A review of the academic research relevant to future developments of Positive Coaching Scotland

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26th June 2015

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Background

PCS began in 2008 with a 2 year pilot programme involving five local authorities and the Scottish Football Association. A subsequent partnership with **sport**scotland has enabled successful national implementation through local authorities and sport governing bodies. Based on the Positive Coaching Alliance (PCA) programme, Positive Coaching Scotland (PCS) is a cultural change programme that aims to create a positive environment for young people in sport. PCA was formulated to help address the trend of drop out in American youth sport, attributed to negative sporting experiences and the influence of the win-at-all-costs mentality prevalent in adult, professional sport. Central to PCS are three core concepts: (i) Redefining winner (Mastery), which focuses on striving to win, but not at all costs, and continuing to learn and develop; (ii) Filling the emotional tank (Developing Confidence), which focuses on young people's psychological and emotional development, in particular confidence and self-esteem; and, (iii) Honour our sport (Respect), which focuses on respect for the sport and those involved in it. The programme aims to educate key influencers in sport such as club leaders, coaches, parents, and teachers, including young people themselves with the stated mission of PCS as: *Developing young people to be winners in Sport and Life.*

It is timely that an up-to-date literature review be developed to inform further developments of the programme for a number of reasons including the:

- success of the PCS programme in Scotland to date
- continued investment in the programme
- volume of research conducted relevant to PCS since those included in the existing literature review (approximately 15 years' worth).

Introduction

There is a widely held belief that sport participation provides an ideal environment for young people to develop skills and attitudes that are valuable in adult life (Scottish Government, 2003; Holt & Sehn, 2008). As an area of research this is referred to as positive youth development (PYD). PYD focuses on fostering young people's growth and competencies rather than curbing problems and deficits (Larson, 2000). Sport is an ideal setting for this development because sport is a pursuit that many young people choose to participate in and also because of the interactive, emotional, and socially involved nature of sports (Danish, Forneris, Hodge, & Heke, 2004; Fraser-Thomas, Côté, & Deakin, 2005; Hellison, Martinek, & Walsh, 2008).

Research comparing sport participants with non-participants provides support for sports positive contribution to young people's lives. Findlay and Coplan (2008) conducted a yearlong study with 201 Canadian school children with an average age of 10 years. This study found that sports participants displayed significantly higher levels of positive affect than their non-sport counterparts. Additionally, sports participants also displayed significantly higher levels of general well-being than their non-sport counterparts. Valois, Zullig, Huebner, and Drane (2004) investigated the relationship between physical activity and life satisfaction using a sample of 4,758 American high school students. Results of this study indicated that playing on a sports team inside or outside of school was positively related to students' life satisfaction.

In Scotland, the findings from the Scottish Opinion Survey 2005-2007 indicate that 90 per cent of 8 to 15 year olds participate in sport at least once a month (**sport**scotland, 2008) - this extrapolates to approximately 434,000 young people. However, this survey also shows that participation rates decline with age: for those aged 8-11 years, 94 per cent participated in sport, dropping to 89 percent for 12-15 year olds and still further to 69 per cent of 16-24 year olds. This pattern is a familiar one to

most Western societies as lifestyles and leisure preferences change (Scottish Executive, 2007). The measurable results of sports participation range from the obvious, positive health and education outcomes to less tangible, but equally valuable, cultural and social consequences (for a recent review of the impact of sport see Coalter, 2013). It is the recognition of some of these benefits, along with a desire for an improved quality of environment and a more skilled workforce, that makes PCS as a key programme for Winning Scotland Foundation and **sport**scotland.

Current research suggests that coaches' and parents' actions are related to young peoples' development and experiences in sport (Gould, Flett, & Lauer, 2012; Lauer, Gould, Roman, & Pierce, 2010; Occhino, Mallett, Rynne, & Carlisle, 2014; Vella, Oades, & Crowe, 2012). Ensuring these actions create positive experiences and outcomes for young people is where Positive Coaching Scotland (PCS) can have, and has already had, a critical role to play in Scottish sport and society. The principles of the PCS programme: Redefining 'winner', Filling the emotional tank, and Honouring our sport, provide valuable direction and understanding for key influencers about their roles in young people's sporting experiences and development. In the following sections the theory and research relevant to PCS is reviewed and used to develop recommendations for further development of the PCS programme.

Approach

Aims

The aims of the project are outlined below:

- To explore the academic research for evidence-based insight to inform PCS developments.
- To identify, analyse, and present evidence which updates the research base for the PCS programme.
- To include an examination of relevant research in areas of particular interest to the client including (Scotland, UK, positive learning environment, age and stage of development, women/girls and others with protected characteristics).

Stages of project

To explore the research relevant to future developments of PCS a systematic literature review was conducted. This comprised three stages:

Stage 1: Examined WSF's existing PCS and PCA literature reviews.

Stage 2: Conducted a systematic literature review of the latest research.

Stage 3: Formulated the written report including key findings, recommendations about how the findings can inform PCS development, areas of debate and evidence gaps, and a full list of references.

Literature review

A systematic review of existing research aims to identify, appraise, select and synthesize all high quality research evidence relevant to a particular topic. The review included the following steps:

- develop clear research inclusion and exclusion criteria
- identify key areas of research
- identify relevant key words for research database searches
- search relevant academic databases for potential research
- source research to be included in the review
- read and analyse the research

- establish findings from the review

Research database. We used StirGate as the primary search tool. StirGate is the University of Stirling library resource which enables keyword searches to be undertaken on 100 databases simultaneously. Databases included SPORTDiscus, British Education Index, ERIC, PsycINFO and MEDLINE.

Search Terms. In order to identify relevant research in sport, searches using combinations of key terms were undertaken. These search terms included but are not restricted to:
- positive youth development, life skills;
- moral development, moral behaviour, character;
- self-perceptions, confidence, self-esteem;
- motivational climate (coaches, parents, peers);

and included relevant protected characteristics:
- age
- disability
- sex
- race
- religion or belief
- sexual orientation

Key review articles and chapters. As part of the systematic literature review, we identified recently published articles and chapters that reviewed research in the areas relevant to the PCS literature review. These articles are noted separately in Appendix A.

Existing research by University of Stirling. We also used existing work related to our previous evaluation of the PCS programme where an initial examination of 'the fit' between PYD and PCS principles was developed (PCS Evaluation Final Report, 2013) and current work related to PYD in youth sport in Scotland.

Analysis strategy
Specific inclusion/exclusion criteria were used to determine relevant articles for the review. These criteria were: (a) published in English; (b) published between January 200 and May 2015; (c) articles must be original research (except in the case of review articles and chapters); (d) papers must be published in peer-reviewed journal; (e) full-text article available.

Each article was read and key information summarised. Key information recorded included: participants' characteristics, country where study took place, social agent that was the focus of the study, theoretical approach/concepts examined, and key findings. Summaries were organised into tables relating to the focus of the research. This enabled an overall summary for that topic area to be developed and implications for PCS to be identified.

Summary and presentation of findings
The presentation of findings is divided into five topic areas:
- Positive Youth Development and Life Skills
- Sport Participation Stages
- Fostering Mastery
- Developing Confidence
- Facilitating Respect

Within each topic an overview of the research included in the review is provided, key findings are presented, and implications for PCS are discussed. Research that is UK- and Scotland-specific, relates to age and stage of development, women/girls participation and other protected characteristics is also identified.

Literature Review Findings

1. Positive Youth Development and Life Skills

In addition to contributing to young people's sporting abilities and health, there is a growing interest in the connection between sport participation and young peoples' positive psychosocial growth (Eccles & Gootman, 2002; Fraser-Thomas, Côté & Deakin, 2005; Petitpas, Cornelius, Van Raalte & Jones, 2005; Larson, Hansen & Moneta, 2006). A particularly influential development in this area has been the recent emphasis on 'positive youth development' (PYD). The area of PYD fits well with PCS. The main tenet of PYD is the idea that young people are viewed as 'resources to be developed' rather than 'problems to be solved' (Holt, Sehn, Spence, Newton, & Ball, 2012). PYD primarily focuses on three key areas (Jones, Dunn, Holt, Sullivan, & Bloom, 2011):

1. developing programmes that promote young peoples' development
2. enhancing young peoples' health and well-being
3. developing young peoples' life skills.

PYD frameworks

Several researchers in the area of youth development have proposed frameworks for the promotion of PYD. The majority of these frameworks have focused on the desired outcomes of PYD. Benson and colleagues (Benson, 2006; Benson, Leffert, Scales, & Blyth, 1998; Benson, Scales, Leffert, & Blyth, 2000) have proposed their developmental assets framework. Within this framework, Benson (2006) described 40 developmental assets which he suggested are building blocks for healthy development. These assets can be divided into external assets which represent the strengths within a young persons' environment and internal assets which refer to the strengths that the young person possesses:

- External Assets
  - **Support** which includes care and support from family, school and the community.
  - **Empowerment** which entails feeling valued and able to contribute to others.
  - **Boundaries and Expectations** which includes understanding and respecting family, school, neighbourhood boundaries and having positive role models and peer influence.
  - **Constructive Use of Time** which involves engagement in creative activities and programmes.

- Internal Assets
  - **Commitment to Learning** which includes achievement motivation and engagement in school.
  - **Positive Values** which entails being caring, honest, responsible, and disciplined.
  - **Social Competencies** which include interpersonal competence, planning and decision making, and conflict resolution.
  - **Positive Identity** which includes feelings of self-esteem, purpose, personal agency and positive outlook.

Large scale research with 148,189 American adolescents suggests that these assets promote thriving behaviours and reduce the likelihood of risky behaviours in young people (Benson, 2006).

Specifically, the number of assets a young person possesses is positively related to thriving behaviours such as school success, helping others, valuing diversity, maintaining ones' health, showing leadership, and overcoming adversity. Additionally, the number of assets is negatively related to alcohol and tobacco consumption, drug use, depression or suicide, antisocial behaviour, and school problems. Although the Profile of Student Life Survey (Search Institute, 2012) has been used to assess the 40 assets within young people lives, there is currently no reliable or valid measure of the 40 developmental assets that is specific to youth sport.

Another framework of PYD is the 5C's model of positive youth development (Lerner, Fisher & Weinberg, 2000; Lerner, Brentano, Dowling, & Anderson, 2002). The 5C's represent the desired outcomes of youth development and include:

- **Competence** is a positive view of one's abilities in specific domains such as physical, social, and academic.
- **Confidence** is an internal sense of certainty an individual possesses about his/her ability to be successful (e.g., general self-esteem or task specific self-efficacy).
- **Connection** is the perception that one has positive bonds with other significant people including peers, coaches, and parents.
- **Character** reflects a respect for societal rules and possession of standards of 'correct' or moral behaviour (e.g., fair play or prosocial behaviour).
- **Caring** is a sense of empathy and is commonly viewed as a goal of developing character.

Lerner, Almerghi, Theokas, and Lerner (2005) suggest that collectively these five outcomes will lead to the 6th 'c' of PYD; contribution, which involves young people who contribute positively to wider society. Although measures have been used to assess the 5C's within youth development programmes (e.g., Phelps et al., 2009).

Sport and PYD

It has been argued that sport programmes are uniquely positioned to foster PYD due the value some young people place on sport, their motivation for sport participation, the regular and on-going engagement, and the opportunities to challenge oneself through participation (Fraser-Thomas et al, 2005; Gano-Overway, Newton, Magyar, Fry, Kim & Guivernau, 2009; Hansen, Larson, & Dworkin, 2003; Petitpas et al., 2005). However, examinations of the association between participation in youth sport programmes and PYD provides a less convincing view (Eccles & Barber, 1999; Ewing, Gano-Overway, Branta, & Seefeldt, 2002; Fraser-Thomas et al, 2005; Larson et al, 2006). In response, researchers in sport (Fraser-Thomas et al., 2005, Petitpas et al., 2005) have suggested that for effective development to occur:
- young people must be engaged in a desired activity in an appropriate context
- participation should be on a regular basis over an extended period of time
- activities must become increasingly complex
- activities should involve caring adults and a positive social group.

Furthermore programmes should:
- provide experiences that promote life skills and development in an intentional and systematic manner
- focus on effort and learning within a mastery motivational climate
- be delivered by selected and trained individuals.

Research on youth development programmes can also inform us of the programme features that are important for youth development to occur. According to the United States National Research Council Institute of Medicine (2002), eight features of the climate influence development:
1. physical and psychological safety
2. appropriate structure

3. supportive relationships
4. opportunities to belong
5. positive social norms
6. support for efficacy and mattering
7. opportunities for skill building
8. integration of school, family, and community efforts.

Therefore, rather than mere participation in sport fostering life skills, it appears that the structure of the programme and the quality of adult-child social relationships and interactions that are important for positive youth development.

Sport and Life skills

Despite their popularity within mainstream psychology, the 40 developmental assets and 5C's have not been widely adopted within youth sport. This is particularly the case due to the lack of measurement tools that can specifically assess the developmental assets or 5C's within youth sport. Instead the youth development through sport research has focused on life skills development (Holt, Black, & Tink, 2006; Gould & Carson, 2008). Life skills have been defined as the skills required to deal with the demands and challenges of everyday life (Hodge & Danish, 1999) and equate to the life lessons spoken about in PCS. A great deal of research has shown that young people are learning a variety of life skills through sport, including: initiative, teamwork, social skills (Holt et al., 2006), goal setting, personal responsibility, respect, leadership (Holt, Tink, Mandigo, & Fox, 2008), work ethic, commitment, discipline, perseverance, time management, communication, independence, resilience, self-awareness, assertiveness (Fraser-Thomas & Côté, 2009), mental toughness, decision making, organisational skills (Strachan, Côté, & Deakin, 2011).

In recent years, Johnston, Harwood, and Minnitti (2013) reviewed 34 research papers pertaining to positive youth development through sport. Although 113 different terms were identified for positive youth development outcomes, the most commonly cited terms were: self-esteem, personal responsibility, motivation/effort, teamwork, goal setting, time management, emotional self-regulation, communication, social skills, leadership, problem solving, decision making, and planning. The importance of this study lies in the fact that it informs us of the key life skills young people learn through sport.

Sport-based life skill programmes

Several programmes aimed at teaching young people key life skills have been developed for the sporting domain. Prominent programme within sport include:

Sport United to Promote Education and Recreation (SUPER).
Developed by Danish (2002), this programme aims to teach young people the following life skills: communication, goal setting, self-talk, relaxation skills, managing emotions, and confidence. Integrating life skills development with sport skill development, this programme consists of eighteen 20-30 minute sessions designed to teach the life skills. Research by Papacharisis, Goudas, Danish, and Theodorakis (2005) investigated the effectiveness of an abbreviated eight session version of the SUPER programme with four youth soccer and volleyball teams in Greece. As compared to the two teams which functioned as control groups, the two teams receiving the SUPER programme reported higher belief in their ability to set goals, solve problems, and think positively.

First Tee.
This programme is an application of the SUPER programme to golf. Weiss, Bolter, Bhalla, and Price (2007) assessed the effectiveness of The First Tee programme in the USA. Results of this research claim a 47% improvement in participants' knowledge and understanding of the life skills and parental reports in their child's communication, confidence, responsibility, school grades, and social

skills. Brunelle, Danish, and Forneris (2007) also assessed the First Tee Programme with 100 American youth. From pre-test to post-test, participants scores on social responsibility, social interest and goal knowledge increased. A six-month follow-up indicated that the programme had a positive impact on participants' prosocial values, empathetic concern and social responsibility. In the UK, First Tee is called Passport for Life.

Living for Sport
A U.K. based programme focused on 'at-risk' youth (Sandford, Armour, & Duncombe, 2008). This programme used sport to improve the life skills of participants. Research on these programmes indicated that they improved the confidence, communication, teamwork, leadership, and behaviour of participants (Sandford et al., 2008).

Teaching Personal and Social Responsibility
Another U.S. based programme which was developed by Hellison (2003). This programme looks to teach young people: teamwork, leadership, self-direction, effort, and respect for others. Hellison and Walsh (2002) reviewed 26 American studies which used the Teaching Personal and Social Responsibility model and concluded that the programme improves young peoples' self-worth, self-direction, self-control, effort, teamwork, communication and interpersonal relations.

Gould and Carson (2008) have also developed a model for coaching life skills through sport. This model includes five key elements:

1. Pre-existing make-up of the athlete (e.g., the athlete's personality)
2. Sport participation experience (e.g., the coaching climate, task versus ego orientation)
3. Explanations of personal development (e.g., how a positive identity and confidence are developed) and life skills development (e.g., what life skills are learned and how)
4. Positive outcomes (e.g., intellectual and psychosocial) and negative outcomes (e.g., dropout and burnout)
5. Transferability (e.g., the ability to use life skills in other life domains).

Coaches, PYD, and Life skills
Research indicates that coaches value and see themselves as responsible for facilitating PYD (Gould, Collins, Lauer, & Chung, 2007; McCallister, Blinde, & Weiss, 2000; Vella, Oades, & Crowe, 2011):
- Interviews with participation coaches of adolescent athletes in Australia revealed that these coaches felt responsibility for outcomes consistent with Lerner's 5Cs as well as fostering enjoyment, creating a positive interpersonal climate and facilitating the development of life skills such as goal-setting, communication, leadership and interpersonal skills (Vella et al, 2011).
- Gould and colleagues (2007) interviewed experienced trained high school coaches about how they developed life skills in their athletes. These coaches provided clear strategies that they employed to teach skills. These included care and respect for people and standards, communication, motivation, setting and achieving goals, adopting a positive approach, and life skills transfer. Furthermore, the findings indicated that the coaches did not view the coaching of life skills as separate from their general coaching strategies and personal development of players was a priority.
- In contrast, in their interviews with volunteer coaches with no formal training, McCallister and colleagues (2000) found that the coaches recognised the value of teaching a wide range of values and life skills to athletes. However, the coaches struggled to explain how they taught these skills suggesting that the coaches felt the skills were taught automatically through participation.

This research indicates that coaches value teaching life skills through sport; however, whether this is an intentional strategy for coaches may depend on their training and experience.

