Awakening the Playful Learner: Positive Pedagogy Used in a Cross-Country Ski Coach's Action Research

KEVIN SHIELDS
University of Alberta

Athlete-centred coaching approaches emphasize coaching the athlete as a person and through individualized training. However much of the formal and informal coach education for cross-country ski coaches focuses on the application of standardized periodization plans and 'typical' workouts. This overreliance on physiological-based approaches to training typically makes exploring alternative pedagogical approaches difficult to implement. In this study, I employed Light and Harvey's Positive Pedagogy as a methodology for practice design with a university cross-country ski team to explore alternative approaches to enhance technique and tactical training. By using an Action Research framework, I aimed to explore how I could become a more effective and holistic coach, and create opportunities for reflective learning for myself and my athletes.

Keywords: athlete-centred coaching, Action Research, Positive Pedagogy (PPed), cross-country skiing

Over my thirty-plus years as a dedicated cross-country ski coach, I have taken numerous coaching courses through Canada's National Coaching Certification Program (NCCP). These professional development opportunities emphasized physiology, biomechanics, and motor learning. These were valuable to me as a ski coach as they gave me new ideas, approaches, and technical guidance on coaching cross-country skiing. While this formalized educational system provided me with a clear vision and structure for advancing sport skills and a blueprint for how to prepare athletes for cross-country skiing success, I have struggled with the rigidly prescriptive approaches and overemphasis on attainment of benchmarks as a roadmap to success. Although bio-scientific knowledge and practices are essential in

training for endurance sport, "social theory can collaborate with bioscience by broadening awareness of all that is going on" (Mills et al., 2020, p. 41). Consequently, I have attempted to balance highly structured and directed instruction with alternative behaviours or activities that engage athletes socially and emotionally. However, I do not feel I have been successful in achieving a truly integrative approach to coaching endurance athletes. In this Action Research (AR) project, I aim to use an alternative pedagogical approach, Positive Pedagogy or PPed, (Light & Harvey, 2017, 2019) that integrates the physical and social to support athlete learning and development. Specifically, I employ PPed as a method to enhance my coaching skills in designing practices that increase collaborative learning, through dialogue, thinking and reflection within a university cross-country ski team.

To begin, I review literature on coach education and training. I then outline my Action Research (AR) methodology informed by the PPed approach that I employed with a university varsity ski team. Finally, I summarize and discuss my findings not only as it pertains to my development as a coach, but also within the broader scope of athlete-centred coach development.

REVIEW OF LITERATURE

Coach education programs are often seen as being divorced from the "knotty reality" of practice and thus fail to "[fulfill] their intended developmental function" (Chapron & Morgan, 2019 p. 1). To address this reality, an effective coach must successfully manage various demands within their specific context (Coté & Gilbert, 2009) where athletes and coaches must work together to solve emerging issues and tackle new learning (Light, 2017; Light & Harvey, 2019). This problem-solving approach to coach learning, however, is rarely highlighted in formalized coach education (Nelson, 2006). The implementation of these scientific approaches and associated emerging technologies (e.g., heart rate monitors, online training plans, software for video analysis, etc.) is unquestioned and defines a one-size-fits-all plan for "the "right" or "best" way to coach skiers" (Denison, 2023, p. 13). This type of thinking is highlighted in Banack et al.'s (2012) study where Canadian cross-country ski coaches expressed a need for "more technical knowledge to properly teach ski skill" (p. 311). However, it does not prepare coaches to meet the needs of diverse groups of athletes or illustrate how to adapt to various issues within coaches' local contexts (e.g., lack of access to equipment, facilities and events; environmental conditions; needs and interests of participants and families). Informal education through experience on-the-job is often perceived as more valuable than formal education courses. However, previous research has demonstrated that self-

directed informal learning "lacks quality assurance or the development of understanding" without sufficient guidance in terms of critical thinking and self-reflection (Mallett et al., 2009 p. 331). These concerns, therefore, inspired me to explore an alternative coaching approach in my Action Research (AR) project to help me become a more effective, athlete-centred coach.

