performance routines	Progressive muscle relaxation
Powerful self-talk	Autogenic training
Energizing imagery	Imagery for composure and calm
Energizing music	Meditation
Transfer of energy	Biofeedback

Summary

Regardless of how they are feeling, elite performers master strategies to do their best to achieve optimal-energy levels and utilize cognitive strategies to reframe non-ideal levels of energy in order to perform at their best in the moment. Further, high-level performers engage in energy management strategies to set themselves up for optimal-energy levels on an ongoing basis. As an athlete, balancing energy throughout the day and week is one of the most essential skills to have. This proactive recovery sets the starting block for an athlete to go into practice energized and ready to train, getting the most out of practices. Further, these skills are necessary for optimizing performance in competition and enhancing recovery. Such strategies are not too different from what high-level performers outside of sport utilize. Employees who experience autonomy and support from colleagues and supervisors, and who engage in deliberate micro-break strategies (e.g., brief physical activity, socializing, stretching, web browsing) appear to have higher levels of well-being, energy, and vitality (Kinnunen, Feldt, de Bloom, & Korpela, 2015). Such strategies can be reinforced by coaches, allowing athletes a degree of autonomy over what they do during practice breaks, and providing opportunities to socialize and connect with support systems, such as family, friends, and coaches. Engaging in these strategies can lead to more energized and ultimately more productive performers.

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Exploring the Use of Technology in Coaching Education: Digital Coach Development or Disaster?

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Introduction

In June 2019, we were fortunate enough to be invited to deliver a 'masterclass' at the United States Center for Coaching Excellence (USCCE) North American Coach Development Summit, held in Colorado Springs, Colorado, the home of the United States Olympic & Paralympic Training Center.

The purpose of the 'masterclass', which shared the same title as this article, was to discuss our experiences (as academics and coach developers in the UK) of planning and delivering technology-enhanced coach education programmes, across a range of contexts. We shared the variety of outcomes that were achieved (intended, unintended, desirable or not!) and through our research, explained how and why that might have been the case.

While we were able to do all the above in Colorado Springs, with a small audience of around 50 policymakers, programme designers, and coach educators, we are delighted to be able to share this work more widely with you in the *Olympic & Paralympic Coach* magazine.

Context

In 2016, Sport England (the lead government agency for sport, in England) established a four-year vision for sports coaching. The purpose of the Coaching Plan for England (Sport England, 2016) was to establish an agenda that would ultimately achieve the goal of enhancing the experiences of sports participants, underpinned by more strategic approaches to effective coach development. It was suggested that one of three key enablers in this process would be the use of technology; specifically, how technology might play a role in the learning and development of sport coaches. As a result, organisations charged with the delivery of coach education (e.g., National Governing Bodies, Higher Education Institutions, etc.) have sought to embrace technology, embedding it into coach education programmes wherever possible.

While this might seem quite a localised concern, technology is being embedded in coach education programmes the world over, as a remedy to a variety of issues. Firstly, technology has the capacity to manage the growing scale and widening the scope of coach education. There is growing importance attached to coach education and as a result, provision is being offered by a wide variety of organisations. For example, according to Gano-Overway & Diffenbach (2019), 308 higher education providers in the United States are offering coach education programmes currently. The broader point is also corroborated in the work of McCarthy and Stoszkowski (2018, p317), who claim, "... coach education and development programmes, once the exclusive domain of national govern-

ing bodies (NGBs), are now increasingly being offered by disparate organisations including; charities (e.g., Street Games), local authorities, private enterprises, and further education colleges (FE) (Lara-Bercial, et al., 2016)". Coach education programmes delivered online can be wide-reaching (scale) and engage with otherwise isolated coaches (scope).

Secondly, technology-enhanced coach education can form a more consistent offer, reducing the void between programmes where coaches might otherwise become detached from coach learning. This seems important since Sport England (2016) argue that a barrier to increasing the diversity of the coaching family is a lack of consistent opportunities. Examples are beginning to emerge where technology such as Hive Learning (https://www.hivelearning.com/site/) and Coach Logic (https://www.coach-logic.com/) are being used by NGBs to 'smooth out the journey' for coaches, on their coach education pathway; ultimately encouraging more frequent and consistent engagement.