Recent studies have highlighted how coaches look to teach life skills through sport:
- Gould, Collins, Lauer, and Chung (2007) interviewed 10 outstanding American football coaches on their teaching of life skills through football. This research suggested that treating players as young adults, treating officials with respect, listening to assistant coaches, helping players to set goals, and speaking to players about the life skills they learn are all ways a coach can look to develop their athletes' life skills.
- Strachan and colleagues' (2011) research with five Canadian youth sport coaches suggested that it is important that coaches create opportunities for their athletes to develop their life skills. Such opportunities include the chance to mentor younger athletes, set up training activities, lead warm-up activities, and ask questions of the coach.
- A study with 22 Canadian swimmers suggested that coaches should teach and guide athletes' goal setting, demonstrate a strong work ethic for athletes to follow, provide 'homework time' on trips to promote time management skills, demonstrate good communication skills, and provide opportunities for athletes to develop their independence (Fraser-Thomas and Côté, 2009).
- A further study by Camiré et al. (2012) was conducted with 9 Canadian coaches and 16 student-athletes. The student-athletes believed that opportunities to exhibit life skills (e.g., chance to mentor younger athletes) and the modelling of skills (e.g., the coach demonstrating good leadership skills) were important determinants of whether they developed life skills through sport. The coaches suggested that 'teachable moments' (e.g., leadership skills can be demonstrated when a team is losing) and asking players to think about the transfer of the skills they've learned through the sport are two ways that life skills can be developed in young people.

Other cross-sectional studies have used quantitative measures to investigate the relationship between coaching factors and life skills development. A series of studies were conducted by Gould and Colleagues (2010, 2011, 2012) provided insight into this relationship:
- A study by Gould and Carson (2010) with 200 former American high school athletes found that the coach behaviours of establishing positive rapport, goal setting, developing competition strategies, and talking about sports lessons were positively related to athletes development of emotional regulation, cognitive, and feedback skills.
- A second study with 297 American high school athletes found that coaches who taught athletes about mental preparation, emphasised hard work, developed positive rapport, emphasised goal setting, and promoted competition strategies were more likely to have athletes who learned about emotional regulation, goal setting, and effort (Gould & Carson, 2011).
- A third study by Gould, Flett, and Lauer (2012) with 239 American youth sport participants found that a mastery-oriented and caring climate was positively related to participants developing their personal and social skills, cognitive skills, goal setting, and initiative.
- Research involving 510 Canadian youth sport participants found that a task climate, affiliation with peers, self-referenced competency, and effort expenditure were important predictors for the development of personal and social skills, cognitive, goal setting and initiative (MacDonald et al., 2011).
- Research involving 455 Australian youth soccer players found that coach transformational leadership behaviours (individual consideration, intellectual stimulation, inspirational motivation, appropriate role modelling, fostering acceptance of group goals, and high performance expectation) and the coach-athlete relationship were related to the

development of personal and social skills, cognitive skills, goal setting, and initiative (Vella, Oades, & Crowe, 2013).

Two studies have examined interventions designed to help coaches and parents foster PYD for their participants:

- Falcão, Bloom, & Gilbert (2012) examined coaches' perceptions of a coach education programme designed to promote youth development outcomes. The coaches reported an increase in knowledge and a better understanding of their players. Participants perceived that the activities promoted cohesion and communication, while also contributing to the development of athlete competence, confidence, connection, and character/caring.
- Harwood (2008) developed and delivered an education programme based on a positive youth development agenda with parents, players (9 to 14 years), and coaches in a professional football academy in Great Britain. The programme for parents and players (N=95) focused on education of commitment, communication, concentration, control, and confidence (5Cs). The coaches' (N=6) intervention related to integrating the 5Cs in training and practice situations. Note. The 5Cs in the Harwood study are different to Lerner's and colleagues (2000; 2002) conception of the 5Cs. They are more closely associated with mental skills training.

Scotland: Sport and Life skills

Within Scotland, Cronin and Allen (2015) have investigated life skills development through sport across several studies. One study examined the development of life skills through sport using a sample of 202 (127 males and 75 females) Scottish youth sport participants. Participants were between 10-19 years with an average age of 13.4 years. Thirteen different sports were represented in the sample, with the main sports including: swimming, tennis, basketball, athletics, rugby, and soccer. Participants played sport for an average of 4.7 hours per week and had played their sport for an average of 5.5 years. Descriptive statistics revealed that participants learned 'quite a bit' (3 on a 1-4 scale) about personal and social skill, goal setting and initiative through play sport. Results also showed that participants scored highly on indicators of self-esteem, positive affect, and satisfaction with life. Regarding the coach, this study showed that coach autonomy support was positively related to athletes developing their personal and social skills, cognitive skills, goal setting and initiative. Additionally, coach autonomy support was positively related to participants' self-esteem, positive affect, and satisfaction with life. In practice, this means that Scottish youth sport coaches should look to display the following autonomy supportive behaviours: listen to athletes, allow athletes to share their feelings, allow athlete input into the training routine, encourage athletes to ask question, encourage athletes independence and initiative, and display confidence in athletes (autonomy support is discussed in more detail later).

Cronin and Allen (in prep.) have also conducted 4 separate studies involving 598 Scottish youth sport participants to develop and validate a sport-specific measure of life skills development through sport. The Life Skills Scale for Sport (LSSS) measures whether youth sport participants feel they are learning the following life skills through sport:

- teamwork
- goal setting
- time management
- emotional skills
- interpersonal communication
- social skills
- leadership

- problem solving and decision making.

A further study has also assessed whether Scottish youth sport participants are developing these life skills through sport. This study used a sample of 326 Scottish youth sport participants who took part in the following sports: soccer, dance, rugby, hockey, basketball, athletics, gymnastics, swimming, taekwondo, horse riding, badminton, and golf. The sample ranged in age from 11-18 years with an average age of 13.8 years and included 189 male and 137 female participants. Participants took part in their sport for an average of 4.1 hours per week and had been involved in the sport for an average of 5.7 years. Results revealed that participants were learning 'a lot' (4 on a 1-5 scale) about teamwork, goal setting, interpersonal communication, social skills, and leadership through sport. Participants rated themselves as learning slightly less about time management, emotional skills, and problem solving and decision making. Participants also scored highly on self-esteem, positive affect and satisfaction with life measures. A key finding from this study was that coach autonomy support was related to the development of each of the eight life skills, and athlete self-esteem, positive affect, and satisfaction with life. Again, this supports the importance an autonomy supportive coaching climate within Scottish youth sport.

Scotland: PCS and PYD

The PCS programme has a clear fit with a PYD framework. The three central principles of the programme map to a number of the developmental assets and 5Cs identified by PYD researchers. These associations are summarised in Table 1. In addition, the programme also encompasses many of the recommendations for effective PYD-focused sport programmes including an intentional emphasis on PYD, development of a coach-created mastery motivational climate, and specific training for key influencers.

Table 1. PCS principles, components, and PYD concepts

PCS Principle	Components	Developmental Assets	5Cs
Honour our game	**ROOTS** **R**ules: play by the rules always respect **O**pponents **O**fficials **T**eam mates **S**elf	Boundaries Empowerment Positive values Social Competencies	Character Caring
Redefine winner	**ELM** **E**ffort: encourage effort irrespective of outcome **L**earning: every experience is an opportunity to learn **M**istakes: learn from mistakes	Commitment to Learning High expectations Empowerment	Competence Confidence
Fill the emotional tank	**E-TANK** **E**ncouragement: always encourage **T**each and Discuss: teachable moment for life lessons **A**ppreciate effort: praise effort regardless of outcome **N**on-verbal support: encourage and build confidence **K**now how to praise: give truthful and specific feedback	Positive Identity Support Positive values	Confidence Connection Caring

Recognising the fit between PCS and PYD also connects PCS to wider national agendas. PCS clearly contributes to the Scottish Government's vision for sport as an activity children enjoy in and out of school and stay involved throughout their lives (Scottish Executive, 2007). Features of this vision that are consistent with the PCS philosophy and programme include:

- Delivering experiences which are enjoyable and supported by well-trained coaches;

- Encouraging parents to support their child's sporting development; and

- Developing and supporting well organised clubs which provide an inclusive, enjoyable and developmental environment.

In addition, PCS can contribute to several of the Scottish Government's National Outcomes such as young people, communities, children, national identity, and healthier lives (Scottish Government National Outcomes, 2007). One clear example of the association with national outcomes is the potential for PCS to assist in meeting the Young People national outcome. The outcome states that "our young people are successful learners, confident individuals, effective contributors and responsible citizens" (Scottish Government National Outcomes Young People, 2007). This outcome emphasises the role of the Curriculum for Excellence (CfE) both in and outside schools. The principles and values of PCS are consistent with those advocated by CfE, particularly the health and well-being strand, and as a result have the potential to complement work in schools and extend CfE beyond the school gates and into the community. For example, running PCS workshops within Active Schools clusters.

Another example of an association with national outcomes is with the Community outcome. The outcome states that "We have strong, resilient and supportive communities where people take responsibility for their own actions and how they affect others." Furthermore, the Government suggest that "communities that are tolerant, and where people support each other, provide a better quality of life" and "Government cannot create strong, resilient and supportive communities on its own, but it can take the lead in creating the conditions in which these communities can develop and flourish. We can do this through investment, by promoting positive behaviour…" (Scottish Government National Outcomes Communities, 2007). The cultural change focus of PCS and the key principles articulate with and contribute to the achievement of these Government priorities.

Conclusion

From the above research, it is evident that a great deal of research has focused on the role of the coach in facilitating life skills development in youth sport participants. Based on this evidence, Table 2 outlines the key strategies coaches can implement to promote life skills development in their athletes. However, little research has been conducted into the role of both parents and peers in facilitating life skills development through sport. Given the significant role both parents and peers play in the youth sport experience, it is likely that these two parties also play a role in life skills development through sport. For example, it is likely that positive peer relations within sport fosters social skills in participants. Nonetheless, future research is necessary to assess the role of parents and peers in life skills development through sport.

Table 2. Coaching strategies to facilitate life skills development

Coaching Strategy	Practical Example
Treat players as young adults	Allow athletes some input into the coaching session
Model important life skills such as respect, sportspersonship, leadership, communication, and work ethic	Treat both opponents and officials with the utmost respect
Listen to players and other coaches	Get athletes to suggest one area they would like to work on during practice
Teach players to set goals	Helped players to set challenging goals to improve their performance
Emphasise the life skills players are learning through sport	At the end of each session, emphasise one life skill players developed during the session
Encourage athletes to mentor other younger athletes	Set up a coaching event where older players coach a younger team
Get athletes to help set up the training environment	Each week, assign duties to 3-4 athletes who help set out the training equipment
Encourage athletes to ask questions	After each drill, allow time for athletes to ask questions about their performance of the drill
Provide opportunities for 'homework time' on trips	Set aside one hour where athletes work on their homework in their hotel room during road trips
Capitalise on 'teachable moments' to show how players can demonstrate life skills	At half time, speak to players about how the losing score line provides them with an opportunity to demonstrate their character and resilience
Explain how life skills can transfer to other settings such as academia, the workplace, and personal relationships	After competition, emphasise how the teamwork skills displayed on the field can also be used when carrying out group work in school
Develop positive rapport with athletes	Show a genuine interest in athletes activities outside of sport
Create a mastery-oriented and caring climate	1. Emphasise the importance of personal improvement rather than comparison with others 2. Take time to get to know individual players and show them that you care about their well-being
Encourage affiliation with peers	Organise group trips to sporting events to encourage athletes to socialise
Emphasise the importance of effort and personal improvement	After a competition, highlight the areas where athletes have made personal improvements
Display the six transformational leadership behaviours of individual consideration, intellectual stimulation, inspirational motivation, appropriate role modelling, fostering acceptance of team goals, high performance expectations.	1. Help each individual athlete to set personal goals 2. Ask players to think about how they can improve their performance strategies 3. Create an inspiring vision that athletes motivates athletes to practice/perform 4. Model behaviours such as sportspersonship and respect 5. Conduct a team meeting where team goals are agreed upon 6. Let athletes know that you have high expectations for their performance
Develop a positive coach-athlete relationship	
Display autonomy supportive behaviours such as providing athletes with choices and options, explain why a drill is necessary, acknowledge athletes' feelings and perspectives, provide opportunities for athletes to develop initiative and independence, and provide positive competence feedback to athletes.	1. Get athletes to select one drill they'd like to do during the session 2. Give examples of elite athletes who use the drill for improving their performance 3. Obtain regular anonymous feedback from athletes 4. Allow players to organise a team outing 5. Praise athletes continuously during both practice and competition

2. Sports Participation Stages

Development Model of Sport Participation

As will be seen throughout this review, researchers frequently select and organise their research relative participants' age (or even school-level). Although a pragmatic approach, an alternative is to consider the participants' stage of participation in sport. One such conceptualisation is the Development Model of Sport Participation (DMSP; Côté, 1999; Côté et al, 2007). The DMSP identifies the importance of developmentally appropriate training patterns and social influences. The model suggests different possible pathways for development in sport based on the type and amount of involvement in sport activities and role of social influencers (e.g., coaches, parents, peers). The model differentiates between deliberate play and deliberate practice:

- *Deliberate play* involves 'sporting activities that are intrinsically motivating, provide immediate gratification, and are specifically designed to maximise enjoyment.' (Côté et al, 2010, p. 67)
- *Deliberate practice* involves 'structured activities typical of organised sport, with the goal of improving performance and often strictly monitored by the coach.' (Côté et al, 2010, p. 67)

The model consists of three stages of development with a fourth stage recently added, Côté & Hancock, 2014):

Sampling years (ages 6-12 years)
Findings from research demonstrate that diversity of experiences (e.g., participating in a range of sports) and deliberate play are important developmental activities during childhood. They are associated with expertise (performance) and long-term sport retention (participation). Benefits of diversification and deliberate play appear mainly to relate to protecting against dropout from sport by reducing burnout, limiting overuse injuries, and reduced enjoyment. In addition, diversification and deliberate play can contribute to skill development through implicit learning (transfer of skills and knowledge from one sport to another – without necessarily being aware of it).

Specialising years (ages 13-15 years)
Focusing on one or two sports, accompanied by higher amounts of deliberate practice is characteristic of specialising years. The age at which this occurs can be younger for sports in which peak performance is achieved during adolescence (e.g., gymnastics) referred to as 'early specialisation pathway'.

Investment years (ages 16+ years)
Greater structure and focus on deliberate practice to improve and reach peak performance in one sport.

Recreational participation (age 13+ years)
Reflects decisions made to move into recreational participation after the sampling years. Characterised by less deliberate practice compared with those on the specialising stage of participation.

Côté and Hancock (2014, p. 7-9) forwarded seven proposals for the DMSP supported by evidence:

1. Early diversification does not hinder elite sport participation in sports where peak performance is reached after maturation.
2. Early diversification is linked to a longer sport career and has positive implications for long-term sport involvement.

3. Early diversification allows participation in a range of contexts that most favourably affects positive youth development.
4. High amounts of deliberate play during the sampling years builds a solid foundation of intrinsic motivation through involvement in activities that are enjoyable and promote intrinsic regulation.
5. High amounts of deliberate play during the sampling years establishes a range of motor and cognitive experiences that children can ultimately bring to their principle sport of interest.
6. Around the end of primary school (or early years of secondary school; about age 13), children should have the opportunity to either choose to specialise in their favourite sport or to continue in sport at a recreational level.
7. Late adolescents (around age 16) have developed the physical, cognitive, social, emotional, and motor skills needed to invest their efforts in highly specialised training in one sport.

In addition, Cote & Hancock (2014, p. 10) forwarded 10 recommendations for youth sport policies for children under 13 years of age:

1. Regulate length of season to 3 or 4 months, with a maximum of 6 months.
2. Limit lengthy travel to organised competitions.
3. Introduce 'grass-roots' sports programmes that focus on trying different sports.
4. Do not implement a selection process of more 'talented' children until the specialisation years.
5. Provide healthy competitive opportunities, but do not overemphasise winning and long-term outcomes such as championships.
6. Discourage early specialisation in one sport.
7. Allow children to play all positions in a given sport.
8. Promote deliberate play within and beyond organised sport.
9. Design play and practice activities that focus on fun and short-term rewards.
10. Understand children's needs and do not 'over coach'.

Revised Coaching Model

Recently, Côté and colleagues have combined the DMSP with their work on coaching, developing the Revised Coaching Model (Côté, Bruner, Erickson, Strachan, Fraser-Thomas, 2010; Côté & Hancock, 2014). The original version of the Coaching Model (Côté et al, 1995) was derived from research with elite gymnastics coaches in Canada. It has two levels of variables:

1. those that represent actual coaching behaviours and have a direct influence on athletes' development, specifically competition, training, and organisation;
2. those that affect coaching behaviours, specifically coach's personal characteristics, athletes' characteristics, and contextual factors.

Only a small amount of research has specifically used this model. It has been applied to youth and elite coaches and athletes (e.g., Côté and Sedgwick, 2003, Côté & Salmela, 1996, Mallet & Côté, 2006; Côté & Gilbert, 2007).