Athlete-centred coaching is an approach that places the athlete at the centre of the coaching process: the coach acts as a facilitator and guide to create a supportive environment that empowers athletes to take an active role in their development (Light & Harvey, 2019). Athlete-centred coaching is based on "the belief that knowledge is personally constructed, and thus view of learning as a complex, interpretive process" (Cope & Lowe, 2017, p. 188). To change to an athlete-centred coaching, coaches and educators must identify specific principles and approaches to create authentic coach learning through discussion of real, context-based issues (Griffin et al., 2017). If sport behaviour is seen as a product of the performer-environment system, irreproducible and highly unpredictable, the coach must take on the role of learning facilitator, guiding learning and inherently questioning the typical power imbalance in coach-athlete relations (Pol et al., 2020). By creating a more interactive and collaborative learning environment, the coach can integrate technical, tactical, and psychological skills enabling learning and development of capabilities beyond decontextualized and stand-alone practices (Pol et al., 2020). Much of the research in this area has focused on team sports where pedagogical approaches, such as Teaching Games for Understanding (TgfU) and Game Sense, are used to emphasize collaborative decision-making and problem-solving through small-sided games and dialogue (Light & Harvey, 2017, 2019). However, for individual sports, Positive Pedagogy (PPed) has provided an alternative to direct coach instruction for technical skills in athletics and swimming, where the coach-as-facilitator engages athletes through problem-solving and discussion (Light, 2017; Light & Kentel, 2015).

As an integrative, athlete-centred coaching approach, PPed draws from humanism and holism and is specifically designed for individual sports. It "is a framework of ideas and pedagogical features designed to encourage deep thinking about coaching and reflection" (Light & Harvey 2019, p. 1). The premise for Light (2017) was to question the assumption that technical skill training in individual sports inherently required a direct instruction. A PPed approach, instead, aims to create a practice environment where athletes communicate, think, make decisions, collaborate, problem-solve, evaluate, and reflect on their participation and learning that should result in positive outcomes for athletes (Light & Harvey, 2019). For example, Light and Kentel (2015) used PPed in in a one-month study of a youth track (athletics) relay team. Over this period, the four athletes became "independent and confident learners" instead of

"being dependent upon the coach" (p. 389) where the coach became a resource to be used (learner-centred approach) rather than an expert teacher (direct instruction). In this environment, athletes connected emotionally, physically, intellectually, and socially with each other. To enhance this connection, coaches used questions to encourage discussions and critical thinking related to physical and tactical learning, as well as emotional and social components of participation (Light & Harvey, 2019).

In summary, both formal and informal coach education are dominated by sport sciences (e.g., exercise physiology, motor learning, sport psychology) and the use of broadly applicable approaches, such as periodization charts and sample standardized training sessions. These approaches are limiting in that they inform rigid, highly controlled coach-led practices as the best way to coach. However, there is an increasing recognition that athlete-centred coaching, where the coach and athlete work together to create a more empowering learning environment. Alternative coaching approaches, like PPed, aim to integrate various practice elements that are more holistic and athlete-centred while effectively leading to skill and physical improvements. Therefore, the purpose of my AR study is to employ PPed as a methodology for practice design in a university cross-country team. I draw on the research by Light to (i) become a more effective and holistic coach practitioner and (ii) create opportunities for reflective learning.

METHODS

Action Research (AR) is an ideal method for guiding coach-researchers in situationally specific, contextually responsive and dynamically adaptable coaching (Chapron & Morgan, 2019). AR is a rigorous and iterative research framework of planning, data collection, data analysis, reflection and change (Chapon & Morgan, 2019). Using AR, coaches can frequently "return to their experience to critically examine it with the intention of developing existing knowledge and improving future practice" (Hall & Gray, 2016, p. 366), which is essential to developing coaching expertise (Chapron & Morgan, 2019). In my study, I used two cycles of implementation, data collection and analysis, and reflection to gain an understanding of my coaching performance within my specific coaching context. This provided me with an opportunity for direct, practical development. When applied in a particular coaching context, coaches are immediately able to improve their coaching outcomes. Through this cyclical process, I attempt "to effect desired change by transforming practice as a path to generating knowledge and empowering stakeholders" (Chapron & Morgan, 2019, p. 5). Thus, I employed AR to create new learning experiences and a deeper understanding of the sport when using the PPed approach.

