PHYSICAL LITERACY WITHIN CLIMBING WALLS

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Submitted in partial fulfilment of the award of

Masters by Research

Awarded by Bournemouth University

October 2019

ABSTRACT

The purpose of this study is to examine Physical Literacy (PL) at climbing walls, specifically investigating coaches' expert views of whether taught climbing sessions are a valid means of contributing to the physical literacy of the children that attend them.

Physical Literacy as a concept appears to be gathering momentum, with the term being conspicuous in its inclusion in both policy and academic literature, even being referenced in Sport England's latest Active lives survey (2019). At present there is limited research connecting adventure sports such as rock climbing and the benefits to a child's physical literacy development. Climbing presents an unusual arena for studying physical activity, being not only a physically but mentally demanding sport, where participants additionally need to deal with the fear generated from operating at height.

The data collection for this qualitative study involved questionnaires as a sensitising device and semi structured interviews with coaches. The interviews delve into their expert opinions, feelings and experiences working with children in a climbing wall during organised sessions. Thematic analysis identified three themes, performance motivators, social inclusion/acceptance and facing fears.

The attitude of the coaches appeared to have a positive influence on both the experience of the students and their potential physical literacy development. The coaches displayed an attitude that focussed on the individual students, striving to provide experiences that had positive and constructive meaning to the students. Although perhaps unconsciously this had the potential to develop the student's physical literacy. Increases in confidence was the area that coaches felt students developed the most in followed by coordination and strength. In addition, climbing provided opportunities for development of the other key attributes of physical literacy, motivation, physical competence and interaction with the environment. The meaning that the coaches felt the students attached to their climbing had the potential to be positive existential and phenomenological experiences. The combination of mental and physical challenge the coaches spoke about also raised the question of whether climbing was a monist or dualist pursuit. The results of this study indicates that climbing does have the potential to be a valid means of developing some of the key attributes of physical literacy.

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1.0 INTRODUCTION

Climbing as a sport sits with other so-called alternative sports, with its roots firmly planted with mountainous crags and outcrops. It is only in the relatively recent past that it has moved indoors, firstly to allow climbers to train when the weather outside was inclement, and then as a activity in its own right (Draper et al. 2011; Kulczycki and Hinch 2014). The popularity of venues such as climbing walls have led to the question of whether they can be truly considered alternative sports anymore. The commercialisation of these activities have seen them attract a new demographic of cliental, and their profile has been increased respectively (Salome and Van Bottenburg 2012), to the point where climbing is now a Olympic discipline (Steinbach 2016). The British Mountaineering Council (BMC), the governing body for climbing in the UK see this as an opportunity to grow the sport. They predict that the Olympic effect is likely to see more people participating in the sport and an increase in investment resulting in more climbing walls (Ryan 2019). This optimistic view is in direct contention with evidence from previous major sporting events that indicate the increases in participation are minimal at best (Campbell 2013). Even if climbing does not see the increase the BMC predicts the potential for new and improved facilities and diversification for the walls may breathe new life into the industry. By making venues such as climbing walls more accessible they have diluted and widened the demographic of their client base, which once consisted of committed climbers who simply used them as a facility to train for outdoor climbing. The client base for these walls now consists of individuals who may have never and possibly will never set foot on a real rock face (Kulczycki and Hinch 2014). In this way indoor climbing has created its own identity, separate from traditional outdoor climbing (Salome and Van Bottenburg 2012). It has also made the sport far more accessible than in the past when climbers needed to travel some distance to access the mountains and crags. Now climbing walls are found on industrial units and other urban areas, this accessibility to the public may serve to familiarise and demystify climbing to the general public (Kulczycki and Hinch 2014).

Many climbing walls offer children's classes or clubs, from beginner to dedicated competition squads. Climbing has the potential to develop a number of attributes in a person, apart from skill development and fitness, loyalty and friendship are also common themes (Kulczycki and Hinch 2014).