The Revised Coaching Model (Côté, et al, 2010; Côté & Hancock, 2014) (Figure 1) focuses on more clearly defining the outcomes of coaching for athletes and incorporating the different stages of athlete development and coaching contexts (Côté & Fraser-Thomas, 2007). The outcomes for athletes were drawn from research examining positive youth development. Typically 5 core outcomes have been described (often referred to as the 5Cs) (see Table 3). Using the DMSP and Revised Coaching Model, Côté et al (2010) described four categories of coaches and provided

strategies for promoting positive developmental outcomes (4Cs) for participants in each stage of participation (See Table 4).
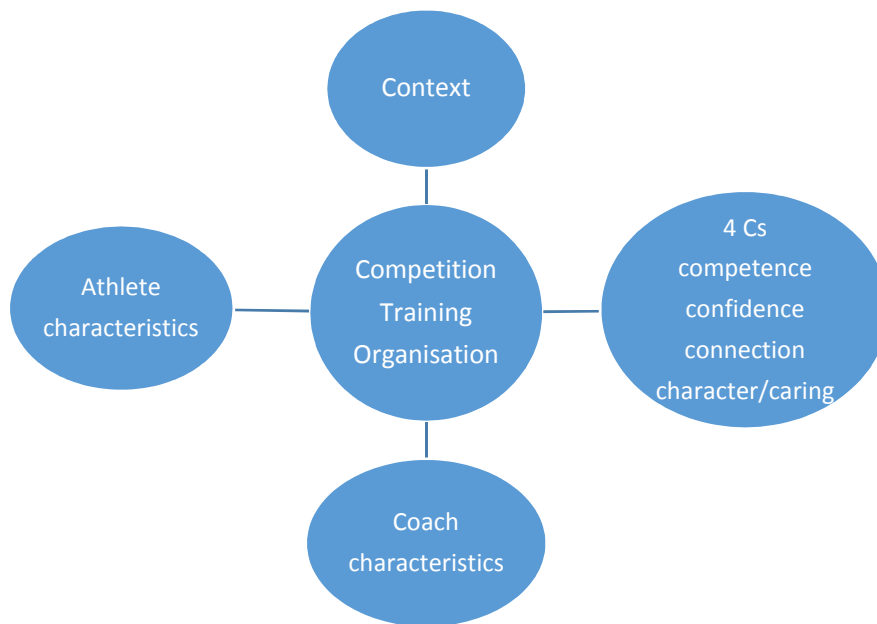

Figure 1. Revised Coaching Model (Côté, et al, 2010; Côté & Hancock, 2014)

Table 3. Core outcomes of sport participation

Developmental outcomes	Description
Competence	A view of the quality of one's actions in a specific domain including social, academic, vocational, and sport.
Confidence	Internal view of overall self-worth (global) and self-efficacy (situation-specific)
Connection	Bonds with people in which both parties contribute to the relationship.
Character*	Respect for societal and cultural rules and, standards of behaviour and sense of right and wrong.
Caring*	A sense of empathy and sympathy with others

* Character and caring have been combined in Côté's model

Conclusion

This model (and others such as the Mediational Model of Leadership, Smoll & Smith, 1989) and the supporting research demonstrate the coach's role in athlete development. They recognise that coaching is influenced by the coaches' characteristics, the athletes' characteristics and the context in which coaching takes place. Each of these influences has a range of variables that impact on coaching behaviours, how these behaviours are perceived, and how they in turn impact participants. The DMSP provides some insight into just two possible considerations: the needs of the participants (4Cs) and the stage of participation. This approach could be useful because it challenges coaches (and parents) to consider the:

- outcomes they are trying to achieve for young people involved in sport. What are important outcomes from sport for coaches, parent, and participants? How are they achieved?

- context in which they coach (or child participates). Are the outcomes (desired or emphasised) congruent with the participant's stage of participation? Is the coach's knowledge and skills appropriate for the context?

Table 4. Coaching strategies to develop the 4Cs for different coaching contexts (Côté et al, 2010)

Context	Coaching strategies
Participation coaches for children (sampling years)	- Encourage children's development by structuring competition and training to include high amounts of deliberate play. - Promote a mastery-oriented motivational climate through the use of Epstein's (1989) TARGET guidelines. - Seek to interact with athletes in a supportive and instructive manner, while limiting punitive interactions. - Include parents in positive and supportive roles. - Adopt an inclusive developmental focus, as opposed to an exclusive team selection policy based on current performances, to provide all children with opportunities to develop the 4Cs.
Participation coaches for adolescents (recreational years)	- Create a social environment that supports adolescents' competence and confidence development. - Emphasise personal growth rather than athletic excellence through creation of a mastery-oriented climate. - Foster close, interdependent relationships by demonstrating trust and respect for athletes. - Model appropriate moral behaviour and demonstrate self-regulatory skills during challenging situations. - Provide opportunities for teammates to develop strong connections within and outside of sport. - Promote an environment rich in character development and social responsibility. - Consider adopting a moral development framework such as Hellison's (1995) Personal-Social Responsibility Model.
Performance coaches for young adolescents (specialising years)	- Increase the quantities of deliberate practice activities in order to develop competence. Coaches need to be knowledgeable and have the ability to provide technical information and feedback, as well as developing cognitive skills such as decision making. Deliberate play activities are still important to maintain motivation through enjoyment. Encourage 'sampling' within their sport (e.g., different roles and positions). - Facilitate competence development in areas such as psychological skills (e.g., self-awareness, goal setting) and social skills (peer interactions, leadership). - Develop character and connection by demonstrating leadership, modelling appropriate behaviours, getting to know the athletes, fostering positive peer-peer interactions (e.g., showing empathy for teammates and other competitors). - Social events, athlete mentor programmes, and facilitating community involvement outside but related to sport can foster connections, character, and caring and contribute to the wider community.
Performance coaches for older adolescents and adults (investment years)	- Construct a programme grounded in deliberate practice, structured purposefully to improve current performance. Include structured activities with well-defined learning objectives, provide regular feedback for skill improvement, create opportunities for repetition. Schedule appropriate work-to-rest ratios and encourage athletes to make time for recovery. - In many sports, the inclusion of competitive situations are critical for the development of perceptual and decision-making skills, skill execution, and physical fitness. Through winning or losing are opportunities for athletes to develop the 4Cs. - Relationship with the athlete is likely to become more collaborative, relaying on continuous interchange of ideas. - Encourage commitment to one sport year-round and the rigorous training demanded. However, some involvement in deliberate play activities or another sport in the 'off season' can help to maintain enjoyment and provide a mental break or cross-training. - Recognise the sacrifices athletes are making and promote the benefit of their investment. - Use knowledge, enthusiasm, and foster a training environment that nurtures learning and motivation.

3. Fostering Mastery (Redefine 'winner' principle)

At the core of the redefining 'winner' principle is how success is defined. Success can be defined through winning (performance outcome) but it can also be defined through effort and mastery. Several theories and research underpinning and support this principle and are described below.

Conceptions of ability: Task and ego

In his Achievement Goal Theory (AGT), Nicholls (1984; 1989) proposed that in achievement contexts individuals strive to develop or demonstrate high rather than low competence. This is the energising force that leads to cognitions, affect, and behaviours. However, competence can be construed in 2 ways: 1) task involved where ability is judged with "reference to the individual's own past performance or knowledge" (Nicholls, 1984, p. 328); 2) ego involved where ability is "judged as a capacity relative to that of others" (Nicholls, 1984, p.328). These two conceptions of ability become the source of the criteria by which individuals assess success and failure (Roberts, 2012). When an individual is task involved, the goal of action is to learn, improve, and develop mastery. This is evaluated with reference to the individual's previous ability (i.e., self-referenced). The person feels successful when they have improved or attained mastery. In contrast, when a person is ego-involved, the goal of action is to demonstrate ability compared with others or outperform others or perform to a similar level with less effort. Ability is referenced to that of other performers (i.e., other referenced). Success is determined when the individual's performance is superior to others.

Why are achievement orientations important?

Research consistently demonstrates that task-mastery goal involvement and a growth mindset are associated with adaptive/desirable thoughts, feelings and actions. In contrast, ego-performance goal orientation and a fixed mindset are consistently associated with negative/less desirable thoughts, feelings and behaviours. Roberts (2012) reviewed research from the last 30 years examining relationships between goal involvement and outcomes in sport and physical activity and suggested there are two clear conclusions. Firstly:

> Ego-involving goals… are more likely to lead to maladaptive achievement behaviour, especially when participants perceive competence to be low, are concerned with failure, or are invested in protecting self-worth. In such circumstances the evidence is clear: Motivation ebbs, task investment is low, persistence is low, performance suffers, satisfaction and enjoyment are lower, peer relationships suffer, cheating is more likely, burnout is more likely, and participants feel more negative about themselves and the achievement context. (p. 31)

It is important to note that in some situations and for some people ego-involvement can be positive. This is usually when the individual has a high perception of competence. However, the ego-involvement is more fragile and if perceptions of competence are threatened can lead to maladaptive achievement striving (Roberts, 2012).

Roberts' (2012) second conclusion was that:

> The research is unequivocal that task-involving goals (mastery) are adaptive. When task-involved, whether through personal disposition [goal orientation] or when participants perceive mastery criteria in the context, motivation is optimised, participants are invested in the task, and persist longer, performance is higher, satisfaction and enjoyment are higher, peer relationships are fostered, burnout and cheating are less likely, and participants feel more positive about themselves and the task… The research

is now clear that if we wish to optimise motivation in sport and physical activity, we ought to promote task involvement. (p.31)

An important point to note is that task and ego goal orientations are independent. This means that an individual can invoke both task and ego-involved criteria at the same time. Research has shown that individuals who are high task and low in ego orientation or high in ego and low in task orientation follow patterns consistent with whichever is the more dominant orientation (Task orientation is adaptive; ego orientation is maladaptive) (Roberts, Treasure, & Conroy, 2007). However, a high ego orientation when combined with a high (or moderate) task orientation is not maladaptive (Roberts, 2012). Evidence suggests that elite athletes are likely to be high task and high ego orientation (e.g., Pensgaard & Roberts, 2000). Recognition of the ability to hold both sets of criteria at the same time, resonates with the double goal principle in PCS: striving to win (ego-involved criteria) and learning/developing (task-involved criteria). The critical feature determining adaptive or maladaptive functioning is how the criteria are used. For example, winning (or loosing) could be used to form a judgement of the individual as a person (e.g., I am a good (or bad) person), an ego-involved use of the information or to determine what the individual needs to do to continue to perform at that level or improve upon, a task-involved use of the information.

A related concept: Implicit beliefs (Mindset)

A concept closely related to AGT comes from the work of Carol Dweck (Dweck, 1999; 2006; Dweck & Legget, 1988) on self-theories and implicit beliefs. Dweck proposed that individuals' acquire implicit beliefs about the nature of ability in different domains (e.g., sport, education, music, work) which exert a strong influence on how individuals interpret and respond to events in achievement situations. Implicit beliefs can be:

1. *incremental* (growth mindset) where individuals believe ability is malleable and can be developed through effort and hard work;
2. *entity* (fixed mindset) where individuals believe that ability is a fixed entity and there is little they can do to change it.

In education, Dweck, colleagues and others (see Dweck, 1999, 2006 for reviews; Blackwell et al, 2007; Burnette et al, 2013; Gunderson et al, 2013 for more recent work) have demonstrated that:

- *incremental beliefs* are associated with higher rates of academic achievement across childhood, adolescence and beyond; goal setting, operating and monitoring; adoption of learning goals, mastery-based strategies, and high expectations (emphasis on 'improving' ability); show concern for developing ability; attribute failure to situational factors (lack of effort or inappropriate strategy); exhibit mastery-oriented behaviours when faced with setbacks; and self-regulatory strategies that facilitate performance.
- *entity beliefs* are associated with performance-oriented goals (emphasis on 'proving' their ability), show concern for others' judgements and evaluations, attribute failure to lack of ability, exhibit learned helpless behaviours when faced with setbacks.
- the actions of key influencers such as teachers and parents can shape young persons' beliefs about ability and subsequent thoughts, feelings and behaviours.

Much less is known about implicit beliefs in sport. However, implicit beliefs about athletic ability have been positively associated with enjoyment of physical activity (Biddle et al, 2003), self-efficacy, interest, positive affect, and motor development (Jourden et al, 1991; Kasimatis et al, 1996) and greater rates of skill improvement (Van-Yperen & Duda, 1999). Recent research, predominantly in

physical education, has demonstrated relationships consistent with theory and findings in education (See Appendix B for summaries of the research in this area):

- *Entity beliefs* (fixed mindset) have been associated with judgements of acceptability of cheating, increased anxiety, reduced satisfaction, self-handicapping, performance-avoidance goals and were fostered in a learning environment emphasising competition, social comparison, and raising concerns about abilty.
- *Incremental beliefs* (growth mindset) have been associated with lower acceptability of cheating, satisfaction, mastery approach goals and were fostered in an environment that emphasised effort, progress and teacher support.

What influences individuals' goal orientations and mindsets? Motivational climate

Whether an individual is task involved or an ego-involved is an interaction between their individual predisposition, referred to as the goal orientation (i.e., tendency to adopt one view of competence over another) and the situational (or motivational) climate (how achievement is defined in that context) (Nicholls, 1984; 1989). When the situational cues about the degree to which task or ego criteria are salient in a given context are vague or weak, then the individual's goal orientation is likely to determine whether the person becomes task or ego-involved. However, when the situational criteria are clear and strong it is possible for the climate to override an individual's goal orientation (Roberts, 2012). Ames (1992) argued that individuals' perception of motivational environment was critical in predicting subsequent responses. Two types of motivational climates have been conceptualised:

1. *mastery climate* where the key messages conveyed to participants are about task-mastery criteria for success;
2. *performance climate* where the key messages endorse ego criteria for evaluating ability and success.

Recently Harwood, Keegan, Smith, and Raine (2015) systematically reviewed research published between 1990 and 2014 that examined intrapersonal correlates of motivational climate perceptions in sport and physical activity. They reviewed 104 articles which met inclusion criteria. This equated to a population size of 34,156 with mean ages ranging from 10.0 to 38.2 years. The average age across the samples was 16.5 years. In their review they calculated the strength of the relationship between perceived motivational climates and intrapersonal variables such as goal orientation, self-perceptions, motivation, emotions and affect, beliefs and values, performance, strategies, and dispositions. Their findings (see Table 5) support theoretical propositions that perceptions of a task-mastery climate would be associated with positive and adaptive thoughts, feelings, and actions. Furthermore, that perceptions of an ego-performance climate would be associated with negative and maladaptive thoughts, feelings, and actions. Additional recent relevant studies are summarised in Appendix C.

How can task involvement and growth mindset be developed?

Knowing that adopting task-involved criteria leads to adaptive thoughts, feelings and actions leads us to the question of how can we encourage the adoption of these criteria. Focus could be given to the individual's disposition and to fostering a task goal orientation. This may be particularly useful for parents and coaches of individuals who have one to one contact to individualise messages to effect change or promote development of task-involved criteria for assessing competence and success. However, this individualised approach may not be the most practical strategy for the vast majority of those involved in sport. Therefore, concentrating on creating a climate within sport, (at

individual, team, club and even nationally) where the criteria for success and failure reflect mastery criteria may be more effective.

Table 5. Summary of Harwood et al's (2015) systematic review of intrapersonal correlates of perceptions of the motivational climate.

	Task-mastery climate		Ego-performance climate	
	Positive association	Negative association	Positive association	Negative association
Goal orientations	Task orientation Mastery approach goal Mastery avoidance goal Performance approach goal		Ego orientation Mastery avoidance goals Performance approach goals Performance avoidance goals	
Self-perceptions	Perceived competence (overall) Perceived competence (self-referenced) Confidence and self-esteem Perceived autonomy Perceived relatedness		Perceived competence (norm-referenced)	Perceived autonomy Perceived relatedness
Performance and strategies	Objective performance measures Adaptive practice and competitive strategies	Maladaptive practice and competitive strategies	Maladaptive practice and competitive strategies	
Motivation	Intrinsic motivation Identified regulation Self-determined motivation (RAI*)		External regulation Amotivation	Self-determined motivation (RAI*)
Emotions, thoughts, and affect	Positive affect	Negative affect Negative thoughts and worries	Negative affect Negative thoughts and worries	Positive affect
Beliefs and values	Attitudes and intentions towards sport/physical activity Pro-social moral functioning	Anti-social moral functioning	Anti-social moral functioning	
Dispositions and traits	Dispositional flow		Perfectionism	

*RAI is the relative autonomy index a compound measure of the extent to which motivation is self-determined versus controlled.

Research based on AGT and Dweck's mindset demonstrates that the information conveyed by key influencers, coaches, teachers, parents, and peers, about what is important in a particular context can shape individuals' task-involvement and growth mindset. Ensuring the messages are unambiguous increases the likelihood that the situational criteria will override (or support) the individuals' goal orientation. This evidence provides a clear opportunity for key social agents to influence individuals in a positive way. However, it also highlights how key influencers can knowingly or unknowingly have a negative influence. Shaping the key messages for sport participants is where key influencers have a crucial role to play. Their visible attitudes and behaviours can differentially emphasise task-mastery or ego-performance goal involvement.

A useful starting point are the questions posed by Ames (1992) which are summarised in Table 6 (from Allen & Hodge, 2006). These and related questions provide a means for key influencers to reflect on the messages they convey about what is important, what they value, and the criteria that should be used to evaluate competence and success.

Table 6. Features of task-mastery and ego-performance motivational climates.

Questions	Task-mastery	Ego-Performance
How is success defined?	Improvement in personal competence level	Demonstrating competence level superior to others
What is valued?	Learning, effort, competence improvement	Performance outcomes and favourable normative comparisons of competence
How are mistakes viewed?	Part of learning	Indication of low competence
Why should athletes engage in the activities?	Learn new skills	Demonstrate superior competence
What does the leader focus on?	Development, learning	Performance outcomes, normative rankings /comparisons

Epstein's TARGET Model

Epstein (1988; 1989) suggested that there were structural features of the academic environment that influenced students' motivation and when taken together define the motivational climate. These features were captured in the acronym TARGET representing task, authority, recognition, grouping, evaluation, and timing. Ames (1992) took this idea further and detailed the cues emanating from these structural features that shape the climate. The TARGET model provides a useful framework for examining and understanding how the actions of the 'leader' shape the climate. Table 7 below is from Duda and Balaguer (2007) who summarised the TARGET dimensions and how they relate to task-mastery and ego-performance climates.