Thirdly, and importantly, technology-enhanced coach education programmes have the potential to address the criticism leveled at coach education (as organised typically), that it is rarely considered important, impactful or useful by coaches (Piggott, 2012). In fact, coaches report that they have a desire to (or currently do), engage with technology as part of their ongoing development anyway (Nelson, Cushion and Potrac, 2012). Technology-enhanced coach education programmes have the capacity to provide a more authentic and contextualised experience (i.e. are about me and my athletes, where I can video capture my coaching in my unique context) to provide an experience which represents a shift from coach education programmes being about the provision of 'gold standard' recipes (Abraham and Collins, 1998).

What did we do?

With calls for the use of technology as a feature of coach education programmes coming from public policy (in the UK, at least) and academic literature (globally), along with a desire expressed by many coaches to use technology within coach development programmes, it appears that there is significant weight behind this movement. It appears too that by making technology a central feature of coach education programmes, we might be able to remedy some of the issues with coach education as presented in the research literature and public policy documents.

With this in mind, and as both designers and deliverers of coach education programmes ourselves (in higher education and professional soccer academy contexts), we decided to place technology front and centre of what we were doing. Within the next two sections of this article, we intend to share with you our experiences of designing and delivering technology-enhanced coach education programmes, in the form of two case studies. While sharing with you our experiences of planning and delivering coach education where technology was a central feature, we hope to paint a more nuanced picture than that which is currently offered (where technology might be perceived as a panacea). We aim to share with you the significant barriers which were faced when trying to use technology as a tool for coach education, how it was met with discord in some contexts, and how it was ultimately differentially effective at the level of the coach.

How did we do it? (case study one)

At St Mary's University, London (where we both currently hold academic positions in the faculty of sport health and applied sciences), we are responsible for working with hundreds of sports coaches across undergraduate and postgraduate programmes of study to support their learning and develop-

ment. We acknowledged the wider movement toward using technology in coach education as described (not to mention, education in general!) and were encouraged by the notion that technology might resolve some of the limitations of our existing coach education provision; such as having the capacity to make coach education experiences more authentic and meaningful to the coach, while providing a level of consistency (embeddedness) and value for money.

At the university, students who enrol on a three-year undergraduate degree programme to study sports coaching and related disciplines, engage with around six modules (individual courses) per academic year. Modules range from providing introductions to discrete aspects of sports coaching (e.g., practice design, coaching pedagogy) early on in the programme, to taking a more interdisciplinary and applied approach in years two and three. We became particularly interested in how we could enhance the applied modules, specifically a final year 'applied coaching practice' module. The popular optional module (of typically 40 coaches) demands that coaches draw upon a wide range of ideas from across the entire programme and their experiences as a sports coach to date, to make sense of their own current individual coaching issues. Nevertheless, we felt that the module became defined by a narrow set of concepts and theories (as introduced by a small number of coach educators on a single programme) and homogenous pool of coaching experiences (all the coaches enrolled, typically coached in the same geographic area, in a small number of clubs). As a result, the 'applied coaching practice' module lacked the ability to stretch and challenge coaches since most of the coaches were looking at the world through the same filter.

In 2018, an opportunity arose to redesign the module and attend to these issues. Inspired and informed by the work of Stoszkowski and Collins (2017), Stoszkowski, Collins and Olsson (2017) and more recently the work of Stoszkowski and McCarthy (2018, 2019), we set about attempting to embed technology into the module to address the issues described.

Using a Web 2.0 platform (www.wordpress.com), we organised a cluster of online communities of practice (Lave & Wenger, 1991) with sports coaches from our university (enrolled on the module in question) and also sports coaches from Ohio University who were also enrolled in a sports coaching degree programme and a similar module. Each community of practice (or www.wordpress.com page, in this instance, had 13 coaches as members; typically, eight were from St Mary's University and five from Ohio University). Across the 15-week module, coaches engaged in online discussion, peer-instruction and group reflections. Coaches were afforded the opportunity to write blog posts about their unique coaching issues while supporting other coaches with theirs. The Wordpress platform also afforded coaches the opportunity integrate video, audio or imagery to enhance their blog posts. Some coaches took this as an opportunity to share video of their coaching practice for others to review, while others shared session plans and reflections. This approach is consistent with the seminal work of Stoszkowski, McCarthy and Fonseca (2017).