At present there is a large amount of academic literature on Physical Literacy (PL), academics such as Whitehead (2010a), Durden Myers (2018a), Dudley (2017), Robinson and Randall (2017a) and Pot (2018b) extol the virtues of pursuing a physically literate life, whilst academics such as Lounsbery and McKenzie (2015a) are rather less enthusiastic about the concept, concerned that it potentially diverts attention from PE and placates critics of traditional PE by rebranding it. Much of this work is focussed on either exploring the deeper meaning of the topic or looking at how PL best fits into policy. The World Health Organisation (2018) identified physical inactivity as the fourth leading risk factor for global mortality, seeing approaches to tackling it need to be multi-facetted and culturally appropriate. PL promotes itself as a potential solution to the issue of physical inactivity by promoting the idea of physical activity (PA) for life, that PA is an individual journey and that it should be deep set within the psychi (IPLA 2017b). The International Physical Literacy Association (IPLA) defines PL as:

'Physical Literacy can be described as the motivation, confidence, physical competence, knowledge and understanding to value and take responsibility for engagement in physical activities for life' (IPLA 2017a).

This motivation, confidence, competence, knowledge and understanding does not relate to one sport, rather PL promotes the idea that a physically literate individual is able to function in a wide variety of different PA settings (Whitehead 2010b, pp.16-17). What very little research has focussed on is how PL fits into specific sports. Even mutli-sports clubs, or Community Amateur Sports Clubs (CASCs) as defined by the Government that offer more than one sport do not necessarily have members that are taking part in multiple sports, they are possibly sharing a venue and facilities to make the sports more financially viable (Government 2018). For National Governing Bodies (NGB) to take PL to heart they would want to know how it will benefit them and their specific sport. Without this it runs the risk of being something NGBs look at but never engage with because they are unsure of how and why they should. By linking PL and climbing it is hoped that this will encourage others to undertake similar work for other sports as well as raise the profile of climbing.

Physical Literacy (PL) is one concept that is steadily increasing its profile both domestically and internationally largely through academic research and adoption within the curriculum of several countries (Lounsbery and McKenzie 2015a; Robinson et al. 2018a). It hopes to provide the why and how aspect of PA. The why is concerned with the importance PL puts on lifelong participation in PA and the effect this has on not only the physical but affective and cognitive

domains of a person's life (Durden-Myers et al. 2018a). From helping a young child to integrate with their class to maintaining the independence of older people. In addition, it recognises that as individuals we are all shaped by the cultures, experiences and opportunities of our lives and our PA is the embodiment of that. As such we should be treated as individuals and the only testing we should do is to see if we have moved further along our PL road (Whitehead 2010b; Robinson et al. 2018a). In addition to this Whitehead (2010b, pp.21-25), as arguably the leading scholar on the subject and the architect of modern PL, underpins PL with philosophy. In particular monism, (the belief that the mind and body are one and inextricably connected) existentialism, (the belief that we become who we are through the experiences of our lives) and phenomenology (how and what meaning we attach to those experiences). These philosophical underpinnings are the foundations on which a physically literate person emerges. Someone who sees the value of PA to both the body and mind, develops as a person through their experiences of PA and sees those experiences as positive (Whitehead 2010b, pp.22-25).

1.1 The key attributes of Physical Literacy

The how aspect of PL comes from the three key attributes of the concept. According to Whitehead, these are 1)motivation, 2)confidence and physical competence and 3)interaction with the environment.

- Motivation to participate in PA is something that is regarded as fundamental by Whitehead (2010b, p.12). This drive to be physically active permeates through their lives, giving them the attitude that physical activities will be a 'positive and rewarding experiences' (Whitehead 2010b, p.12). Cardinal, Yan and Cardinal's (2013) research noted that what happened to young people in terms of PE experiences, especially in schools had a large influence on their motivation to be physically active for the rest of their lives. This potentially has a knock-on effect in terms of their attitude in adulthood to the next generations PA levels. This sentiment is echoed by McWhorter et al (2003) who note that parents are key in motivating their children to be active but need to be educated themselves in many cases to the benefits of PA. Chen (2015) suggests that one of the issues may be connected to the criteria that PE especially is focused on historically, that of skill performance as opposed to behavioral change that is becoming more common. Chen (2015) goes on to suggest that although motivation is an internal process, there are two approaches to it. Firstly, that coaches can train behaviors into their