Table 7. TARGET model structural features and strategies to enhance task-involvement

Target features		Mastery strategies
Task	What participants are asked to learn. Tasks they are given to complete.	Provide participants with a variety of optimally challenging tasks that emphasise individual challenge and involvement. Assist participants to set self-referenced process and performance goals.
Authority	Type and frequency of participation in the decision-making process.	Consider the participant's perspective. Encourage participants' input in decision-making. Develop opportunities for leadership. Encourage participants to take responsibility for their sport

		development.
Recognition	Procedures and practices used to motivate participants and recognise their progress and achievement.	Provide feedback to individuals rather than the group. Recognise individual effort, improvement, and progress. Ensure there are equal opportunities for reward.
Grouping	How participants are brought together or kept apart in training and competition (e.g., based on ability)	Use flexible and cooperative grouping arrangements. Use multiple grouping arrangements (e.g., individual, pairs, small groups, large groups)
Evaluation	Standards set for participants learning and performance and procedures for monitoring and judging attainment.	Develop evaluation criteria based on effort, improvement, persistence, and progress toward individual goals. Involve participants in self-evaluation. Make evaluation meaningful and consistent.
Timing	Appropriateness of time demands placed on learning and performance.	Recognise that participants learn and develop at different rates. Provide sufficient time before moving on to the next stage of development. Try to spend equal time with all participants. Assist participants to establish training and competition schedules.

Application of TARGET and mastery-based models: Evidence

Attempts have been made to apply TARGET structures or mastery-based interventions to create a mastery motivational climate and determine the impact of such interventions. These are summarised in Appendix D. These studies demonstrate that with training coaches and teachers can create a mastery motivational climate that is associated with adaptive motivational outcomes for participants.

Several education programmes have been developed based on mastery climate principles including:

Mastery Approach to Coaching Sports (MACS)

This U.S. programme was designed to help parents and coaches create a mastery climate that promotes adaptive motivation and healthy achievement (Smith, Smoll, & Cumming, 2007) (See http://www.y-e-sports.com/index.html). The coach training programme was developed some 35 years ago based on social cognitive theory principles. It has recently been redevelop into a 75 minute workshop that focuses on the Mastery Approach to Coaching (MAC). This intervention places emphasis on coaches creating a mastery motivational climate which promotes effort, learning of skills, and setting personal effort- and task-related goals. The MAC workshop retains many of the original Coaching Effectiveness Training (CET) principles which were consistent with creating a mastery motivational climate such as the focus on furthering the skill and personal development of athletes over a focus on winning at all costs, reinforcing effort as well as outcome and promoting a cooperative learning environment. However, the MAC intervention places more explicit emphasis on describing and providing behavioural guidelines for a mastery-involving motivational climate. Research has demonstrated effectiveness of the programme:

- Coaches from 20 teams participated in a MAC workshop while coaches from 17 teams in a separate league acted as controls and did not receive the workshop. Although children in both groups perceived their coaches to foster a mastery motivational climate, the trained coaches created a more mastery focused environment compared with the untrained coaches. In addition, children who played for the trained coaches showed decreases in sport

anxiety from preseason to late season, whilst the anxiety of those who played for untrained coaches either stayed the same or increased over the season.

Promoting Adolescent Physical Activity Project (PAPA)

PAPA is a theoretically grounded and evidence based coaching programme aimed at enhancing young peoples' health, well-being and development through sport (Duda et al., 2013). In particular, PAPA aims to teach coaches to provide youth sport participants with an environment which supports their autonomy, feelings of belonging, and sport-specific competence (Quested, Duda, & Balaguer, 2013). Additionally, coaches are encouraged to create a task-focused sporting climate. The aims of PAPA are achieved by having coaches undertake a 6-hour Empowering Coaching Programme ™ and e-learning course (See http://www.projectpapa.org/ and http://www.empoweringcoaching.co.uk/).

The Empowering Coaching™ programme trains coaches to facilitate an empowering environment which Duda (2013, p. 4) described as 'one that is task-involving, autonomy supportive, and socially supportive. In contrast, a "disempowering" environment would be highly ego-involving and controlling.' The training programme emphasises facilitated discussion and illustrating 'on pitch' training techniques and strategies that coaches can employ in training and competitive situations. The intention is that training occurs 'on the pitch' when and where possible. The programme considers:

- WHAT coaches can emphasise (i.e. the goal content in terms of players' participation, with prominence placed on more intrinsic in contrast to extrinsic goals for youth sport engagement),
- WHY or reasons for children's engagement (i.e. goal motives, with the advantages of more autonomous motivation being considered endemic to more empowered sport participation)
- HOW regarding coaches' influence on their athletes (i.e. via their facilitation or compromising of players' sense of autonomy, feeling like they are cared for, respected and connected, and striving for and realising greater task-involved competence) (Duda, 2013, p. 5)

Preliminary examination of the impact of this project demonstrates support for its effectiveness:

- A study undertaken with 7,769 youth soccer players suggested that an autonomy supportive climate was positively related to participants' feelings of autonomy, competence, and relatedness; which, in turn was positively related to football enjoyment and negatively related to dropout from football (Quested et al., 2013).
- Another interesting study on PAPA aimed to assess the effectiveness of teaching coach educators to deliver the Empowering Coaching Programme ™ to grassroots coaches (Van Hoye et al., 2014). To achieve this aim, this study involved interviewing 18 coach educators, filming workshops delivered by these coach educators, and interviewing 185 grassroots coaches who attended these workshops. Results revealed that it is possible and effective to train coach educators to deliver PAPA programme to grassroots coaches.

National Federation of State High Schools Associations (NFHS)

A U.S. coach education programme targeting interscholastic coaches. Delivered primarily online. Two courses: Fundamentals of Coaching; Creating a safe and respectful environment. See https://nfhslearn.com/

Measurement Tools

A range of valid and reliable scales exist to assess the concepts included in the research described in this section. Examples include:

- Achievement goal scale for youth sport (AGSYS) (Cumming et al (2008) – to assess task and ego goal orientations.
- Motivational climate scale for youth sport (MCSYS) (Smith, et al, 2008) – to assess task-involving and ego-involving coach-created climate.
- Multidimensional motivational climate observation system (MMCOS) (Smith, N. et al, 2015) – an observation tool for assessing the task-involving, ego-involving, autonomy-supportive, socially supportive, and controlling coach-created motivational climate.
- Empowering and Disempowering Motivational Climate Questionnaire-Coach (EDMCQ-C) (Duda et al, 2015) – to assess task-involving, ego-involving, autonomy-supportive, socially supportive, and controlling coach-created motivational climate.

Contribution from Implicit Beliefs (Mindset) research

Although not going as far as AGT to conceptualise climates associated with growth and fixed mindsets, Dweck (1999; 2006) has extensively researched how key influencers foster a growth or fixed mindset and developed clear messages for influencers. Recently, Vella, Cliff, Okely, Weintraub, & Robinson (2014) reviewed the research in education, sport, and physical activity pertaining to implicit beliefs and the consequences for thoughts, feelings, and actions in youth sport. They aimed to develop theoretically derived and evidence-based strategies to promote adaptive implicit beliefs. Based on their review they proposed six instructional strategies to foster incremental beliefs (See Table 8).

Table 8. Strategies to foster incremental beliefs

Strategy	Actions
Focus on effort and persistence	- Reward and promote effort and persistence - Give feedback centred on effort - Use process praise
Challenge	- Set tasks that are moderately difficult - Set challenging goals - Reward attempts at challenging tasks - Facilitate a mastery climate - Provide conditions for deliberate practice
Value failure	- Interpret setbacks as the means to mastery - Facilitate athlete self-reflection - Promote the value of failure - Provide internal, temporary attributions to failures - Allow athletes to solve their own problems
Perceptions of success	- Define success as giving your best - Emphasize process over outcome - Promote effort over achievement
Promote learning	- Facilitate a mastery climate - Use self-referenced goals - Provide choices based on effort - Make evaluations individualised
High expectations	- Facilitate a caring, supportive and encouraging environment - Use SMARTS goals, particularly process goals

	• Sell a vision of continuous improvement

Motivational climate across stages of participation

Keegan et al (2014) synthesised research examining the social environmental influences of coaches, parents, and peers on athletes' across the career span. Having identified a large number of studies, 45 met their inclusion criteria. Based on synthesis of these studies Keegan and colleagues organised the findings into three career stages and seven 'climates' which contributed to a broader motivational 'atmosphere' and captured the overall social-environmental influence at any particular career stage. The three career stages were consistent with others' conceptualisation of career span (e.g., Côté, et al, 2003; 2007; Wylleman et al, 2004):

- *Initiation (sampling)* – participants are 'generally prompted to try a number of different sports and see if they either enjoy it or have some talent' (p. 545)
- *specialising* – participants 'tend to focus on one or two sports to specialise in: seeking to learn the key skills, tactics and rules' (p. 545)
- *investment-mastery* – 'is represented by persistent, focused and deliberate practice/training, and involves a period of either trying to reach elite level, or maintain the highest possible level of performance' (p. 545)

The seven sub-climates:

- *Competition climate* - captured 'the behaviours of social agents during, and immediately before, athletes' engagement in competitive performances (events, matches, games, etc.)'. (p. 553)
- *Training climate* – referred to 'the situations in which training and learning occurred.' (p. 555). This was 'separated from the competitive climate as activities undertaken here were not formally competitive, but often in preparation for competitions'. (p. 555)
- *Evaluation climate* – 'referred to the ways in which performance is assessed and feedback is provided.' (p. 555) It included evaluation criteria and verbal feedback.
- *Emotion climate* – captured 'the emotional and affective displays of key social agents.' (p. 555)
- *Authority climate* – referred to 'the manner in which those in positions of authority/responsibility (mainly coaches and parents) fulfil this role.' (p. 556)
- *Social support climate* – 'contained all the numerous behaviours of social agents that contribute directly and indirectly to the athlete's participation in, enjoyment of, success at, and benefitting from, sport' (p. 567) including emotional support, tangible (material/instrumental) support, and esteem support.
- *Relatedness climate* – referred 'to all the elements of sport participation associated with seeking both friendship/affiliation and group membership/belonging.' (p. 557)

In a series of studies in England, Keegan and colleagues, (Keegan, Harwood, Spray, & Lavallee, 2009; Keegan, Spray, Harwood, & Lavallee 2010; Keegan, Harwood, Spray, & Lavallee 2014) investigated perceptions of the motivational climate of sport participants in the sampling (N=40; aged 7 to 11 years), specialising (N=79; aged 9 to 18 years), and investment-mastery (N=25; aged 15 to 29 years) stages of sport engagement. Through interviews they examined participants' perceptions of the roles and behaviours of three different social agents, coaches, parents, and peers, in shaping the motivational climate and the impact on participants' motivation. Main findings were summarised by Keegan, Harwood, Spray, & Lavallee (2011) and included:

- Positivity was the most consistent theme for promoting motivation across all three studies. Positivity included:
  - any behaviours that encourage approach-type motivation such as building confidence, reinforcing positive consequences
  - expression of positive emotions and feelings
  - friendship
  - collaboration
  - praise
- Behaviours perceived as negative undermined motivation and invoked avoidance-type motivation. Behaviours generally perceived as negative included:
  - emphasising punishments and negative consequences
  - fault-finding evaluative style
  - expression of negative emotions (e.g., anger or sadness)
  - conflict and rivalry
  - criticism
- Facilitation of opportunities for the athlete to practice, learn, improve or achieve was important for athlete motivation. This included:
  - autonomy-supportive behaviours
  - providing useful and relevant advice at the 'right' time (e.g., teachable moments)
  - facilitating and encouraging practice
  - creating practices activities and games that provide opportunities for athletes of any ability level to be involved and improve
  - providing transport, equipment and moral support,
  - encouraging and providing opportunities for collaboration with peers (e.g., to help them learn a skill).
- A fine line between a facilitative, autonomy supportive approach, and giving unsolicited instructions or opinions. These could sometimes be seen as being controlling or judgemental which would undermined autonomy (even if provided with the best intentions)
- Actions that had potentially detrimental effects on athletes' motivation included:
- a controlling leadership style, particularly coaches
- parents who were over-involved or made their love/support contingent upon sporting success
- peers who did not collaborate or reinforced that normative ability was important for social popularity
- Affiliation and close relationships (e.g., group belonging, friendships, closeness and commitment with coach) were also almost always associated with athletes' adaptive motivation.

Relative influence of social agents across stages of participation

Keegan and colleagues examined the influence of coaches, parents, and peers in each sub climate and during each stage of the athletic career. The influence of coaches and parents are summarised in Tables 9 and 10. Overall the influences of social agents included:

- Coaches' important roles and influence were through instruction and assessment
- Parents' influence was most evident through their support of participation and learning

- Both parents and coaches leadership styles, affective responses, and pre-performance behaviours exerted influence on participants. This influence could have either a positive and negative impact on participants.
- Peers' influence as through competitive and collaborative behaviours, evaluation comments, and social relationships.
- The relationships between coach and participant and between peer and participant appeared to moderate motivational impact of behaviours such as feedback/evaluation and pre-performance

Key findings for stage of participation:

- Initiation and specialising years:
  - Coaches' and parents' leadership styles, affective responses and pre-performance behaviours were important influences on participants.
  - Peers competitive behaviours, collaborative behaviours, evaluative communication and social relationships were central to their influence on participants.
- Investment-mastery years:
  - feedback/evaluation, and pre-performance motivating behaviours were important behaviours for all social agents but to a lesser extent for parents.
  - There was a marked decrease of influence from parents. Their influence was limited to emotional and moral support.
  - coaches and peers became the main influencers and relationships amongst them became increasing important.

Key findings for each sub climate include:

- *Competition climate* – important at all three stages were an emphasis on mastery, competition, effort, positivity, and pressure/negativity. Parents' role is reduced in the investment-mastery stage.
- *Training, Evaluation and Emotional climates* – the important features were similar across the participation stages. Main differences were which social agents provide support in each climate. In the training climate, the coach's influence was similar across the stages (mainly based around training/instruction). Parents influence as part of the training climate was almost non-existent by the investment-mastery stage. The coach also become more central in the evaluation and emotional climates, becoming the main source of evaluative information.
- *Authority climate* – there was a distinction between facilitating autonomy compared with controlling behaviours throughout the participation stages. Shift toward the coach as the only remaining authority figure by the investment-mastery stage.
- *Social support climate* – central features across participation stages were emotional support, material support, presence/absence of conflict. Esteem support (e.g. positive feedback, building confidence before games, tolerance/encouragement after mistakes) was an important part of the whole moral atmosphere not one particular climate.
- *Relatedness climate* – the relationship between the coach and athlete was increasingly important and a key component at the investment-mastery stage. By this stage parents' influence was mainly social support.

Table 9. Coaches' positive and negative influences across participation stages

Note. black = common to all three stages, green = common to initiating and specialising stages, orange = common to specialising and investment-mastery, red = initiating only, blue = specialising only, purple = investment-mastery only.

Actions	Positive influence on participants	Negative influence on participants
Feedback and evaluative behaviours	Verbal feedback a. Positive feedback and praise b. Constructive formative comments conveyed belief that ability is incremental and can be improved with effort and persistence c. Constructive or negative comments delivered in private Behavioural reinforcement d. Punish unsporting behaviour e. Effort-contingent reinforcement	Verbal feedback a. Negative feedback and criticism b. Summative-labelling comments conveyed message that ability is fixed c. Public criticism or negative comments d. Disingenuous praise Behavioural reinforcement e. Punish mistakes f. Reward normative success*
Leadership style	a. Autonomy supportive behaviours • Collaborative decision style • Open 'hands off' approach • Athletes have choices • Empowering athletes with knowledge • Open questioning style • Responsive to athlete input b. Maintaining discipline c. Coach accountability • Rational-predictable • Explains selection decisions • Match analysis clearly influences next game • Explains key ideas/plans d. Coach experience • Experience of sport • Technical knowledge • Well connected e. Supporting relatedness amongst athletes f. Coach reflexivity-adaptability for individual players and stage of season	a. Controlling style • Prescriptive decisional style • Denying choices b. Conflicting-inconsistent coaching • Conflict between coaching staff • Contrasting affective styles • Contrasting values/expectations
Relationship with athletes	a. Relationship with athletes • Inspiring, liking and trust • Dedication-commitment • Closeness, mutual respect, friendship, understanding • Coaches have to 'know players', adapt approach to player	a. Relationship with athletes • Lack of investment is de-motivating
Emotional and affective responses	a. Positivity and optimism • Positive affective style b. Tolerant of defeats or mistakes	a. Propensity for anger over defeats or mistakes
Support and facilitation	a. Material support b. Emotional support	a. Conditionality of support • Building indebtedness

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	c. Unconditional support d. Watching-spectating e. Managing career	• Stressing return for investment • Using sacrifice as leverage

Pre-performance motivating behaviours	f. Encourage effort and mastery
	   • Encourage participation
	   • Encourage mastery
	   • Emphasise personal goals and focus
	g. Approach-based and positive emphasis
	   • Pride in athlete
	   • General unconditional support
	h. Build confidence
		b. Concern for results
		c. Pressurising behaviours
		   • Pressure for selection
		   • High expectations
		   • Highlighting negative consequences

Play-and-teach behaviours	a. Instructional behaviours
	   • Reinforce coach's advice
	b. Facilitation of practice
	   • Encourage practice
	   • 'Garden' play – informal/fun
	c. Balance of instruction and practice/play
		a. Instructional behaviours
		   • Conflicting advice to the coach
		   • Overload with advice
		b. Over-involved behaviours
		   • Taking the game home
		   • Accepting reflected glory
		   • Embarrassing behaviour during competition

* mixed effects depending recipient

** can be motivating to attempt to improve performance in relation to others

Table 10. Parents' positive and negative influences across participation stages

Note. black = common to all three stages, green = common to initiating and specialising stages, orange = common to specialising and investment-mastery, red = initiating only, blue = specialising only, purple = investment-mastery only.