The module was structured in a way that encouraged coaches from both universities to blog bi-weekly and comment on the blogs of others (support other coaches to resolve their real-life coaching issues) during the weeks in between. The intention was that coaches contributed to the online community of practice in a frequent and consistent manner across the entire 15-weeks. The online international community of practice, hosted on the Wordpress platform, was supplementary to the taught module and words contributed to the Wordpress platform amounted to the coach's

assessment on that module; thus, serving dual purpose. This learning-oriented (Boud & Falchikov, 2006; Carless, 2007), authentic and contextualized assessment was another positive outcome of the redesigned module and made possible using Web 2.0 technology.

Coaches reported positive experiences with the redesigned coach education module; one coach suggested:

> *"Taking part in the blog has been the first insight I've had into coaches outside of England. It was successful in gaining a greater understanding of issues faced by coaches across the board, whether the coaches are part of the same of different sports. The best thing about this process has been being able to comment and contribute to other coaches' learning and development through posing questions and challenging their views that they have shared."*

It is evident that technology (as part of programme design) has been an enabler in creating experiences that otherwise might not have been possible. Specifically, within the module as it was delivered previously, challenging others' views became difficult due to the homogeneity of one single group of coaches regarding their knowledge, understanding, and experience. Now, it seems, the variety of experiences and expertise among the wider community of practice members gave rise to diversity, disruption, and thus greater opportunities for learning. One coach suggested:

> *"Throughout the course I thought it was a good idea to connect with other students in the states, as it's different to just writing an essay and I was interested in reading about other people's experiences."*

In summary, we set out to remedy issues with our existing coach education provision (at our university), specifically where we felt that it could be more authentic, meaningful, consistent (embeddedness), and offer greater value for money. We created an international online community of practice, where coaches from our university and Ohio University could collaborate over a 15-week period. In this online space, coaches were able to construct blog posts about them and their practice to seek solutions to practical coaching issues, support the learning and development of other coaches, all while contributing to their individual learning-oriented assessment. Coaches reported positive experiences, specifically in relation to how the heterogeneity of the group gave rise to challenging and disruptive learning and development experiences.

How did we do it? (case study two)
Although we were well-intentioned with case study one, we did acknowledge some of the limitations of working with student-coaches. We accepted that asking student-coaches, who had little or limited coaching experience from which to draw upon, to problematize (identify and formulate problems) their practice with coaches from a different culture was a challenging request. As a consequence, we sought to investigate how similar technology-enhanced coach education interventions might work, within an elite coaching context. Within high-performance sporting environments, there has been a dramatic increase in the use of various video-based technologies (Carling, Wright, Nelson & Bradley, 2014). However, there is a notable absence in the literature regarding the effectiveness of these video-based technologies from a coach learning perspective.

Although engagement in digital technologies (such as Coach Logic), is said to facilitate a collabora-tive environment for learners (Hew & Cheung, 2013), their use as an effective learning tool in coach learning specifically, is largely based on assumption (Stoszkowski & Collins, 2014). However, Lave and Wenger's (1991) concept of social learning, as part of a group, with shared goals and outcomes has been commonly cited as an appropriate and preferred mode to facilitate coach learning (Stosz-kowski & Collins, 2015, Culver, Trudel & Werthner, 2009; Cushion, Armour & Jones, 2006; Nelson, Cushion & Potrac, 2006). It has also been suggested that these interactions and sharing of practice can effectively take place online.

The aim of the research (in this case study) was to provide a longitudinal investigation of the effective-ness of the Coach Logic online video platform as a tool for coach education within a football academy coaching context. Its significance lies in attempting to generate an understanding of coaches' informal learning habits, where technology is a feature.