I conducted my research with a large Canadian university cross-country ski team. The team had 28 athletes (11 female and 17 male), ranging in age from 18-25 years and from intermediate skiers to national medalists. As the Head Coach for the team, I was supported by two team captains and two athlete-team managers. I completed two action cycles (AC) during the research period. Both cycles occurred during the competitive season (January 24-28 and February 7-11). There were no competitions during these weeks. Each cycle contained three team practices, two of which were intensity sessions with intervals and the third was a speed and technique session. Practices ranged between 1.5-1.75 hours. Detailed practice plans for both cycles were shared with the athletes on the Sunday morning prior to that week's practices. Eighteen of the athletes on the team attended at least one of the practices in this study, while 13 attended four or more of the six practices. Using a PPed approach, I aimed to create opportunities for reflective learning and discussions with athletes and myself to develop my expertise as a holistic practitioner.

As a pedagogical approach, PPed allowed me to shift my emphasis away from prescriptive plans and models, and de-emphasize the dominant physiological, biomechanical, and psychological components typical in endurance sport training. However, Light and Kentel (2015) implemented PPed with youth athletes whereas as I coached adult cross-country skiers. How would my athletes respond to a coaching style that "requires the coach to take a step back from being in charge and telling players what to do to take on more of a facilitating role" (Evans & Light, 2007, p. 5)? Would the expectations built through the years of competitive training of the athletes be held too firmly? Would these athletes, who have learned through their formative club experiences where the coach has the plan for their success, be open to or accept a different way of being coached? I started by employing Light & Harvey's (2019) three tenets to frame my PPed approach: engaging with the physical learning; asking questions to stimulate thinking and interaction; and using an inquiry-based approach to promote collaboration and exploration.

To create a more engaging physical learning environment, I intentionally created space for social interaction and collaboration. I attempted to integrate scientific principles in each plan using a more learning-centred approach. To this end, I engaged athletes in games and challenges that presented opportunities to have fun while "learn[ing] the content of the practice session" and engaging in thinking, feeling, discussion and reflection to "'learn how to learn' [and build] intellectual self-sufficiency" (Light & Harvey, 2017 p. 272). Each practice began with a free ski warm up segment to allow the skiers to get warm, calm the mind, socialize with teammates, check in with the coach, or review the practice plan. Two of the three weekly practices included a short 5–

10-minute game/challenge to allow the skiers to familiarize themselves with my modified practice approach. For example:

- **The 3-times-up Challenge**: Athletes skied a 150m uphill segment at three different speeds (slow-medium-fast) three times.
- **Stadium Oval and Figure 8 drill**: Athletes skied the oval or a figure 8 on a 200m long stadium loop. Some of the challenges included skiing without poles, holding a 10Ib dumbbell weight in both hands to their chest, or catching and tossing a ball while skiing without poles. Athletes also skied the loop with poles for comparison feel/self-feedback.
- **Classic Technique Turning Drill**: Small groups of skiers followed the leader on an irregularly shaped, flat loop. They use a diagonal stride and negotiated turns with a "toe-turn" technique, which requires finesse, timing and balance.

Warm up was followed by a middle section. For the two technique and speed practices, these included a variety of activities and games, such as:

- **Track Changes**: In partners or groups of three, skiers made a pass on an uphill in classic technique by changing from the right classic track to the left classic track, accelerating past their partner, and returning to the right track following the pass over a gradual 300m hill.
- **Stay on Your Partner's Tail:** This uphill trail segment was about 1km long with many twists, turns, and very short downhills. The leader set a solid pace and skied through the many technique transition segments on the uphill. The leader had to make smooth transitions and maintain speed while their partner tried to match transitions and remain on the backs of the leader's skis.

The skiing venue was windy and cold along with a heavy snowfall and limited grooming. Thus, slight modifications to the schedule were necessary due to the environmental conditions (e.g., trail skiing in the shelter of the forest rather than out in the open). However, this presented the opportunity to practice skiing downhills and cornering in powder (slow) conditions. The rolling terrain with several downhill turns served to challenge everyone's turning and skiing skills. By shifting the emphasis from physiologically focused training and individual achievement in training toward cooperation and support in tactical practice, I aimed to create a more engaging learning environment.