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students that are likely to condition them by steering them towards desirable outcomes that in turn are regarded as motivational. Conversely, the second approach sees motivation as a developmental process whereby the external (coaches) provide the opportunity for the individual to experience activities that will foster motivation. This suggests that coaches that are working with children need to be aware of the most effective ways to motivate their students. Both approaches are reliant on the external force (coach) providing the right environment to facilitate motivation, putting the focus on the coaches ability to deliver. Whatever an individual's motivation for acting in a certain way it appears clear that motivation is an internal process that causes action, even if that process is brought about as a result of outside influences (Schreiber 2016). McCullagh et al's (1993) previous work confirms this view, rating intrinsic motives such as playing well and having fun more significant than extrinsic motives such as ribbons and trophies. McCullagh et al (1993, pp.230-231) make an interesting observation regarding long term motivation, something close to PL's heart. They feel that intrinsic values are more likely to foster longer term motivation to participate in activities, important for lifelong participation in PA . Whitehead (2010b) sees motivation as a drive, willingness and eagerness, and at the heart of PL is a desire to be active, persist with activities, develop competence and have confidence in their ability.

In relation to the climbing wall, Yan and Cardinals (2013) suggestion regarding PE experiences may have a direct impact on the attitude of the students and their motivation. Those that are motivated by school PE and formal traditional sports may exhibit more motivation than those that are less motivated by these traditional sports. This also raises the question of whether those that are de motivated by school PE and formal traditional sports may be more attracted to climbing because they see it as alternative (Reinhart 2002; Salome and Van Bottenburg 2012) rather than mainstream.

- Confidence & Physical Competence is the second of three core attributes of a physically literate person. Capel and Whitehead (2013) tell us that confidence and physical competence in PL terms is typified by capitalizing on an innate desire to be physically active, and that activity is a lifelong undertaking that positively enhances a person's life. This confidence and competence will be learned in a number of different activity settings, developing the individuals ability and confidence to take on a multitude of differing

activities confident that they are likely to succeed (Whitehead 2010b, p.13). Roetert and Jefferies (2014) recognize the importance of confidence in fostering, particularly young peoples continued participation in physical activity, something they report is echoed by UNESCO . McIntyre et al (2018) ask the question whether physical activity in young people is driven by their confidence or their competence. Their findings suggested that physical activity levels were primarily driven by a child's competence, more specifically their actual rather than perceived competence, something that is echoed by Amin et al (2018), although they attribute it to socio economic factors influencing PA levels. Farmer et al (2017) go on to suggest that in many cases children displayed high levels of perceived physical self confidence which did not always match their actual physical competence. Smiley and Dweck (1994) concluded that children that had the desire to perform but lacked the confidence tended to shy away from trying new activities for fear of exposing themselves to failure.

If we look at confidence and physical competence in relation to climbing walls Mei Dan (2018) recognize the important part adventure and extreme sports such as climbing play in developing confidence in young people. The process of overcoming the risk and fear associated with these sports being seen as a positive for young peoples development. Nicita et al (2018) acknowledge that rock climbing in general, has a risk of injury or death and that indoor venues somewhat mitigate that risk by controlling the environment in a way that would not be possible in outdoor settings.

- Interaction with the environment is the third key attribute, it proposes that physically literate individuals are able to respond to the varying demands the environment places on them confidently, fluently and appropriately (Whitehead 2010b, p.13). Light et al (2013) suggest that possibly the most significant factor in children's attendance at clubs was the social dimension. The friendships and shared experiences that came from that, and the sense of belonging that children developed through attending clubs they felt outweighed the other significant factor of learning and achievement. Sport England's (2019) Active Lives Children and young people's survey reinforce this. They report that higher levels of enjoyment, confidence, competence and understanding are associated with higher social trust levels amongst children. In addition, they suggest that the social trust levels are boosted more by a child's attitude than their activity levels. Fredricks et al (2010) found that when children did not fit in because of factors such as peers or staff

being mean to them it would commonly discourage them from attending. Fredricks et al (2010) go on to suggest that the competing demands on children's time tends to mean that they are not always able to attend regularly, something they see as essential if they are to reap the full benefits of attending. This research suggests that clubs are more than purely places to play sport but may have a part to play in children's overall development. In relation to climbing friendship and other social interactions are things that are a main stay of climbing wall culture, whether through friends, family or strangers (Kulczycki and Hinch 2014). In addition Kulczycki and Hinch (2014) report that friendship, or knowing other climbers at the wall was not necessary, in terms of positive social interactions. Climbing walls appear to be places where the common reason for going brings people together. Hoffmannova et al (2016) suggest that the social interactions one has both past and present, particularly in lifestyle sports can play an important part in future participation in sport, impacting positively on a individuals overall attitude to PA.