Methods

This research was conducted over two full seasons from an English category one academy, where each coach was observed three times (three from Foundation Phase and three from Youth Develop-ment Phase). Coaching sessions were video recorded and then uploaded to the online video platform Coach Logic. Once uploaded, coaches were then given access to the data collected and invited to semi-structured interviews to discuss their coaching practice. This data was simply used as a 'wedge in the door' to stimulate curiosity, reflection, and discussion among coaches. The study then intended to assess how coaches negotiated the online platform, through which they could reflect and discuss videos of their coaching practice with other coaches at the club. The platform offers several tools to do this, including tagging bespoke events in their practice (i.e., discrete actions or outcomes) and communicating with other coaches using comment boxes. Analytics and metrics of the coaches' en-gagement on the online platform were also recorded.

What seemed to be happening…

Coaches crave security

> "Well I don't really like watching myself back, I don't like it, I sound weird in it I look weird in it… Jake (pseudonym) always said to me, 'you bake the cake and I'll put the icing and the cherry on top'. If I'm not giving him that bit of cake, it's like, I'm giving him nothing so there is noth-ing for him to finish it off with. I just want someone to tell me how to bake the cake and if they want a lemon drizzle or not."

A key issue for coaches when collaborating (with other coaches, to discuss their practice) seemed to be the feelings of insecurity that came from 'putting oneself out there' for the scrutiny of others within the online community.

This fear of scrutiny could be why there is an explicit desire to appear certain and risk-averse; nei-ther of which lends itself particularly well to 'getting better' as a coach. Coaches wanted clarification on "what happens if someone disagrees with my post", rather than seeking to ignite a response from their online community of practice, even if this meant some uncomfortable discussion and online dia-

logue.

"Not another platform, we already have to use so many already"

> "Erm, yeah I just find we have so many ways of getting a message these days, I just get tired of it all. You've got Whatsapp, you've got email, text messages… you know, Coach Logic, so yeah there's a lot of stuff out there. So, I'll read it and if I massively agree or disagree with it then I might comment. Whereas, if I was neutral, or I wasn't that bothered… then let's just have a chat about it the next time were in the office..."

Consistent with the findings of Stoszkowski, Mccarthy & Fonseca, (2017) the introduction of another media platform into the coaches' everyday working routines has been met with resistance. Coaches typically failed to schedule a time in their day to upload or engage with content. While it has been recognized that we are now part of a 'digital age' and that young people are 'digital natives', the initial experiences have seen coaches from a diverse range of ages engage with the platform; not just those who are young. There has been an initial desire from all coaches to learn how to operate the platform and this was supplemented by club-arranged one-to-one tutorial for individuals.

Conclusion

Compelled by popular discourse, public policy guidance, and the academic literature, we attempted to enhance the coach education programmes which we are fortunate enough to design and deliver, by using technology. While many coaches responded positively to the changes, others did not. In short, the approaches taken, and strategies used were differentially effective and technology proved to be no elixir, as inferred in some quarters, for the perceived ills of coach education. Rather, we identified three specific themes that help us to explain why nothing works everywhere for everyone.

Consistent with the findings of McCarthy and Stoszkowski (2018) and Stoszkowski and McCarthy (2019), the use of technology as a platform for, and driver of, independent and self-directed learning required a specific set of skills and capabilities. In preparing contributions to be shared with other community of practice members, coaches struggled with self-regulation (i.e., what to do, by when, so that others can benefit). As such, the communities of practice (in both case studies) ebbed and flowed unevenly, with some void periods (with little sharing) and some high-volume periods (with lots of sharing).

In both case studies, we came to learn that sophisticated learning strategies require sophisticated learners. While we may design coach education programmes with the best intentions (innovation, evidence-based) we must be sure that the coaches who enrol on these programmes have the personal resource (i.e., skills for learning, prior experience) to navigate them with success. And where there is a mismatch between what the programme requires and the personal resources which the coach brings, the programme might in some way, play a role in developing the coaches' personal resource (in a parallel process to developing their coaching competence). Nevertheless, we acknowledge that this will always be a loose fit!

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