While keeping in mind that becoming skillful in guiding discovery takes time, I employed Light's second PPed tenet of asking questions to stimulate thinking, dialogue, and discovery of effective, individual technique, (Light & Harvey, 2019). To observe how effectively I used questioning techniques was, therefore, an essential aspect of developing my abilities as a coach. For example, in cycle two, when designing interval-based training sessions that included technical and tactical elements (e.g., making a pass, skiing in a

group, and re-connecting with the group), I made detailed notes about my rationale behind each activity and asked specific questions to initiate sharing, reflection, and discussion:

- How did skiing in a close group feel?
- Were there segments of the loop that felt more difficult or uncomfortable? Were there segments that you felt were easier to ski in a close group?
- How can you maintain contact with your group or re-attach on this changing terrain? What do you do/what helps you stay in contact with the group?

Upon completion of each practice, I also wanted to assess my disposition and my ability to think and respond in ways that engaged and challenged athletes using guided reflective questions, such as: How did I react emotionally to the athlete's actions and dialogue? How effectively did I acknowledge athletes and respond? What modifications or different approaches would be more comfortable for me or make it more comfortable?

Light's final tenet required using an inquiry-based approach to "experiment and take chances…understand[ing] that mistakes provide positive opportunities for learning" (Light & Harvey, 2019, p. 142). For example, I created a rhythm and balance warm-up challenge for the athletes that focused on skiing with and without different objects (e.g., one ski pole versus two, skiing with a hand-held weight). I aimed to encourage athletes to understand how their weight and skiing rhythm changed and how they could use these objects to find a better rhythm.

As a coach-researcher, I was primarily interested in how my modified practice structure and activities encouraged exploration and self-directed learning. I, therefore, recorded field notes immediately following each practice in a loose-leaf notebook. I used the following categories to guide my notetaking:

1. structure and organization of practice;
2. description of activities, time, space, etc.;
3. observations of athletes, reactions and responses;
4. successes;
5. setbacks; and
6. personal observations, surprises and comments.

At the end of each action cycle, I compiled my notes according to these categories. My analysis and subsequent reflections on the first cycle shaped the design of my plans for the second cycle. I strove to adapt my responses to the day-to-day interactions with athletes within each cycle to then reflect on and return to practice with subsequent modifications. In this way, I attempted to be more responsive to the complex learning formations between individual athletes and within the team. Finally, I analyzed each cycle individually to identify themes that emerged. I then combined the two data sets to compare the common themes generated in each cycle to examine the effectiveness of

using PPed as an athlete-centred coaching framework to design new, more athlete-centred cross—country skiing practice plans. In the following section, I explore each theme in detail and connect my findings to the academic literature on coaching development and PPed.

RESULTS AND DISCUSSION

Throughout my AR project, I employed a PPed approach to inform an athlete-centred coaching approach in cross-country skiing. In using PPed, I aimed to improve my coaching skills, specifically in terms of practice design, and to gain a better understanding of effective athlete-centred coaching practices. Using PPed to inform my two-cycle AR project enabled me to apply new coaching theories and practices in my specific coaching context. From the analysis of my field notes, three key themes, related to how PPed opened space for new learning for myself and for the athletes I coached, emerged: Resources and Relationality: Coaching Differently; Where Does Expertise Reside; and Awakening the Playful Learner.

Resources and Relationality: Coaching Differently

Early in my planning, I realized I needed to manage space more effectively to provide opportunities for interaction, dialogue, and teamwork. Although I had planned for these changes in cycle one, I quickly realized that this change was more complex to implement than a simple practice schedule:

> Today was a setback. In the 'Oval Drills and Games,' there was not enough space, too many people in the drill at the same time. I become too busy directing to observe and form coherent questions. Questioning is a skill that needs practice. I need to arrange space and time, manage numbers [in order to have the capacity] to listen, observe and be able to use questions for discussion and dialogue (Field Notes, 2023/01/24).

Therefore, to move my coaching role from director to facilitator, I had to solve the issues of space and time in my practice structure to enable the athletes to question, collaborate with their teammates, and gain experience (Light, 2017; Light & Harvey, 2019).

In cycle two, I used space more effectively by having the athletes form small working groups of two (partners) to five skiers rather than working as a single large group. This allowed for better practice flow in cycle two, which gave the time to use questions to encourage deeper thought in practice. I highlighted my field notes "[d]iscussion between intervals was good in the smaller groups" (2023/02/7). This, in turn, allowed me to encourage tactical practice. For example, I suggested to athletes, "[i]n the next couple of intervals, try and drop back slightly and then work to reconnect with the group"

(Field Note, 2023/02/7). I could see the athletes adapting well to these changes through their increased 'on topic' chatter and discussion. In addition, "[u]sing the whiteboard with group lists and times was helpful. The posted group lists with times allowed me to get to the activity, have time to observe, give some feedback, ask questions and layer on new challenges" (Field Note, 2023/02/7).