Actions	Positive influence on participants	Negative influence on participants

Feedback and evaluative behaviours	Verbal feedback
	   • Positive feedback
	   • Constructive feedback
	   • Honesty in feedback
	   • Constructive formative comments conveyed belief that ability is incremental and can be improved with effort and persistence
	Behavioural reinforcement
	   • Effort-contingent reinforcement
	   • Unconditional praise
		Verbal feedback
		   • Negative feedback
		   • Comparisons to others
		   • Summative-labelling comments conveyed message that ability is fixed
		   • Pride and happiness
		Behavioural reinforcement
		   • Outcome contingent reinforcement

Leadership style	a. Autonomy supportive behaviours
	   • Collaborative decision style
	b. Knowledge-experience of sport
	   • Informs criticism
	   • Helps them coach me
		a. Controlling style
		   • 'not letting me express myself'
		   • Trying to influence career and selections
		   • Using rewards as mechanism of control

Relationship with athletes	a. Relationship with athletes
	   • Collaboration with athlete
	   • Empathy and understanding	

* mixed effects depending recipient

** can be motivating to attempt to improve performance in relation to others

Conclusion

The research is clear that task-involvement is associated with a wide range of positive thoughts, feelings and actions. In contrast, ego-involvement is generally associated with less positive and even negative cognitions, affect, and behaviours. Furthermore, the actions and messages conveyed by significant social agents (i.e., coaches, parents, teachers, peers) can facilitate task or ego involvement and associated outcomes. There is some evidence that the role and influence of social agents changes during different stages of participation. Mostly notably, parents become less influential with age and progression in participation. In addition there is some evidence that coach-training interventions that focus on enhancing the interpersonal and motivational environment in youth sport can have a positive effect on young people's sport experience, positive youth development. Furthermore, task-involvement and a mastery climate appear to be as appropriate for older participants (college and adults) and elite performers as they are for younger and less experienced participants.

Considerations

Children and younger adolescents, who have yet to fully establish their conceptions of ability, may be more susceptible to the influence of the environment and the messages of key influencers than older adolescents and adults (Treasure & Roberts, 1992; Roberts, 2012). Furthermore, the achievement context changes as children progress through competitive levels with greater emphasis placed on performance outcomes (e.g., Duda, 1992; Treasure, 2001; Roberts, 2012). At present there is only limited evidence on how these developmental processes effect participants thought, feelings and actions and how and which key influencers can best support young people's development of adaptive motivational strategies and positive outcomes from their engagement in sport at specific ages and stages of development.

4. Developing Confidence

Self-perceptions

The PCS principle 'fill the emotional tank' has focused on feedback and specifically the use of praise to ensure participants feel good about themselves and their abilities. To extend this principle the theory and research relating to self-perceptions is examined. The focus will be on self-worth and self-confidence. In its most generic sense self-perceptions refer to 'individuals' beliefs, perceptions, attitudes, thoughts, and feelings about themselves in general or about their abilities, skills, competencies, characteristics, and behaviours.' (Horn, 2004, p. 102). Common terms used include self-concept, self-worth, self-esteem, perceived competence, perceived ability, self-efficacy, and self-confidence.

Self-worth (or self-esteem) refer to an individual's overall evaluation or judgement of self. Self-esteem is conceived to be relatively stable over time and context. Perceived competence (or perceived ability) is used to refer to individuals' evaluation of their abilities in specific domains such as sport, academics, music. It is less global than self-worth and relatively less stable. Self-confidence (or self-efficacy) refers to beliefs about the ability to be successful. It is more situation-specific and less stable than the other self-perceptions.

Self-esteem and sport participation

Several studies have found that sports participation is related to young peoples' level of self-esteem.

- Broh (2002) conducted a study using a sample of 24,599 American high school students drawn from the nationally representative National Educational Longitudinal Study. Results of

this study suggest that participation in sport during the 10th and 12th grades significantly improves participants' self-esteem.

- Daniels and Leaper (2006) used data from 10,500 American adolescents who took part in the National Longitudinal Study of Adolescent Health. Directly comparing athletes to non-athletes, this study found that athletes reported higher levels of self-esteem than non-athletes. This study also suggested that peer acceptance partially mediates the relationship between sports participation and self-esteem.
- McHale et al. (2005) surveyed 423 seventh grade students about their involvement in sport. These researchers found that sport-involved participants reported higher self-esteem compared with adolescents not involved in sport. Furthermore, results of this study also showed that teachers rated sport-involved participants as more socially competent and less shy/withdrawn than their non-sporting counterparts.

Research within the UK:

- Standage and Gillison (2007) conducted a study which investigated how the climate in P.E. classes effects P.E. students' self-esteem. This study used a sample of 371 English high school students aged between 12-15 years with an average age of 13.5 years. A key finding of this study was that coach autonomy support was positively related with students' self-esteem. This suggests that teachers should display autonomy supportive behaviours such as listening to students, giving the students some input into the content of lessons, encouraging students to ask questions, promoting students' independence and initiative, and displaying confidence in the students'.
- Jones, Polman, and Peters (2009) investigated self-esteem in English P.E. students. This study used a sample of year 8, 9, and 10 high school students from independent schools, comprehensive schools, and sports colleges. These researchers expected to find differences in the self-esteem of participants from these different types of schools/physical education environments. Contrary to expectations there was no difference between the level of self-esteem of students from independent schools, comprehensive schools, or sports colleges. On average, students across the three school types scored reasonably high on the scale (near 3 on the 1 to 4 scale) use to measure self-esteem.

Self-perceptions and Development

Self-perceptions at different stages of participation have not been the subject of empirical examination. However, developmental changes in children's and adolescents' self-perceptions have been examined within developmental psychology and sport psychology. Horn (2004) summarised the changes that have been demonstrated:

1. Changes to structure and content of self-perceptions
   - Increase in number of sub-domains
   - Changes in content of sub-domains
   - Changes in global self-concept/self-esteem
2. Changes to the contribution individual sub-domains make to global self-concept/self-esteem
3. Changes in the cognitive processes used to evaluation competence
   - Changes in sources of competence information
   - Cognitive changes in conceptualisation of ability

These developmental changes are likely to be related, in part, to cognitive-developmental maturation but also as a result of changes and experiences that occur in children's and adolescents' sociocultural environment (Horn, 2004). Extensive research by Harter (1999), amongst others, has demonstrated the proliferation of sub-domains and changes in content that comprise self-

perceptions across the lifespan (early childhood, middle to late childhood, adolescence, early through to middle adulthood, and late adulthood). Harter (1990) suggests that a global self-concept construct becomes evident around the age of 8. Discrepancies between the importance of sub-domains and evaluation of one's own level of that sub-domain can influence overall self-worth. For example, through her work Harter found that 'the degree to which children [ages 8-15] perceive a discrepancy between the importance of being good-looking and their evaluation of their own attractiveness [perceived physical appearance] is a major correlate of overall self-worth. Social acceptance discrepancy was also an important contributor to self-worth. These patterns continued in late childhood and early adolescence.

Gender

A gender gap in overall self-esteem appears during adolescence and widens from ages 14 to 23 (Block & Robins, 1993). Harter and colleagues (see Harter, 1999) have found consistent increase in the gender gap in overall self-worth from junior high to high school, with girls lower than boys. They suggest this may be explained by the decline also seen in girls' perceived physical appearance from 3rd grade to 11th grade. In relation to sport, Marsh (1998) found that the gender difference in physical self-concept scores is smaller in elite adolescent male and female athletes compared with male and female non-athletes.

Sources of self-perception information

Research demonstrates that the sources of information used to evaluate competence in in sport and physical activity change with development (see Horn & Amorose, 1998) for a review). Four age-related trends are evident:

- Increase in differentiation
- Increase in integration
- Shift from use of very concrete, behaviourally based sources of information to more abstract sources
- Increase in the internalisation of competence and performance standards

Stage of development	Sources of competence information
Early childhood* (4-7 years)	• Simple task accomplishment (e.g., hit a tennis ball over the net, run from here to the wall). They show interest in the 'effect' of their performance (e.g., sound when ball hits the racket or movement of net when the ball hits it) • Evaluative feedback from significant adults. Accept it at 'face value'. • Effort • Do not consistently use peer comparison to judge competence rather to learn how to improve.
Middle to late childhood (7-12 years)	• Peer comparison (performance of teammates and opponents, game performance statistics) • Evaluative feedback from significant others in the sport environment (coaches, peers, spectators) • Internal information (perceived effort, skill improvement, speed/ease of learning) • Evaluative feedback from parents (declines in importance with age of child) • Performance outcome (win/loss, personal performance statistics) • Attraction toward the sport Note. By the end of this stage, they no longer take evaluative feedback at face value, rather it is integrated with other sources
Adolescence	• Internal information (perceived effort, skill improvement, pre/post game feeling)

(13-18 years)	• Competitive outcomes (game outcome, game performance statistics) • Evaluative feedback from parents • Peer comparison (teammates and opponents) • Evaluative feedback from spectators • Evaluative feedback from coaches • Evaluative feedback from peers (moves from near group to extended group such as athletes in their sport in the school, club to region, country) • Speed/ease of learning • Achievement of self-set goals • Attraction toward sport Note. By this stage, adolescents are able to integrate information from various sources

*Relatively little research with those in early childhood

How can positive self-perceptions be fostered?

Based on her review Horn (2004) provides several, albeit tentative, recommendations regarding the facilitation of high self-worth in children and adolescents:

Provide mastery experiences. These are opportunities to acquire, through effort and hard work, a skill or ability, they previously did not have. Mastery experiences include optimally challenging tasks and encouragement to 'master' or learn the skill through repeated practice. The provision of mastery experiences (as opposed to providing opportunities that guarantee success) creates an achievement context aligned with a mastery motivational climate where individual competence is defined and evaluated in terms of skill mastery, improvement or learning rather than in comparison with others.

Provide clear, consistent, contingent, mastery-oriented feedback. There is also evidence of the additive value of positive feedback and approval from significant adults in the facilitation of high self-perceptions (Harter, 1999). However, this feedback should be clearly and consistently linked to mastery attempts (e.g., 'well done. You worked really hard to develop your tennis serve'). This positive feedback rewards the immediate attainment of the skill and the effort needed to develop that skill. It also contributes to the internalisation of standards of performance and effort, which will ultimately enable independence from others (peers and adults) in determining behaviour and evaluation. Current research does not support the provision of praise and positive feedback irrespective of the quality of children's performance attempts. Non-contingent positive feedback will not facilitate children's perceptions of competence and will not assist in the internalisation of achievement standards (Horn, 2004). Damon (1995) argued that an overemphasis by parents and educators on helping children 'feel good about themselves' diverts attention away from teaching skills that is more likely to enhance perceptions of competence.

Use an individualised approach. Understanding how individuals construe and construct their self-perceptions provides useful information about how they feel about themselves and their sport involvement. With this understanding practitioners can more effectively work with each child to enhance, maintain, or increase his or her self-perceptions. For example, Horn (2004) suggests determining a) what sources of information a child is using to make judgements about his or her competence in each domain, b) how competent the child feels, c) whether or not the child believes competence is malleable in that domain (e.g., growth v fixed mindset), d) what successes and failures are attributed to.

Critical periods for facilitation of high self-perceptions. Based on her review and understanding of the theories relating to development of self-perceptions, Horn (2004) suggests there are two critical periods for fostering high self-perceptions:

- *Early to mild childhood (ages 4-8).* Children at this age may not yet distinguish between real and ideal self and thus have high self-perceptions. They also rely on feedback from others and simple mastery of skills to evaluate their competence. Therefore, experiences during this time may contribute to their overall sense of self, which many theorists suggest many more resistant to change later.
- *Early to middle adolescence (ages 12-15).* At this time fluctuations in self-perceptions appear to be very common perhaps due to cognitive-maturational and socio-environmental changes during this time. As a result of this instability, there may be an opportunity to have a positive impact on self-perceptions.

Drawing on theoretical and research in education and sport, Horn (2004) suggested three types of interventions would be possible to work with an individual to foster higher perceptions of self:

1. Attempt to increase the child's perceptions of competence in the domain(s) he or she values (e.g., through mastery experiences).
2. Attempt to decrease the importance of domains in which perceptions are low.
3. Attempt to change the way in which the child evaluates success and/or modify the sources of information used to judge competence (e.g., less focus on social comparison and more on self-referenced criteria).

Limitations

Horn (2004) notes that there is much that remains to be understood with regard to developmentally based changes to children's and adolescents' perceptions of themselves and abilities in the physical domain. In particular, little is known about developmental changes of children (3-8 years) and also changes within the adolescent period (14-18 years). There is also a call for examination of developmentally based changes in diverse groups such as children and adolescents in different countries, ethnicities, races, socioeconomic status groups, and ability groups). In addition, there is a need for research to examine the socio-environmental influences on self-perceptions. This could include examination of the changes and subsequent impact of the achievement context (similar to educational research in classroom) such as changes in competitive level and the relative contribution of cognitive-maturational and socio-environmental influences on the formation of self-perceptions.

Self-confidence

'Self-confidence is the belief that one has the internal resources, particularly abilities, to achieve success' (Vealey & Chase, 2008, p. 66). Confidence refers to individuals' beliefs about their abilities and expectations of achieving success with those abilities. Two commonly researched conceptual approaches are: self-efficacy theory (Bandura, 1977, 1986, 1997) and sport self-confidence (Vealey, 1986).

Self-efficacy theory

According to Bandura, self-efficacy refers to 'beliefs in one's capabilities to organise and execute the courses of action required to produce given attainments' (1997, p. 3). It is differentiated from outcome expectancies which are beliefs about the consequences likely from performance such as pride, social recognition, and exhilaration. Self-efficacy is a situation-specific belief and therefore is affected by the environment. Efficacy beliefs influence the way people think, feel, and act. Sources

of efficacy beliefs are mastery experiences, vicarious experiences, verbal persuasion, and physiological and affective states (See Figure 2).

Mastery experiences are the most influential source of self-efficacy because they provide direct evidence that one can perform the specific task. Vicarious experiences such as observational learning, modelling, and imitation influence self-efficacy when observation of others performance provides information that help individuals form expectations about their own behaviour. Verbal persuasion is when others express confidence or support for an individual's capabilities. It is thought to have a weaker and less enduring effect on self-efficacy compared with mastery and vicarious experiences. When people associate pleasant or unpleasant affective or physiological states with good or poor performances it can influence feelings of self-efficacy.
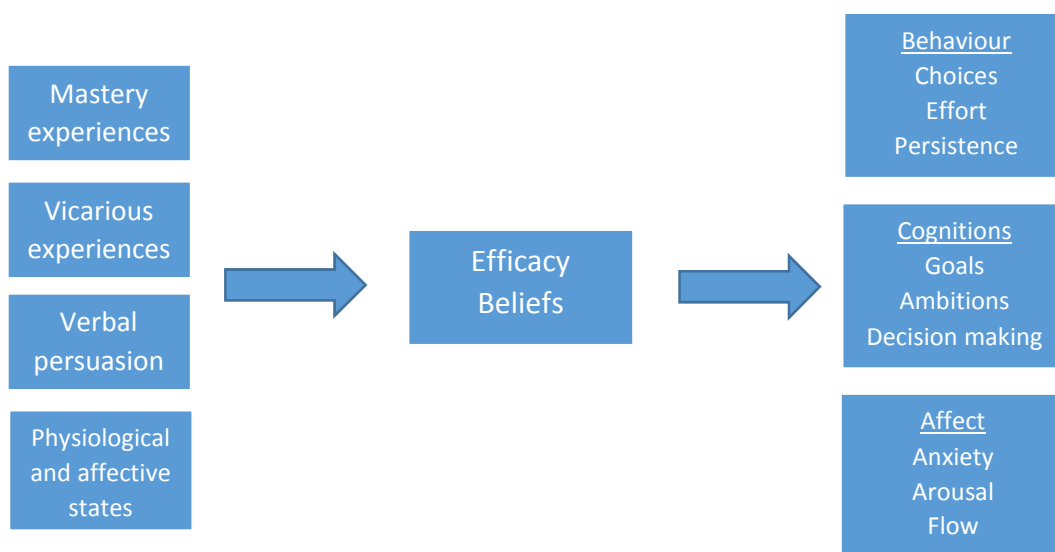
Figure 2. Theoretical model of self-efficacy

Sport confidence

Vealey's model of sport confidence (1986, 2001) is based on self-efficacy theory, however, it is developed to be a sport-specific conceptual framework with a particular focus on competitive sport contexts. The model proposes that sport confidence is a continuum from more generalised to more specific confidence. For example, confidence about today's competition, confidence about the season, confidence about sport in general. The models suggests that confidence is influenced by the organisational culture of sport and individual characteristics. Nine sources of sport confidence have been identified as particularly salient to athletes within the sport context (Table 11). Three forms of confidence were identified as important to athletes engaging in competitive sport:

- *Self-confidence – physical skills and training*: athlete's belief in ability to execute the physical skills and training necessary to perform successfully.
- *Self-confidence – cognitive efficiency*: athlete's belief that he or she can mentally focus, maintain concentration, and make effective decisions to perform successfully.
- *Self-confidence – resilience*: athlete's belief that she or he can regain focus after performance efforts, bounce back from performing poorly, and overcome doubts, problems, and setbacks to perform successfully.

Table 11. Sources of sport confidence (Vealey & Chase, 2008, p. 72)

Source	Confidence derived from…
Mastery	Mastering or improving personal skills
Demonstration of ability	Demonstrating more ability than one's opponent
Physical and mental preparation	Feeling physically and mentally prepared with an optimal focus on performance
Physical self-presentation	Perceptions of one's physical self (how one perceives they look to others)
Social support	Perceiving support and encouragement from significant others (e.g., coaches, parents, peers)
Vicarious experience	Watching others perform successfully (e.g., teammates or peers)
Coach's leadership	Believing the coach is skilled in decision-making and leadership
Environmental comfort	Feeling comfortable in a competitive environment
Situational favourableness	Feeling that characteristics of the situation are in one's favour

Research supports the multidimensional nature of confidence in sport, suggesting that athletes develop and maintain beliefs about their abilities to:

- win
- perform successfully in relation to certain standards
- self-regulate to manage thoughts and feelings including resilience
- learn and execute physical skills, achieve fitness/training levels

To date it is not clear how different types of confidence influence performance, competition-related thoughts, emotions, and behaviours. One exception is a study by Vealey & Knight (2002) who found that SC-physical skills and training was the strongest predictor of college swimming performance in the first two meets after a winter training programme. However, SC-resilience and SC-cognitive efficiency were the strongest predictors of performance late in the season during a highly competitive meet against a main rival.

Why is self-confidence important?

In their review of research relating to self-efficacy/sport confidence Vealey & Chase (2008) found:

1. Self-confidence influences performance:
   - Athletes and coaches identify self-confidence as important for success in sport.
   - Self-confidence is a key factor in discriminating between successful and less successful athletes.
   - Self-confidence and performance are positively yet moderately related when assessed in natural competitive sport settings.
   - Self-confidence buffers the negative effects of anxiety on performance. This research suggest confidence is not the absence of anxiety but rather a facilitative quality that enables athletes to manage anxiety in productive ways.

- In studies were people are experimentally manipulated to have higher confidence they outperform those who were experimentally manipulated to have lower confidence.

An interesting finding in a study by Solomon (2001) has relevance to PCS. Solomon found that coaches' evaluations of athletes' confidence predicted athletes' performance, whereas coaches' evaluations of athletes' abilities and athletes' own self-confidence did not predict performance.

2. Self-confidence influences behaviours, cognitions, and affect:
   - Athletes with greater self-confidence exert greater effort, persist for longer, choose to stay involved sport longer, and choose more difficult tasks.
   - Self-confidence has been associated with a range of adaptive self-perceptions and achievement related cognitions including: perceived ability, self-esteem, problem-focused coping strategy use, setting challenging goals, productive causal attributions, and task goal orientations.
   - Self-confidence is positively related to decision making and concentration.
   - Self-confidence is positively related to positive affective feelings (e.g., satisfaction, excitement, pride) and negatively associated with negative feelings (e.g., distress, nervous, ashamed).

Sources of self-confidence in sport

Research demonstrates a powerful influence of successful performance on self-confidence. Success does not equate to winning, rather experience of performing successfully is in relation to how success is defined for the individual. This could be winning but could also be learning, development, and progress (i.e., task orientation). These mastery experiences have been shown to be important sources of self-confidence across all developmental levels.

- Chase (1998) found that successful performance was the most frequently rated source of self-confidence for 8 to 9 year olds, and in the top three most frequent sources of confidence for 10 to 12 year olds and 13 to 14 year olds.
- Physical and mental preparation and mastery were the strongest predictors of self-confidence for high school and college athletes (Vealey et al, 1998) and master athletes (over 50 years) (Wilson, Sullivan, Myers, & Feltz, 2004).
- Other important sources of confidence include modelling which involves the vicarious experience of watching another person perform, especially when the person is similar to the observer (George, Feltz, & Chase, 1992) or highly skilled (Lirgg & Feltz, 1991).
- Several studies have identified that the coach who serves as a confident model and effective leader can be an important source of confidence (e.g., Hays et al, 2007).
- Social support and verbal persuasion are also important sources of confidence (e.g., Hanton et al, 2004).

Gender and self-confidence

There is some suggestion that males and females differ in their sport self-confidence. However, this appears to be related to whether activities are considered stereotypically 'male', 'female' or gender neutral activities.

- Lirgg (1991) found that the more 'masculine' an activity was considered, the greater was the difference in self-confidence between males and females.
- Several studies have shown that males showed higher confidence on 'male' tasks whereas females showed greater confidence on 'female' tasks (Vealey & Chase, 2008).

Research suggests that males and females identify different sources of confidence.

- Vealey et al (1998) found that female high school team sport athletes and college individual sport athletes in the USA rated social support as a more important source than male athletes. High school male athletes rated demonstration of ability as a more important source of confidence than did female athletes.
- Jones et al (1991) found that for male athletes comparisons and wining were important, whereas for female athletes' confidence, personal goals and standards were important sources.

Interventions to enhance self-confidence

Self-confidence has been identified as a foundation mental skill for athletes. Various mental training interventions have successfully enhanced self-confidence including use of relaxation, self-talk, goal setting, and imagery (Vealey & Chase, 2008). In addition, only a small amount of research has specifically focused on determining the effectiveness of fostering positive interactions between coaches and children, however, their findings demonstrate that such interventions can be effective.

- In the UK, Harwood and Swain (2002) implemented a season-long intervention programme within elite youth tennis. The programme involved player, parent, and coach and focused on developing the player's competitive mentality that emphasised self-challenge and game challenge. The programme demonstrated improved self-confidence for three programme participants and no increase for the control participant. This study demonstrates the value in this type of approach in which the focus is as much on the psychosocial context in which the athlete performs as on the individual athlete.
- In the late 1970s Smith and colleagues (see Smoll & Smith, 2006 for a review) developed a two-hour Coaching Effectiveness Training (CET) session designed to teach coaches to relate more effectively with children. The workshop emphasises fostering positive coach-athlete relationships, reducing evaluation apprehension, and enhancing team cohesion. Coaches were randomly assigned to either the CET group or a control group. They found that the children who played for the CET trained coaches developed higher levels of self-esteem, rated their coaches more positively, and had a more positive perception of the coach-created interpersonal climate compared with children who played for the coaches who did not receive the CET training. In addition, children who played for the trained coaches were approximately five times less likely than those who played for untrained coaches to drop out of the sport programme the following season. Recently, Smith and colleagues (e.g., Smith, et al., 2007) have redevelop this training programme to incorporate mastery motivational climate principles (MACS). Research examining the effectiveness of the intervention demonstrates similar positive outcomes for self-perceptions.
- Coatsworth and Conroy (2009) developed the Penn State Coach Training Program to encourage coaches to incorporate positive personal development in their coaching practice. They randomly assigned four coaches to the training programme and three coaches to an injury training programme (control). Based on pre-post assessments they found that participants in the swimming summer camp who perceived their coaches to be autonomy supportive (i.e. where coaches acknowledge others' thoughts and feelings, encourage choice and minimise pressures to control others (Mageau & Vallerand, 2003) were more likely to feel competent and connected and have higher self-esteem compared with participants in the control group.

Measurement Tools

Measurement tools have been developed to assess self-efficacy, sport-confidence, and sources of sport-confidence such as:

- Task-specific self-efficacy (Bandura, 1997)
- Task-specific collective efficacy (Bandura, 1997) – assessment of the group's shared belief that they can execute the required course of action to produce desired attainments.
- Collective efficacy questionnaire for sport (Short et al, 2005)
- Coaching efficacy scale (Feltz et al, 1999)
- Sport-Confidence Inventory (Vealey & Knight, 2002)
- Sources of Sport Confidence questionnaire (Vealey et al, 1998)

Conclusion

Self-perceptions can be general (e.g., self-worth, self-esteem), domain specific (e.g., sport competence) or situation-specific (e.g., self-efficacy, sport confidence). There is evidence of general developmental changes in self-perceptions and sources of information used to judge self-perceptions and some is specific to the physical domain. In models of self-confidence, self-efficacy/confidence is:

- A belief about one's ability to execute a task successfully
- Influences athlete's behaviours, thoughts, and feelings which in turn influence performance
- Influenced by:
  - the sport environment
  - individual characteristics
  - personal experiences
  - interactions with others significant others

However, further research is recommend to examine the many contextual, social, and cultural forces that influence the development and manifestation of confidence in sport.

Recommendations

Considering the research and theory related to self-perceptions together a number of recommendations for the PCS programme can be provided:

- There is support for the current emphasis in with the 'fill the emotional tank' principle on providing positive feedback that is specific and warranted. This should continue.
- Promote a mastery motivational climate, particularly through mastery experiences.
- Encourage significant adults to provide clear, consistent, mastery-contingent feedback
- Encourage coaches to use an individualised approach, where they develop an understanding of how each athlete constructs and construes his or her self-perceptions.
- Develop coaches' (and parents) understanding of the range of sources of competence information and confidence athletes' use at different stage of development and how this information is used to develop to evaluate oneself and abilities.
- Encourage coaches (and parents) to consider the different ways in which they effectively use different competence information or sources of confidence, including mastery experiences, vicarious experiences, and evaluative feedback, to foster high self-perceptions.
- Assist coaches (and parents) to understand the way in which social comparisons (e.g., performance outcome, peer comparisons) can negatively affect self-perceptions but also how this information can be used effectively, if framed appropriately (particularly with older adolescents).
- Target critical periods in young people's development for fostering high self-perceptions.

5. Facilitating Respect

Common terms associated with moral development include sportsmanship (or sportspersonship), character, and fair play. Researchers have examined young people's understanding of what sportsmanship is (e.g., Bovyer, 1963; Stuart, 2003; Entzion, 1991). Responses typically reflect:

- behavioural norms and conventions (e.g., following rules, taking turns, being honest)
- concern about the physical and psychological well-being of others (e.g., not making fun of others, not hurting others, showing respect for others).

Approaches to Moral Development

To better understand and influence moral behaviour it is helpful to understand how moral behaviours are developed. Two theoretical approaches to moral development related to sport were summarised by Weiss, Smith, & Stuntz (2008) (see Table 12).

Table 12. Approaches to moral development.

Approach	Definition of morality	Sources of moral development	Basis for intervention
Social learning	Prosocial behaviours in accordance with societal norms	Observational learning, reinforcement, approval by significant others	Role models, moral mentors, tangible and social rewards
Structural development	Concern for physical and emotional welfare of self and others	Cognitive or social disequilibrium when confronted with a moral dilemma; dialogue and balance with involved persons	Activities prompting discussion and resolution of moral dilemmas; role-playing, co-operative problem solving; empowering students to make decisions

Model of Moral Action (Rest, 1984;1986)

Rest (1984; 1986) proposed understanding morality is about the development of moral reasoning or judgement. Rest's Model of Moral Action focuses on the psychological processes in order for moral action to take place. Four processes were identified:

- *Moral sensitivity* – interpreting the situation as moral one. Requires perspective-taking and empathy skills.
- *Moral judgement* – deciding whether a course of action is right or wrong and why (moral reasoning)
- *Moral motivation* – deciding what one intends to do, involves weighing up and choosing amongst competing values
- *Moral character* – implementing a moral plan of action, how one behaves and strength of conviction.

In sport, Shields and Bredemeier (1995) extended Rest's model and adapted it for sport (Model of Moral Action in Sport). Their model contains 12 components which elaborate on Rest's original four processes. These factors are summarised in Table 13.

Table 13. Components of the Model of Moral Action in Sport (Shields & Bredemeier, 1995)

	Moral interpretation	Moral judgement	Moral intention	Moral behaviour
Personal competency influences	Role taking, social perspective taking	Moral reasoning, moral beliefs and values, legitimacy beliefs	Responsibility judgements, goal orientation, self-concept	Self-regulation skills, problem-solving skills
Social contextual influences	Situational ambiguity, goal-reward structure	Moral atmosphere or collective norms	Domain cues, mastery vs performance climate	Power structures, leadership style
Ego-processing influences	Empathy, tolerance of ambiguity	Objectivity, intellectuality, logical analysis as coping; isolation, intellectualising, rationalisation as defending	Sublimation, substitution, suppression as coping; displacement, repression, reaction formation as defending	Concentration as coping; denial as defending

What influences moral development?

Research studies examining moral development in sport is summarised in Appendix E. Both individual factors and social contextual factors appear to influence moral reasoning and behaviour. An overview is provide here.

Social contextual influences include:

- Youth learn aggressive actions by watching elite athletes and then put those actions into play
- Believing that significant others endorse unsportspersonlike actions are more likely to approve similar behaviours
- Moral atmosphere or collective group norms regarding legitimacy of behaviours and motivational climate are related to moral attitudes and behavioural tendencies.

Individual difference factors include:

- Continued participation in sport, especially high-contact sports, is associated with lower moral reasoning and greater acceptance of aggressive behaviours.
- Males use lower moral reasoning and are more accepting of unsportpersonlike behaviour than females.
- Older athletes tend to be more approving of aggressive acts than younger athletes.
- Athletes perceive significant others to be more approving of aggressive behaviour at higher levels of competition.
- Higher levels of ego orientation tend to be associated with lower moral reasoning and greater endorsement of aggression, cheating, and unsportpersonslike behaviour.
- Higher task orientation tends to be associated with more prosocial judgements and actions.
- Situational influences (moral atmosphere and/or motivational climate) tend to be stronger predictors of unsportpersonlike judgements and behaviours that goal orientations

- Greater self-regulatory efficacy to resist peer pressure has been associated with lower unsportspersonlike judgements and behaviours

Moral disengagement

Moral disengagement has become a focus research for a small group of researchers, mainly in the UK. Moral disengagement refers to 'eight psychosocial mechanisms that individuals use to minimize negative emotional reactions (e.g., guilt, shame) when engaging in transgressive conduct. These mechanisms act by cognitively reconstruing the harmful behaviors into benign ones, minimizing personal accountability for transgressive acts, misrepresenting the injurious effects that result from harmful conduct, or blaming the character or actions of the victim (Bandura, 1991). The eight mechanisms are euphemistic labeling, moral justification, advantageous comparison, diffusion of responsibility, displacement of responsibility, distortion of consequences, dehumanization, and attribution of blame.' (Boardley & Kavussanu, 2010, p. 177). Research in this area has focused on participants in late adolescence and adults. Therefore has not been reviewed for the purpose of this report.

Interventions to foster moral development

A number of programmes/interventions have been developed to foster moral development through the medium of sport. The focus is often on using sport as a vehicle for wider moral development, rather than developing mature moral functioning in sport itself.

Fair Play for Kids (SportCanada, 1990)

This programme was created from moral development theory and research. It focused on activities that emphasise social perspective taking, dialogue and balance, and modelling and reinforcement of prosocial behaviours. Support for this programme in schools has been demonstrated (e.g., Gibbons et al, 1995; Gibbons & Ebbeck, 1997).

Personal-Social Responsibility Model (Hellison, 1985, 1995; Hellison & Walsh, 2002).

The model is focused on balancing empowering students with teaching explicit values to develop personal and social skills for underserved youth. The model defines five levels of responsibility:

1. Respect for right and feelings of others (e.g., self-control, resolving conflicts, inclusion)
2. Effort and teamwork (e.g., cooperation and self-motivation)
3. Self-direction (e.g., independent work, courage to resist peer pressure)
4. Helping and leadership (e.g., sensitivity to others' needs and well-being)
5. Application outside the gym (e.g., being a role model)

A synthesis of 26 empirical studies examining the application of the model (Hellison & Walsh, 2002) demonstrated strong evidence that programmes designed around the model could achieve improvements in self-control, effort, helping others, and self-direction for in-program goals, and transfer improvements in self-control, effort, self-esteem, and making better choices from the physical activity context to classroom context. Hellison & Wright also provided evidence of PYD as a result of participation in urban extended day programmes based on the Personal-Social Responsibility Model.

Sport Education Model.

Harvey, Kirk, & O'Donovan (2014) reviewed the research examining the Sport Education model in relation to facilitating ethical behaviour. They found that notions consistent with moral reasoning and behaviour development are part of the Sport Education Model. However, they suggested that ethical conduct is not caught, rather it must be taught. Therefore, they proposed four pedagogical

applications that physical education teachers and youth sport coaches and administrators might find useful to promote moral development through physical activity: (1) ethical contracts; (2) sports panels; (3) modified games; and (4) awards and rewards.

PYD and Life skills approaches.
These approaches include programmes designed to facilitate the learning of life skills through sport participation. Example programmes include Play it Smart and First Tee. These are discussed in the PYD section of this report.

Measurement Tools
Recently developed measurement tools include:

- Attitudes to Moral Decision-making in Youth Sport Questionnaire (AMDSYQ) (Lee, Whitehead, & Ntoumanis, 2007). Assesses three dimensions: Acceptance of cheating, acceptance of gamesmanship, keeping winning in proportion.
- Moral Disengagement scale (Boardley & Kavussanu, 2007; 2008). Assesses Bandura's (1991) eight mechanisms of moral disengagement.

Conclusion
Mature moral functioning is a cornerstone of PCS and is a topic of interest to researchers. Much of the research focuses on self-reports and therefore provides insight largely into moral reasoning and judgements rather than actual moral behaviour. For example, what one says they would do in a given situation and why maybe very different to how they act if actually faced with that situation. However, it appears that involvement in sport over time can have a detrimental effect on moral functioning, particularly for males, in contact sports. Social agents (coaches, parents, and peers) can influence moral functioning and therefore their own moral functioning is important. Programmes have been developed and evidence provided that support the ability to positively influence moral development. The content and emphasis of these programmes can guide developments in this area. However, directions for future work that would enhance our understanding of moral development in sport include:

- Greater understanding of the role of social relationships (coaches, parents, peers, friendships)
- Longitudinal studies
- Understanding of mechanisms of development, influence, change, and retention
- Greater understanding of how specific characteristics influence moral development (e.g., gender, age, developmental level)
- Whether interventions yield changes that transfer to other contexts and how this transfer occurs.

6. Autonomy Support

An area of research that has much in common with the PCS principles stems from self-determination theory (SDT) (Deci & Ryan, 1985; 2000). This theory proposes that people function best when they feel their psychological needs for competence, autonomy, and relatedness are fulfilled.

- *Competence* refers to feeling competent in what we undertake, able to manage the challenges faced day to day.
- *Autonomy* refers to feeling that one is acting with a sense of free will and choice.
- *Relatedness* is the perception that one is connected with those in their social world.

Research in a wide range of domains such as education, work, and sport demonstrate support for the association between psychological need satisfaction and desirable outcomes such as intrinsic motivation, psychological well-being, and persistence (see Ntoumanis, 2012 for a review related to sport and physical education). Another aspect of SDT is the proposition that socio-psychological environment can support and thwart satisfaction of psychological needs. A central feature of this environment is the extent to which behaviours of coaches and other 'leaders' (e.g., parents, teachers) engage in autonomy supportive behaviours and avoid or minimise controlling behaviours. Being autonomy supportive is defined as when 'an individual in a position of authority (e.g., an instructor [or a coach]) takes the other's (e.g., student [or an athlete]) perspective, acknowledges the other's feelings, and provides the other with pertinent information and opportunities for choices, while minimizing the use of pressures and demands' (Black & Deci, 2000, p. 742 cited in Mageau and Vallerand, 2003)

Mageau and Vallerand (2003) reviewed research in sport and education and described seven autonomy supportive behaviours that have consistently been associated with intrinsic and self-determined motivation (see Table 14). They summarised autonomy support in this way:

> 'Being autonomy supportive, by definition, implies that athletes are encouraged to make choices and take initiatives, while criticisms, pressures, and controls are minimised. These behaviours convey a message of trust in athletes' abilities, thus influencing athletes' perceptions of competence. Perceptions of competence are also influenced directly by the non-controlling competence feedback provided by autonomy supportive coaches. In addition, autonomy supportive coaches consider athletes' perspective and feelings and underscore the importance of requested tasks, rules, and limits. By doing so, coaches communicate their involvement as well as their respect for their athletes, thus influencing athletes' perceptions of relatedness.' (p. 893).