Better management of space and time also allowed me to expand my role as a coach. In addition to small opportunities for questioning, I more effectively used non-human objects. A drill repeated in both cycles changed from being primarily coach-directed to an explorative, playful game. For example, in one workout, athletes skied a figure-8 loop in small groups of four to five. The focus was on rhythm and maintaining speed through the corners. The various challenges included skiing with poles, without poles, holding a ten-pound dumbbell to the chest, catching and tossing a ball and pursuing/catching up to your partner. As Light and Harvey (2019) emphasized, "[l]earning through experience, reflection and dialogue, drawing on previous experience and knowledge (including scaffolding) to interpret and make sense of learning experiences, and the coach's role as facilitator inform PPed's three core pedagogical features" (p. 159). By designing a challenge to help athletes feel how their movement changed while adjusting to this novel task, I was able to solve some space and time issues that allowed me to utilize resources that stimulated more interaction and dialogue.

Despite significant success in solving space and time issues, there was one outstanding barrier. This comment from my field notes captured my frustrations: "I still felt pressure to stay on time and get to stations for the next planned activity" (2023/02/09). This issue arose as one athlete had difficulty keeping up with the group due to a shoulder injury. The practice plan included a mix of small group and partner challenges as the larger group moved from station to station. The different stations were on a designated loop. Each group paused briefly at each station, allowing for a short discussion with the intention of prompting athletes to explore technique choices with their group or partner. As the team's only coach, I felt obligated to support this injured skier and ensure he was safe and not left behind. As a result, my attention was taken away from the group as a whole, significantly diminishing group discussion. Further, due to this athlete's slower pace, there was less time at the final two stations in the practice. This situation stood out in my field notes as a missed opportunity for advancing greater athlete dialogue and athlete-directed learning. While my plan to use stations and group dialogue appeared to solve space and time issues, this unforeseen issue derailed my practice plan. I felt that in this practice, I was prepared to coach, as Light and Harvey (2019) recommended, by "promot[ing] a positive experience of inquiry and ask[ing] questions about what options or strategies might be appropriate to guide inquiry or discovery when working on particular skills" (p. 21). However, I now wondered if there

were other incidents that diverted my focus from coaching. A quick review of my field notes revealed several issues: athletes joining practice late due to road conditions, an athlete with the wrong poles, a broken binding, a broken ski, athletes who needed to 'touch-up' their wax, a tree blocking a trail and more. To address these issues, I considered how I could be more present in my coaching role as a learning facilitator.

After the second practice in the first cycle, I noted that "[i]f the athletes were more independent to practice, I would have more time and capacity to observe, listen, think and form good questions" (Field Notes, 2023/01/26). Initially, I considered having senior athletes or a team captain provide this needed support. This solution could off-load additional, repeated communications to late-arriving athletes to help problem-solve and support unanticipated needs. However, I perceived that to take these senior athletes away from being athletes can negatively impact their training as well as their contributions to learning within the team practice. I concluded that the addition of an assistant coach (an additional resource) would help me manage training sessions while also enabling me to move toward athlete-centred, holistic coaching practices.

Using PPed changed how I managed space and time more effectively during training sessions. However, guiding the athletes' learning also required me to facilitate discussion through the use of questions. As Jones and Hemmestad (2021) highlighted in their study of the Norwegian Handball Team head coach, I saw coaching as "work that [demanded] careful and insightful thought about constructive practice" to encourage collaborative decision-making, athlete pre- and in-practice planning, and problem-solving, and personal reflection (p. 16). This process of shifting learning from being coach-led to athlete-led challenged to consider where 'expertise' resides.

Where Does Expertise Reside?

Previous research has demonstrated that prescribed 'best' coaching practices (e.g., use of generic periodized plans and prescribed training templates) do not take into account the coach's local context. Jones and Hemmestad (2021) noted that contextualized coaching involves helping athletes be curious about and experiment with movement before reflecting on what they did. This process, by necessity, invited frequent breaks that allowed coaches to embrace uncertainty in their coaching by shifting the coach-athlete dynamic. In using PPed, I invited the skiers to attend to internal sensations while presenting a novel skiing challenge. For example, the dumbbell ski drill asked the skier to attend to internal sensations while manipulating a dumbbell in a novel skiing challenge. In essence, I aimed to facilitate exploration of movement and learning through the use of a non-human object in this drill (Denison, 2022). The hand-held weight brought attention to body position, upper body rotation, and balance. I recorded some observations resulting from using the weight as an instructional device. For

example, "[w]hen the skiers held the weight tighter to their chest, there was less upper body sway. Body position became more centred and over the inside ski, and their feet were more rhythmic" (Field Notes, 2023/01/24). As I became more comfortable in how I used space and time during practices, I could present athletes with questions and challenges that encouraged exploration, risk-taking, and collaboration. However, learning to ask questions presented its own challenges.

The aim of my AR project was to become a more effective and holistic cross-country ski coach and I reminded myself to embrace this challenge. *"Stay positive!"* I encouraged as I packed up cones, balls and dumbbells after the first practice. *OK, there were some successes from that practice.* Sometimes I was discouraged and questioned: *Why had this practice not stimulated laughter, exuberant activity, chatter and excitement as I had envisioned? This new PPed framework, with its athlete-centred practice plans, promised to transform my coaching.* With my skis, poles, and games bag back in the car, I took out my field notebook and began my reflections on practice number one. Sitting in the ski club parking lot on a perfect sunny winter morning, I discovered more success from this first practice than I had initially thought. The setbacks pointed to things that could be improved. *How much latitude did I have with this ski team? Here I am in the first year of coaching a university ski team, we are in the heart of our competitive season, and the coach is bringing balls to practice!* To help with this, I reread Light and Harvey's (2017) article where they cautioned that it takes time for coaches to become skillful questioners to stimulate reflection and critical thinking in a group setting. *Okay. Stay the course.* By presenting unique challenges and posing questions at different times during training sessions, I learned how I could invite the athletes to take more risks, think–maybe fail–discuss, and reflect on their learning.

One way I addressed this was through post-workout discussions, where I gathered the team in a park cabin for 10 minutes. At the end of one interval training session, I initiated reflection and discussion by asking the following questions: What tactics did you use to remain in contact with your teammates during the intervals? With the faster conditions today compared to two weeks ago, how was this challenge different? If you used different skills or techniques, why do you think they were more or less effective? These questions led to "a good discussion…with diverse thoughts" (Field Notes, 2023/02/11) as athletes shared their experiences and the tactics they could use in a race based on what they did in training that day. Instead of transferring my expertise, knowledge was shared and new ideas emerged from these discussions. Therefore, asking questions to promote reflection and discussion among the athletes served to help me reposition myself as a facilitator of learning and a designer of practices that aimed to empower athletes. Asking questions to stimulate thinking and discussion promoted a more collaborative learning environment for me and for the athletes. To do this, the

athletes had to engage with the physical learning environment therefore, I aimed to create physical practices that encouraged more enjoyment and less seriousness. In so doing, I found I was able to awaken the playful learner in my athletes.

Awakening the Playful Learner

As I began to gain comfort in establishing space and time for practices, and presenting athletes with questions and challenges that encouraged exploration, risk-taking and collaboration between teammates, I began to wonder if/how athletes were connecting to these activities and questions. For example, in revising a drill (Oval and Figure-Eight) in cycle two, I included catching and passing a ball while skiing the figure-eight. With each group of five skiers, I randomly tossed two European handball-sized balls to the skiers at different points on the figure-eight while they either skied a straight line, or entered or exited a turn. This required athletes to alter their speed and line of travel to catch the ball, and maintain their speed while tossing the ball back to me. I noted that "[b]all toss for sure was the most fun!" (Field Notes, 2023/02/07). I began to see how I was awakening the playful learner within the athletes.