Mageau and Vallerand (2003) also proposed that two other features of the coaches' behaviour were important to foster intrinsic motivation and psychological need satisfaction. These were: 1) the structure coaches' provide; and 2) their level of involvement with athletes. Although, subject to much less research, they suggested that some instruction and structure was important to support athletes with sufficient information and experience to progress and therefore foster perceptions of competence. In addition, parents and coaches who are interested, caring, encouraging, and supportive demonstrate positive involvement in the athletes' participation and has been associated with athletes' enjoyment, participation, and self-determined motivation (Mageau & Vallerand, 2003).

Recently the concept of controlling behaviours have been examined and elaborated upon. Bartholomew et al (2009) reviewed the research related to controlling behaviours and described six controlling behaviours that have a negative impact on participants' experiences in sport. These behaviours are summarised in Table 15.

The extent to which a coach exhibits autonomy supportive or controlling behaviours is proposed to be shaped by the coach's personal orientation and the characteristics of the environment in which they are working. Although a less well researched area, a coach's tendency to be more or less autonomy supportive or controlling is likely to emerge from their experiences of being coached and observations of coaching. Assessment of coaches' values and beliefs about how to motivate athletes and their general coaching philosophy is likely to provide insight into coaches' personal orientation.

- In their study of 11 high school coaches' in the US, Iachini and Amorose (2010) found that the coaches' beliefs about how to motivate athletes centred largely on strategies that developed competence and, to a lesser degree, relatedness, particularly during training sessions. Fewer strategies to foster autonomy were described and less time was given to them.

Table 14. Autonomy supportive behaviours

Behaviour	Explanation
Provide choice within specific rules and limits	Providing a choice of activity from a range of activities during a session. Athletes feel a sense of choice and input into what they are being asked to do. However, the choice may be guided to a greater or lesser extent by the coach depending on the knowledge and understanding of the athletes
Provide a rationale for tasks and limits	Explain why tasks/activities are relevant and useful. Athletes understand why they are being asked to do what they are doing and why it is considered important for them. Athletes may also begin to develop their knowledge so that they can make more informed choices or provide informed input which may lead to greater opportunity for autonomous/self-directed behaviour in the future.
Provide athletes with opportunities for initiative taking and independent work	Athletes may be given responsibility for certain tasks (or parts of tasks) such as designing a warm-up, generating and experimenting with possible solutions to problems they face during training or performance, setting targets for development or performance. Again this provides athletes with an opportunity to have input into and choice over what they are doing, to take ownership of the process and develop greater understanding of training and performance processes. This can provide a sense of autonomy and also develop competence (confidence in their own abilities)
Provide non-controlling competence feedback	Feedback is suggested to have two components: Informational and controlling. The informational aspect provides the athlete with information about their competence (what is effective, appropriate and what could be improved). The controlling aspect incites the individual into emitting the behaviour. To facilitate intrinsic motivation feedback should promote perceptions of competence and autonomy; focus on behaviours that are within the athlete's control; convey high but realistic expectations.
Avoid controlling behaviours • Avoid overt control • Avoid criticisms and controlling statements • Avoid tangible rewards for interesting tasks	Power-assertive techniques, threats, withdrawal of resources or privileges, pressure, guilt inducing criticisms, and controlling statements all undermine intrinsic motivation and create a bond between coach and athlete that is contingent on the athlete conforming to the coaches' wishes or expectations or standards. Athletes may feel they have to relinquish their own feelings and perspectives to maintain the relationship with the coach resulting in feelings of limited autonomy and feeling controlled by the coach. Similar to feedback, rewards can have a both an informational aspect and a controlling aspect. In addition, rewards have been shown to undermined motivation for something that the athlete would have found interesting and engaged in without the reward being offered.
Prevent ego-involvement in athletes	When ego-involved athletes' self-esteem in on the line. In these situations athletes tend to focus on the outcome and how to achieve this so that their self-esteem is protected. However, this narrows the range of actions they have available to them (and within their control) to those indicated by the coach which can undermine autonomy.
Acknowledge the other person's feelings and perspectives	Inquiring about and acknowledging athletes' feelings and perspectives requires to the coach to take 'the other's perspective'. How does the athlete feel about the situation or what they are being asked to do? This behaviour demonstrates the coaches' recognition of the athletes as individuals with needs, thoughts, and feelings and not just pawns to be directed.

Table 15. Controlling strategies (adapted from Bartholomew et al, 2009)

Controlling strategy	Explanation
Tangible rewards (task engagement, task completion, performance, competition)	The use of tangible rewards designed to manipulate athletes' behaviour and promote desired/expected behaviours.
Controlling feedback (instruction, criticism, praise)	The use of instructional feedback which conveys expectations about athletes' behaviour. The use of overly critical feedback which attempts to anger athletes in an effort to motivate them to perform better. The use of praise to reinforce expected/desired behaviours.
Excessive personal control (imposed values/opinions, controlling statements, surveillance, imposed goals, over-intrusive behaviours)	Behaviours to impose views upon athletes, ignoring athletes' own perspective. Use of constraining or pressurising expressions to ensure athletes' follow prescribed coach-centred agenda. Excessive monitoring and surveillance during training. Behaviours designed to impose goals upon athletes dictated by the coach (social agent). Attempts to influence aspects of the athletes' lives that are not directly relevant to their sport participation.
Intimidation behaviours (verbal abuse, yelling, physical punishment, personal attacks, humiliating and belittling)	The use of power assertive techniques which force athletes to comply with coach (social agent) expectations and demands.
Promoting ego-involvement (competition, public evaluation, normative comparisons, externally-referenced criteria for success)	Employing strategies which lead athletes to view their self-worth as contingent upon demonstrating superiority against other athletes.
Conditional regard (positive regard, negative regard, negative affect-laden expressions)	The provision of attention, affection, and support when an athlete displays particular behaviours or attributes (positive regard) and withdrawal of attention, affection, and support when specified behaviours are not displayed (negative regard). The use of guilt inducing statements which appeal to internal pressures and are employed to show disappointment.

- Although not explicitly examining autonomy-supportive coaching orientations, Bennie and O'Connor (2011) found that the six professional coaches from Australia in their study held beliefs about the importance of whole person development on and off the 'field'. Such views were described as being consistent with a humanistic approach to coaching which has much in common with autonomy supportive coaching.
- Little is known about the personal orientation of coaches at all levels of sport in Scotland. However, a study of Scottish performance coaches' perceptions of their role in doping and anti-doping suggests many hold views consistent with an autonomy-supportive approach to coaching (Allen, Taylor, Dimeo, Dixon, & Robinson, 2015).

The coaching context is also proposed to influence the extent to which a coach behaves in an autonomy-supportive or controlling manner. Research has shown that coaches' are more likely to exhibit controlling behaviours when they perceive the immediate environment:

- places pressure on them to perform;
- creates high levels of stress, they.

When coaches' perceive a pressure to perform, especially when evaluation of them or their own interests are tied to athletes' performances, they can become ego-involved. Similar to ego-involved athletes, the focus becomes the outcome and the athletes' needs/interests become secondary. The coach attempts to 'control everything to ensure the outcome is achieved', potentially having the opposite effect. Stress is a type of pressure and can lead to controlling behaviours, however, the underlying mechanism is different. Stress depletes coaches' psychological resources, leaving less time and energy to consider athletes' perspectives and feelings.

- In a study of UK coaches, Stebbings, Taylor, & Spray (2011) found that satisfaction of coaches' need for competence and autonomy predicted their psychological well-being which in turn predicted the coaches' reported autonomy support towards their athletes.

Although yet to be verified by research Mageau and Vallerand (2003) suggested four obstacles to coaches' being autonomy supportive:

- False beliefs that controlling behaviours are better to motivate athletes
- Controlling behaviours are not unpleasant for those delivering them
- People are not necessarily aware they are emitting controlling behaviours
- Athletes who are most vulnerable to controlling behaviours are most likely to elicit them.

Conclusion

Research has consistently demonstrated that autonomy supportive behaviours are associated with adaptive functioning and positive experiences while controlling behaviours are associated with maladaptive functioning and negative experiences. Much of this research is correlational with measures taken at one point in time. This means that it would be inappropriate to suggest there is a 'cause and effect' relationship. However, a smaller number of studies have examined relationships over time or have implemented an intervention to manipulate the environment to be more autonomy supportive or less controlling (e.g., PAPA project). These studies generally provide support for the theoretical propositions and the findings of the correlational studies.

Summary and Recommendations

In conducting this literature review a significant volume of research has been examined. Overall the research examined provides evidence to support the three principles of PCS: redefining winner (fostering mastery); filling the emotional tank (developing confidence); honour our sport (fostering respect). However, it the review also points to areas for continued refinement and further development.

An overriding finding is that social agents have a significant role to play in shaping the experiences and development of young people in sport. Furthermore, this is achieved through the atmosphere or climate they help to create. As such the main recommendation is that the environment or to use PCS language 'the culture' in and around sport continues to be the focus. This 'culture' should reflect principles connected with fostering task-involvement, a mastery motivational climate and include autonomy supportive behaviours, whilst minimising controlling strategies. The report contains considerable detail on frameworks and strategies that can be used to further develop this 'culture'. However, the key messages for influencers and strategies include:

Key messages:

- You can always improve
- Effort, persistence, and challenges are the keys to improvement
- 'Failures' and setbacks are opportunities to learn
- Evaluate yourself based on yourself

How to foster these messages:

- Create a caring, supportive, encouraging environment
- Clearly and consistently promote, reinforce, and reward the key messages
- Individualise feedback and evaluations and focus on the process and effort
- Create moderately challenging tasks and expect quality performance

Drawing from Keegan and colleagues work examining the motivational atmosphere across participation stages there are key areas that are relevant to the PCS programme. In most cases:

- a positive approach by social agents has a positive impact on participants
- a negative approach by social agents has a negative impact on participants
- participants value facilitation that makes it possible for them to practice, learn, improve, or achieve
- controlling behaviours and support contingent upon sporting success can have a detrimental effect on motivation
- feeling part of 'something' (team/group) and close relationships are desirable.

With the 'culture' as a foundation outcomes such as the 4Cs (competence, confidence, connection, character) and/or well-being, life skills, enjoyment, satisfaction, performance, and life-long participation can be embedded into the programme as the Winning Scotland Foundation see fit. By connecting with the wider area of PYD and Life skills, it may be useful to determine where PCS fits within a broader view of young people's lives. Such an analysis may be useful in determining which of the many possible 'outcomes' from sport participation are to be a priority for the programme.

The review has highlighted evidence to support the importance of developing three of the four Cs (competence, confidence and character). In doing so recommendations have been provided for how

coaches and parents (and other social agents such as teachers and peers) can support and facilitate further development of these outcomes through PCS.

Although identified as important to sport participation throughout the review, social relationships (connection) have not been explicitly reviewed. There is a growing evidence of the relevance of concepts such as relatedness, belonging, and relationships (e.g., coach-athlete, athlete-athlete, parent-athlete, coach-parent) for achieving positive sporting experiences and outcomes. Therefore future reviews of the research might focus on this area.

Other areas that have been mentioned in this report but where there is further research available that could usefully inform the developments of PCS include: Autonomy support and controlling behaviours; parental involvement; and implicit beliefs (particularly from education research and the role praise and setbacks).

The review identifies some evidence of social agents' differing roles and changes in these roles during participants' involvement in sport. This provides a starting point for further refinement in PCS programme of the roles that key influencers play, particularly when integrated with a stages of participation model. This type of stage of participation or developmental approach to understanding participants' experiences and progression in sport is in need of further attention from researchers and practitioners alike. In addition to the DMSP presented in this report, examination of the phases in the Long Term Athlete Development (LTAD) model and evidence supporting it is likely to assist with particularly physical development-focused outcomes.

One group of participants important to PCS but for whom there is limited sport-related research is early childhood (less than 8 years of age). In part this is likely due to the self-report methods typically employed when examining the topics included here. However, developing a greater understanding of the needs and experiences of this group will be important to ensure the PCS programme is providing relevant guidance for these young participants. Initial insight may be gained from education research, however, any findings should be verified in sport contexts.

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Appendix A. Key Reviews

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Implicit Theories (Mindset)

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Appendix B. Summaries of implicit beliefs (mindset) studies.

Authors, year	Participants		Age Range (years)	Average age	Sport(s)	Country	Key findings
	Males	Females					
Youth							
Corrion et al (2010)	N=278	N=199	11-16	13.6 (1.12)	various	France	Entity theory of ability (fixed mindset) and performance-approach and -avoidance goals were associated with judgements about the acceptability of cheating. Incremental theory of ability (growth mindset) and mastery goals were associated with lower acceptability of cheating. Males more than females were likely to judge cheating as acceptable.
Ommundsen (2001a)	N=101	N=116	15-16		PE	Norway	A learning environment that is perceived to emphasise competition and social comparison and to raise concern about one's ability (performance climate) seems to induce fixed implicit theories of ability (fixed mindset). A climate in which effort, progress and teacher support of all students is emphasised (mastery climate) seems to generate a theory of ability as expandable and learning induced (growth mindset).
Ommundsen (2001b)	N=101	N=116	15-16		PE	Norway	Regardless of differences in perceived ability, endorsing a conception of ability in PE as stable and innate directly gave rise to increased levels of anxiety and reduced satisfaction in PE. Conceiving of ability as learning induced was directly facilitative of satisfaction in PE, only modestly mediated by a task-oriented achievement goal.
Ommundsen (2003)	N=166	N=177	15-16		PE	Norway	A fixed theory of ability had a direct positive effect on self-handicapping. The effects of an incremental implicit theory of ability on self-handicapping were negative and mediated by a task orientation. High perceived competence was found to buffer the aversive effect of holding a stable theory of ability on self-handicapping. Findings suggest the educational value of appraising pupils' implicit theories of ability, belief in the modifiability of ability through effort, hard work and learning.
Spray et al (2006)	N=54	N=69	11-15	13.40 (1.18)	various	UK	Field experiment. Support was found for a causal link between sport ability beliefs and achievement goals both before and after failure on a sport task. Ability attributions for failure were stronger for entity theorists but there were no differences between groups on affective reactions and willingness to participate in a future training programme, probably due to high incremental beliefs in all

							participants.
Warburton & Spray (2008)	N=68	N=72	10-11 (at start)	11.37 SD = .28	PE		12 month study of transition from primary to secondary school. Mastery-approach, performance-approach and performance-avoidance goals, as well as entity and incremental beliefs, exhibited a linear decline over time. Mastery-avoidance goals showed no significant change. Girls exhibited a linear decline in perceived competence, whereas for boys the trajectory was curvilinear. Incremental beliefs predicted rate of change in mastery-approach goal adoption, whereas entity beliefs were associated with changes in performance-avoidance goals. Limited differences between boys and girls were observed.
Warburton & Spray (2013)	N=227	N=203	11–15	13.16 (0.86)	PE Tennis cricket	UK	Controlling for prior approach-avoidance goal adoption, incremental beliefs predicted change in mastery-approach goal adoption and perceptions of competence predicted change in performance-approach goal adoption over the unit of work in both sports.
Talent							
Cook et al (2014)			N=8 key support staff		Soccer	UK	Interviews revealed four general dimensions emerged as salient to mental toughness: competitiveness with self and others, mindset, resilience and personal responsibility. To enhance mental toughness, coaches sought to foster in the young players two key characteristics: independence and resourcefulness, via a challenging but supportive learning environment.
Elite/adult							
Connaughton et al (2010)	N=4 N=2 N=2	N=3	N=7 World-class athletes N=2 coaches N=2 sport psychologists		various	UK	Positive and negative critical incidents were perceived by participants to act as catalysts in initiating or enhancing specific components of mental toughness. Study identifies the importance of a mental toughness attitude/mindset to development.
Halldorsson et al (2012)			Elite and non-elite		various	Iceland	Elite athletes tended to attribute their successes to socio-psychological qualities such as self-confidence, mindset, and self-discipline rather than physical abilities or

Authors, year								Key findings
			athletes					technical skills.
Jones et al (2007)			N=8 World-class athletes N=3 coaches N=4 sport psychologists		various	UK		Interviews identified 30 attributes that were essential to being mentally tough. These attributes clustered under 4 separate dimensions (attitude/mindset, training, competition, postcompetition) within an overall framework of mental toughness
Slater et al (2012)	N=6	N=2	18-51	34 (12.8)	Golf low handicap	UK		Interviews revealed three beliefs about ability: acquirable, stable, developing natural attributes; and sources of ability which varied depending on beliefs about the nature of ability.
Wang et al (2009)	N=125	N=184	18-32		college	USA		When perceived competence was high, entity beliefs did not predict the performance-avoidance goal. However, when perceived competence was moderately low, entity beliefs did predict performance-avoidance goal. When perceived competence was high, mastery-avoidance goal had no relationship with intrinsic motivation, but had a significant negative relationship when perceived competence was moderately low.
Intervention								
Haselhuhn & Burton (2013)			college		baseball	USA		Outlines the Growth Hitting System (GHS) which systematically promotes growth mindsets and mastery orientation development by focusing on process goals and redefining outcome goals in baseball.
Evans & Slater (2014)			8-10			UK		Sport psych sessions. Four key themes (i.e. promoting a growth mindset, being engaged and having fun, personal development and life skills, and preparation) were thought to contribute to the success of the sessions.

Note. Unless stated the studies involved self-report questionnaires.

Appendix C. Summaries of additional motivational climate studies.