In cycle two, I also revised an interval session I called *The Ice Storm Workout*. This session fell two weeks before our team's Provincial Championships. Typically, I would consider this to be a key workout emphasizing a high workout volume including some short, faster, hard efforts (Appendix A). The purpose of the redesigning this workout was to promote tactical learning through fun, cooperation, and dialogue in practice. I encouraged the athletes to work as a team through multiple levels of engagement whereas the periodized workout I used previously promoted a singular focus on 'hitting' the prescribed effort. The Ice Storm Workout was more relaxed. Instead of doing repetitive prescribed sets of timed intervals with individual starts and finishes, I created a loop with a common start and finish. I situated these in a wide area that accommodated space for small groups to gather for brief inter-interval discussions and to see other groups completing their practice. I invited the athletes to complete as many loops as possible during the same amount of time (35-45 min) rather than dictating a specific number of intervals each athlete had to complete. Recovery time was also flexible, where I provided a maximum amount of rest time (90 seconds) to give athletes choice about when to start skiing again. During the recovery time, each group had a quick discussion. Throughout this practice, I observed that the athletes were more playful and took more risks. I observed that "[t]he small groups seemed to 'tighten up' rather than split apart" (Field Notes, 2023/02/07). This indicated that the athletes chose to work together and found ways to remain in contact with the group. One athlete expressed hesitation to go with the faster group, yet decided to start with them and stuck in that group. This athlete noted feeling "sloppy on the last couple of

loops, but not working too hard" (Field Notes, 2-23/02/07). By encouraging athletes to challenge the ranking order within the team, I enabled various skiers to take the lead on intervals rather than the typical approach of always following the fastest-ranked person, a problem that is common in individual sports (Mills et al., 2020). Interestingly, this PPed-informed workout took less time (26-33 min compared to 32-34 min in the Periodized Workout), while still emphasizing high volumes of work. I was able to elevate engagement and fun through teamwork and discussion to make learning more meaningful and relevant rather than prescribing specific number of loops (Light & Harvey, 2017).

Through my iterative AR framework approach to coach learning and practice, I was able to increase markedly the 'playfulness' of my practices to awaken a different athlete experience particularly in cycle two. In cycle one, my first attempts to employ a PPed approach created uninspired and mechanical practices; they "lacked enthusiasm, teamwork. There was minimal discussion after intervals" despite my attempts to "stimulate a dialogue" (Field Notes, 2023/02/07). In cycle two, my revised practice designs inspired excitement, exploration, and creativity in the athletes' approach to interval training. I noted how different athletes "ski[ed] the downhills so fast," "[had to] double pole to get through the group," and thought "the loop is fun" (Field Notes, 2023/02/07). Without the iterative cycles of planning, implementing, note-taking and reflection, I would have been frustrated and perhaps abandoned my pursuit to transform my coaching practices and challenge myself to become a more athlete-centred coach.

In summary, AR provided me with an excellent opportunity to grow personally and as a coach. To challenge my current coaching practices, I chose to employ PPed to explore a more holistic approach to coach a varsity cross-country ski team. I learned to adjust my role to become a facilitator and designer of learning experiences. This approach encouraged me to use the space, training time, and resources available in different ways, allowing me to see the opportunities coaching-as-facilitating can have on athletes' engagement during training. Fundamental to my project was the idea that athletes possess valuable knowledge and expertise. By fostering a playful learning environment, together, the athletes and I were able to unlock an endless source of learning potential.

CONCLUSION

Current coach education programs are based on reductionist sport science models (Bjørndal et al., 2022; Dowling et al., 2020; Kiely, 2012, 2018). Coaching manuals and supporting resources (e.g., one-size-fits-all training templates, periodized pathways, and training benchmarks) to monitor and measure athletes' progress are typical of formal

and non-formal coach education (Bjørndal et al., 2022; Dowling et al., 2020; Kiely, 2012, 2018). Denison (2023) highlighted how these practices in individual sports like cross-country skiing act in ways that define "right" or "best" ways to coach skiers (p. 13). As a new coaching approach, PPed allowed me to move away from reductionist sport science models emphasized in formal and non-formal coach education (Bjørndal et al., 2022; Dowling et al., 2020; Kiely, 2012, 2018). Using PPed enabled me to shift my focus from the prescribed training methods that "influence what cross-country ski coaches *believe is necessary* to do to design their skiers' training programs" (Denison, 2023, p. 13, emphasis mine) to a facilitated approach, where I guided athlete learning by creating an engaging physical environment, asking questions to promote self-awareness, and designing activities that encouraged experimentation.

Through the detailed process of AR, I strove to improve my efficiency as a coach and change my coaching process to become more athlete-centred. PPed effectively challenged me to utilize resources in different ways to increase athlete engagement. Through this, I aimed to illustrate the idea that athletes possess valuable knowledge and expertise, and that by fostering a playful learning environment, I could unlock an endless source of learning potential. Ultimately, AR enabled me to see the potential "cracks" in my traditional training sessions, allowing me to step away from physiologically-focused, coach-led practices and actualize a new coaching approach.

Ring the bells that still can ring
Forget your perfect offering
There is a crack, a crack in everything
That's how the light gets in. (Cohen, L., 1992)

Through practice designs that presented the athletes with multiple opportunities for collaboration, a "crack" slowly opened. I used modified team games, like soccer and Nordic Handball (which are familiar to young skiers), to change the emphasis of various drills. This allowed the playful learner to emerge in the athletes and in my own practice design. The awakening of playfulness within the varsity athletes in my cross-country ski program following just two weeks was encouraging. Could further exploration of playing modified team games on skis with this university ski team lead to further playfulness and uncover additional benefits through athlete collaboration?

The AR process of planning, action, analysis, and reflection helped "the light get in" freeing me to use new resources and encourage the development of new relations. I began to "hear" the bells ring following cycle one and be more creative in cycle two. This, in turn, challenged me to reconsider where expertise lay within the training environment and awaken the playful learner in my athletes and in myself. Bjørndal et al. (2022) argued that coaches need to take risks to change their coaching practices, specifically "learn[ing] to break free of prescriptive and well-defined approaches, accepting instead the potential

learning and development opportunities offered through more flexible, exploratory approaches" (p. 233). I took a risk by employing a new pedagogical approach to help me create a more athlete-centred learning environment by using non-conventional equipment. In so doing, I challenged myself to think differently about skiing techniques and racing tactics. This facilitated experimentation and discussion among athletes and coaches. The systematic approach of AR pushed me to make my intentions clear through my post-workout and post-cycle reflections.

Learning how to develop my ability to ask questions to generate dialogue and thinking using a PPed approach was essential to changing my coaching. Cope and Lowe (2017) stressed that "rather than focusing on developing coaches' knowledge of what to coach, coach educators should think about developing coaches' knowledge of how to think" (p. 189). PPed continually challenged my thinking about my coaching practices and how I could use the resources available.

In summary, combining my own development as a coach with an AR research project was productive; this process enhanced my coaching skills and presented new learning opportunities for me to explore athlete-centred coaching. AR provided an effective framework to develop reflective practices to bridge the theory-practice gap so common in formal and nonformal coach education. Other researchers have used mentors to support the further development of coaching expertise. For example, Evans and Light (2007) completed a Collaborative Action Research (CAR) study in rugby, where a pedagogical expert supported the learning of the less experienced coach. Perhaps using CAR as a potential method to support the development of athlete-centred coaching practices could be utilized to develop the expertise of other cross-country ski coaches. Based on my research, I am confident that PPed is a positive way I can enhance the practice environment within the specific contact of a university ski team. I am excited to see what playfulness and learning will be uncovered with this team in coming seasons.

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Appendix A

Comparison of a 'typical' periodized workout and a 'repacked' PPed workout.

	Periodized Workout	**PPed Workout**
Intent of practice	A physiology focus, structure time on and recovery, prescriptive effort	A holistic approach is encouraged collaboration, individual skill challenge and tactical development, exploration and social learning
Summary	Zone 3 - Zone 4 workout with a total interval time of 32 to 34 min: Set 1: 4X6min - zone3 with 2min rest, 4min break before Set 2 Set 2: 3 to 4-5X2min - zone 4 with 3 min rest between each.	35 to 45min continuous: 2 loops, 1 loop, 1 loop, continue/short break between loops
Notes to athletes		Intervals will have two or three wave starts. I will have groups stop on Boulevard and have a brief discussion during recovery time. We will use flex recovery time (1min to 2min) following each interval.

Verbal instructions		I want you to practice skiing in a group for this workout. Increase your comfort in a group, try making passes, practice staying in contact or reconnecting with the group, and make it fun. The loop will be between four and a half and five minutes; recovery time is flexible–enough for a short group discussion with me.