Authors, year	Participants	Age	Average	Social	Sport(s)	Country	Method	Key findings

	Male	Female	Range (years)	age (years)	agent				
Youth									
Alvarez et al (2012)	N=370		12-16	14.77 (0.22)		soccer	Spain	survey	A perceived task-involving climate predicted satisfaction of the three psychological needs, while a perceived ego-involving climate was a negative predictor of relatedness satisfaction. Satisfaction of the three psychological needs was related to intrinsic motivation, while intrinsic motivation was positively linked to subjective vitality and future intention to participate.
Atkins et al (2015)	N=205 N=200		12–15	13.8 (0.55) 13.4 (0.52)	Coach, parent, peer		USA	survey	Task goal orientation was explained by task-involving parent, peer, and coach initiated motivational climates, although parent and peer climates were most influential. Boys with higher task goal orientations reported greater sport competence, self-esteem, and more enjoyment in sport. Intention to continue playing sport primarily was predicted by the boys' enjoyment, and secondarily, by their self-esteem.
Gould et al (2012)	N=153	N=86	10-19	14.51 (1.97)		baseball softball	USA	survey	The more coaches create caring, mastery-oriented environments, the more likely positive developmental gains result (e.g., team and social skills, networking, and personal initiative). A performance climate was associated with negative outcomes, particularly peer and adult negative influences.
*Horn et al (2012)			N=351 Adolescent High school		coach		USA	survey	Athletes were divided into four climate type groups: Low Task/Low Ego; Low Task/High Ego; High Task/Low Ego; High Task/High Ego. Comparisons revealed that athletes in both high task groups (High Task/Low Ego and High Task/High Ego) exhibited higher perceptions of all forms of group cohesion.
Iwasaki & Fry (2013)	N=102	N=71 N=36	9-13 7-18	11.04 (1.27) 11.49	coach	volleyball basketball	USA	survey	In both samples, athletes' perceptions of a caring/task-involving climate, along with low perceptions of an ego-involving climate, were associated with higher levels of

			(2.51)						intrinsic motivation, caring behaviors, and future desire to participate.
*Ommundsen et al (2010)			12-16		Coach	Soccer	Norway	survey	Satisfaction of the need for competence and autonomy significantly mediated relations between the mastery climate created by the coach and intrinsic motivation.
O'Rourke et al (2014)	N=97	N=141	9-14	11.90 (1.33)	Coach parent	Swimming	USA	survey	Parent-initiated motivational climate was a significant predictor of late-season self-esteem, trait anxiety, and autonomous regulation over and above coach-initiated motivational climate.
Smith, S. et al (2005)		N=143	15.71 (1.15)		coach	basketball	USA	survey	Athletes' perceptions of their coaches providing positive and encouraging feedback both after successful and unsuccessful performances as well as not ignoring mistakes was associated with the athletes' perceiving a task-involving climate. Athletes who perceived that their coaches gave less positive feedback but higher amounts of punishment feedback, were more likely to perceive the climate as ego-involving.
Stein et al (2012)	N=70		13-14		Coach	Ice hockey	Canada	survey	The type of feedback, purpose of the feedback, and agreement or discrepancy in perceptions and preferences for different feedback styles are important to understanding task- and ego-involved motivational climate in youth sport.
Vitali et al (2011)	N=41	N=46	15-18	15.92 (1.12)	coach	Basketball volleyball	Italy	survey	Mastery (task-involving) climate correlated positively with resilience and perceived competence, and negatively with the three dimensions of burnout (emotional/physical exhaustion, reduced sense of accomplishment, and sport devaluation). Performance (ego-involving) climate related positively with the three dimensions of burnout. Perceived mastery climate explained variations in two burnout variables (i.e., reduced sense of accomplishment and sport devaluation).
*Waldron &		N=62	adolesc		Coach	softball	USA	survey	Athletes' early season task orientation, perceptions of a task

Krane (2005)			ent		and parent				coach-initiated climate, and a parent climate emphasizing learning positively predicted athletes' task orientation at late season. Athletes' early season ego orientation was the only predictor of late season ego orientation.
Elite/adult									
Allen et al (2015)	N=81	N=96	13-61	23.29 (8.27)	Coach		Scotland	survey	Task and ego goals and mastery motivational climate were predictors of attitudes to PED use. Compared with individual athletes, team athletes were significantly lower in attitude to PED use and ego orientation scores and significantly higher in perceptions of a mastery motivational climate.
Garcia-Calvo et al (2014)	N=377		16-39	24.51 (3.73)	Coach, peer	Soccer (3rd div)	Spain	Survey (2 time periods)	Perceived coach-created task climate was positively related to perceived cohesion and players' satisfaction with their participation within their team. Perceived peer-created task climate related positively to perceived cohesion.
Hodge, Henry & Smith (2014)	N=2		Elite		coaches	rugby	NZ	interviews	Key themes: (i) critical turning point, (ii) flexible and evolving, (iii) dual-management model, (iv) "Better People Make Better All Blacks," (v) responsibility, (vi) leadership, (vii) expectation of excellence, and (viii) team cohesion.
Le Bars et al (2009)	dropouts N=30 persist N=34 Study 2 N=45	dropouts N=22 persist N=18 N=37		17.9 (1.3) 16.7 (1.1)	Coach peer parent	judo	France	survey	Compared with persisting athletes, dropouts perceived the roles of coaches, parents, and peers as less task-involving, were less task-oriented, and intended more to drop out. During the 2 years, persisting athletes' perceptions of coach-, parent-, and peer-induced task-involving climates decreased, while perceptions of a coach-induced ego-involving climate and the intention of dropping out increased in spite of more positive self-perceptions. Males had higher perceptions of their physical condition, sport competence, and physical self-worth than females.
Olympiou et al (2008)	N=414	N=177	16-36		coach	Team sports	England	survey	Perceived task-involving coaching climate were associated with higher levels of closeness, commitment, and complementarity with the coach.

									Perceptions of the ego-involving features of the coach-created environment were associated with lower levels of perceived closeness, commitment, and complementarity with the coach.

Appendix D. Summaries of motivational climate intervention studies.

Authors, year	Participants		Age Range (years)	Average age (SD)	Sport(s)	Country	Key findings
	Males	Females					
Coaches							
Cecchini et al (2014)	Exp. N=98 Control N=95	Exp. N=45 Control N=45	14-18	13.54 (1.31)	Basketball football	Spain	Epstein's TARGET strategies were applied to the experimental group during 12 weeks by specially trained coaches. Experimental group perceived significant changes towards a mastery climate, basic need satisfaction, self-determined motivation, persistence and effort. These changes were maintained in most variables six months after the intervention. No significant changes were observed in the control group.
Cumming, Smoll, Smith, & Grossbard (2007)	N=163	N=105	10-15	11.99 (1.5)	basketball	USA	Players who perceived a mastery climate: like playing for their coach more; rated their coach as more knowledgeable about the sport; thought the coach was better at teaching young people how to play the sport; had a greater desire to play for the coach again the following year; enjoyed their experience more; believed their parents liked the coach more. Winning did not relate to enjoyment but did relate to athletes' perceptions of the coach's teaching ability and knowledge of the sport. Perceptions of an ego-involving climate were negatively related to evaluations of the coach.
Duda (2013)					Football	England, Spain, Greece, France, Norway	Promoting Adolescent Physical Activity (PAPA) Project. Multi-national project that focused on working with coaches to optimise the motivational climate they create for the players they interact with.
MacDonald et al (2010)	N=53	N=56	9-17	13.0 (1.3)	Team sports	Canada	Comparison of athletes' experiences with trained and untrained coaches. Athletes who played for coaches that received training through their program reported higher rates of personal and social skills than athletes who played for untrained coaches.
Smoll, Smith, & Cumming	N=117 Coaches N=33	N=99 Coaches N=4	10-14	11.5 (1.63)	basketball	USA	Mastery Approach to Coaching (MACs) training programme. Those playing for mastery trained coaches exhibited decreases in anxiety pre to post season cf. those playing for untrained coaches.

(2007)							Those playing for untrained coaches increased anxiety over the season. Equal effects for boys and girls.
Tessier et al (2013)	N=55	N=2			Football	England, Greece, France	Coaches were observed using MMCOS. They emphasised a more need-supportive environment than a need-thwarting one. Although coaches' interpersonal styles varied across countries, the general pattern of the coach-created environment observed in the three countries had a similar profile.
PE Teachers							
Digelidis, et al (2003)	Exp. N=130 control N=245	Exp. N=132 control N=276	11-14 11-14	11.88 (0.60) 12.14 (0.77)	PE	Greece	Intervention based on TARGET model. 88 daily lessons to facilitate a task-involving climate. Intervention group compared with control group reported: more positive attitudes towards exercise and healthy eating; lower ego and higher task orientation scores; that their teacher place more emphasis on task-involvement and less emphasis on ego-involvement.
Martin, Rudisill, & Hastie (2009)	N=18 Control N=12	N=24 Control N=10		5.72 (1.39) 5.43 (0.78)	Basic movement	USA low SES	Children in the mastery climate achieved greater improvement in skill development, locomotor and object control skills, and maintained high levels of intrinsic motivation cf. 'normal' teaching.
Maro, Roberts, & Sorensen (2009)	N=555	N=209	12-15	13.07 (1.07)	Football	Sub-Saharan Africa	Eight week intervention using sport to teach life skills. Sport-based (including mastery climate) intervention was effective for teaching HIV-AIDS prevention life skills cf. normal HIV-AIDS education and no education.
Morgan & Kingston (2008)	N=37	N=43	high school			UK	Teacher trained to self-evaluate lessons (videoed) using TARGET model principles. Intervention led to increases in mastery behaviours and perceptions of mastery beh. Those who disliked PE the most at the beginning significantly improved their motivational responses during the intervention. Effort and improvement feedback given publicly was perceived as ego involving.
Treasure & Roberts (2001)	N=46	N=50		12.08 (0.72)	PE soccer	USA	Perceptions of climate were most important predictor of children's cognitive and affective responses during the intervention. Participants in mastery climate (cf. performance climate) indicated preference for more challenging tasks, believed that success was the result of motivation and effort, and experienced more satisfaction with the activity.

Appendix E. Summaries of moral behaviour and moral reasoning studies

Authors, year	Participants		Age Range (years)	Average age (SD)	Sport(s)	Country	Key findings
	Males	Females					
Youth							
Boixados, Cruz, Torregrosa, & Valiente (2004)	N=472		10-14	12.81 (1.08)	football	Spain	Those low in task orientation and high in ego orientation expressed the highest level of acceptance of rough play. Task-involving climate was related greater satisfaction in practices, self-referenced ability, and lower acceptance of rough play.
Bortoli, Messina, Zorba, & Robazza (2012)	N=382		14-16	14.9 (0.8)	football	Italy	Performance climate and moral atmosphere in which aggressive behaviours are encouraged were associated with self-reported antisocial behaviour and unpleasant feeling states. Mastery climate and task orientation were associated with sport competence and pleasant feeling states.
Bruner, Boardley, & Cote (2014)	N=248	N=81		15.8 (1.25)	Various high school sports	Canada	Positive feelings associated with group membership is linked with prosocial behaviour toward teammates. Ties to the group and positive feelings associated with group membership did not predicted antisocial or prosocial behaviour toward opponents.
Chow, Murray, & Feltz (2009)	N=101 Coaches N=9	N=157 Coaches N=14	10-18		football	USA	Team norm for aggression at the athlete and team level were significant predictors of athletes' self-likelihood to aggress scores. Further, coaches' game strategy efficacy emerged as a positive predictor of their players' self-described likelihood to aggress.
Conroy, Silva, Newcomer, Walker, & Johnson (2001)	N=529	N=475	8-19	13.3 (2.6)	various	USA	Being older, male, and/or participating longer in contact sports showed greater perceived legitimacy of aggressive behaviour. From age 12 boys showed increased perceptions of legitimacy of aggressive behaviours. The same pattern was not evident for girls.
Fry & Newton (2003)	N=101	N=67	12-19	14.05 (1.61)	tennis	USA Low SES status Urban	Higher task orientation was related to greater sportspersonship but motivational climate was more influential. Positive perceptions of a task-involving climate and negative perceptions of an ego-involving motivational climate predicted players' attitudes

							toward sportpersonship, their instructor, and fellow players.
Gano-Overway, Guivernau, Maygar, Waldron, & Ewing (2005)		N=202	12-18	15.12 (1.42)	volleyball	USA	Task orientation was related to respect for opponents. The degree of respect for the game was dependent on the level of mastery motivational climate.
Guivernau & Duda (2002)	N=135	N=59	13-19	15.4	football	USA	Pro-aggressive team norms predicted self-described likelihood to aggress. Regardless of gender, athletes reported they would be more likely to aggress if they thought their coach supported such behaviour.
Kavussanu (2006)	N=325		12-17	14.58 (1.68)	football	UK	Mastery climate and task orientation were positively associated with prosocial behaviour and negatively with antisocial behaviour. Performance climate and ego goal orientation were positively associated with antisocial behaviour and negatively with prosocial behaviour. Perceived mastery climate was a stronger predictor of prosocial behaviour than goal orientations. Both ego orientation and performance climate predicted antisocial behaviour.
Kavussanu & Spray (2006)	N=325		12-17	14.58 (1.68)	football	UK	Perceptions of an atmosphere condoning cheating and aggressive behaviours were associated with views that a performance motivational climate is salient in the team. Both moral atmosphere and perceived performance climate corresponded to low levels of moral functioning in football.
Lee, Whitehead, & Ntoumanis (2007)	N=566	N=546	11-16	13.48 (1.18)	various	UK	Males, older and team sport athletes scored higher than females, younger and individual sport athletes on acceptance of cheating and gamesmanship. Acceptance of gamesmanship was higher in higher competitive level. Keep winning in perspective was higher in females.
Lemyre, Roberts, Ommundsen (2002)	N=511		13-16		football	Norway	Higher task orientation was related to greater sportspersonship. Ego orientation was related to lower sportspersonship (e.g., respect for officials, rules, opponents, social conventions). High task and hi ego was related to lower sportspersonship. Suggesting ego orientation is the stronger influence on antisocial attitudes.

							Players high in ego orientation and low in perceived ability expressed the lowest respect for rules and officials and endorsed cheating behaviour to reach their goals.
Long, Pantaleon, Bruant, & d'Arripe-Longueville (2006)	N=10 elite		15-18	16.5 (1.0)	soccer, rugby, judo	France	Interviews revealed that respect and transgression of rules in competitive settings were perceived to depend upon the athletes' individual characteristics (e.g., desire to win), their social environment (e.g., coach's pressure, team norms), sports values and virtues (e.g., fair play, the effort ethic), and modern sports rewards (e.g., media recognition, financial rewards).
Martin, Ewing, & Gould (2014)	N=2020	N=1359	8-17	12.23 (2.78)	various	USA	Most frequently cited positive influence was coaches, then parents. Professional athletes and spectators were perceived by more than 10% of the sample to have a more negative than positive influence on youth sport. Late childhood (8-11 yrs) viewed coaches more positively than older participants. Parents were viewed more positively by those in late childhood and early adolescence (12-14) than older adolescents. Gender differences emerged. Females perceived parents and teachers as more positive influence. Males perceived professional athletes, college athletes and officials as more positive. No differences for coaches, Olympians, and spectators.
Miller, Roberts, & Ommundsen (2004)	N=512	N=202	12-14		football	Norway	Players perceiving a high mastery climate endorsed sportspersonship more than those players perceiving a low mastery climate. Mastery climate was associated with commitment, respect for social conventions, and respect for rules and officials. Players perceiving a high performance climate were less likely to endorse sportspersonship than players perceiving a low performance climate. Performance climate was negatively associated with respect and concern for social conventions and respect for rules and officials. Study suggests that both boys and girls perceive the coach emphasizing similar criteria of success and failure and thereby a similar culture of sportspersonship, while in general a strong mastery climate leads to a higher sportspersonship orientation.

Miller, Roberts, & Ommundsen (2005)	N=365	N=340	15-16		football	Norway	Perceptions of a performance climate were related to lower levels of moral judgement, reasoning, and intention; greater perceived legitimacy of injurious actions and self-reported unsportsmanlike behaviour and team norms that condoned aggression. Perceptions of a mastery climate predicted more mature moral reasoning and a coach-determined moral atmosphere more disapproving of low moral behaviour.
Ommundsen, Roberts, Lemyre, & Treasure (2003)	N=279		12-14		football	Norway	Perceptions of a mastery climate were related to team norms with greater disapproval of aggression, use of higher-level moral reasoning, greater respect for rules, officials, and conventions. Perceptions of a performance climate were related to greater pro-aggressive team norms and amoral behaviour, and less respect for rules, officials, and conventions.
Romand & Pantaleon (2009)	N=96		8-25	14.13 (4.86)	football	France	Children reported higher moral judgement (considering described behaviours inappropriate) and moral intention (would not engage in behaviour) than adolescents and adults. Adults' moral reasoning was higher than adolescents' which was higher than children's. Children reported lower instrumental transgressive behaviour than adolescents which was lower than adults.
Shields, LaVoi, Bredemeier, & Power (2007)	N=381	N=285	9-15	12.1 (1.14)	Various (team sports)	USA	Self-reported poor sport behaviours were best predicted by perceived coach and spectator behaviours, followed by team norms, sportspersonship attitudes, and the perceived norms of parents and coaches.
Stephens (2001)		N=136	11 to 14 15 to 17	12.49 (1.02) 15.41 (0.72)		USA	For 11 to 14 year olds, team norms for aggressive behaviour and a willingness to injure an opponent if requested by the coach predicted self-described likelihood to aggress. For 15 to 17 year olds, willingness to injure an opponent if requested by the coach was more predictive of self-described likelihood to aggress than team norms.
Adult							

Kavussanu, Roberts, & Ntoumanis (2002)	N=56	N=143	17-25	19.58 (1.26)	Basketball	USA	Perceiving that coaches emphasised winning or being the best (performance climate) was related to believing coaches and teammates approved of unsportsmanlike play (moral atmosphere). Perceiving that teammates and coach approved of improper actions, athletes judged these actions as more legitimate, intended to use them and used them more frequently.

Note. All studies involved questionnaires examining self-reported perceptions.