Such is the nature of these key attributes that their relationship may be seen as symbiotic with each interdependent on the other. From these three attributes Whitehead (2010b, pp.14-16) argues that individuals will develop greater self-confidence through their physical experiences and successes. Their interactions with others will benefit from their improved communication skills, as will their knowledge and understanding benefit from participating in PA.

1.2 Aims and Objectives

The aim of this study is to investigate climbing walls as a valid means of developing PL in the children that attend classes and clubs.

It will be looking for common themes between what coaches feel their students develop during climbing sessions, and the key attributes of PL. it is not its intention to delve deeply into the philosophical underpinnings of PL but will acknowledge them and give a brief explanation.

The objectives are:

- To conduct questionnaires and interviews to investigate the feelings and opinions of climbing coaches.
- To analyze the data collected from the coaches using thematic analysis.
- To examine whether climbing develops any of the key attributes of physical literacy.
- To identify whether climbing has the potential to develop any of the philosophical areas of physical literacy.

2.0 LITERATURE REVIEW

2.1 What we know about Physical Literacy

As a concept Physical Literacy (PL) is frequently quoted in literature as being either 'embraced', 'gaining momentum' or other such phrases, (Corbin 2016; Dudley et al. 2017; Edwards et al. 2017; Robinson and Randall 2017; Robinson 2017a; Jones et al. 2018; Pot et al. 2018b) as an alternative to traditional approaches to physical activity. These proponents go to great lengths describing in varying detail why and how it differs from other approaches, particularly emphasising its holistic nature as a unique feature that will help ensure lifelong participation in PA (Whitehead 2001; Pot et al. 2018b).

Margaret Whitehead is widely regarded as the architect of the modern concept of PL. She became concerned about the increasing trend of physical inactivity within society, leading to sedentary behaviour, obesity and ill health (Whitehead 2010b; Riso et al. 2018). She felt the combined effects of the shift towards traditional literacy and numeracy and away from PE in schools was neglecting all but those with natural physical ability (Whitehead 2010b, p.3; Robinson 2017b, p.41). Whitehead felt that there needed to be a change in the attitude of society towards PA, and proposed an approach that would not only embed PA into people's lives and ensure lifelong participation, but that would make PA the embodiment of our philosophical beliefs (Whitehead 2010b, p.11; Wainwright et al. 2018, p.440). Almond (2015) reinforces this view, although feeling that an individual's behaviour is more likely to be influenced by what they perceive to be essential to their daily lives in a immediately noticeable way. This 'here and now' attitude, or what is now referred to as 'instant gratification' (Muther 2013) within modern life is something PL may need to tap into if it wants to achieve its aim of a physically literate society. Cheng, et al (2012) see issues with this approach recognising that an attitude that was not centred around immediate gratification had positive effects on a person's health and wealth. It may be that PL needs to tread the line between a concept that gives people short term results with long term positive consequences.

Whitehead has certainly not been the only voice to be heard, and it would be easy to follow her as the figure head of PL but such is its popularity others have built on, questioned and developed it further, something Whitehead has welcomed (Whitehead 2010b, p.xvi). Jurbala (2015) for example suggests that PL is something that anyone who is capable of moving possesses, it is the degree to which they operationalise it that differs. He suggests that PL should be either functional,

or advanced, to cover the different movement capabilities from basic skills to excellence. Lounsbery and McKenzie (2015a), (2016) and Jurbala (2015) offer words of caution regarding the adoption of PL, recognising that there is very little evidence that the promotion of PL has positive outcomes, in particular that there is very little in the way of data based studies on the subject. It may be ironic that a concept that explicitly denounces the use of norms and standardised tests in favour of more individual, self-reflective, longitudinal types of progress checks may be forced to embrace exactly what it denounces in order to prove its worth. Further to this, Jurbala (2015) concedes that many of the attempts to assess it are subjective to the organisation as opposed to the individual being studied. For example, Sportball (2017a) who work with mainly school children in Canada have a focus towards teaching fundamental movement skills, and so PL for them is about teaching children these skills (Sportball 2017b). Although this has undoubtedly helped to increase the popularity of the concept it may also go some way in confusing the issue further by diluting the term and offering definitions which serve to confuse and diffuse, rather than clarify and conceptualise (Lynch and Soukup 2016; Robinson et al. 2018a). Whitehead (2010b, p.7) takes a slightly more philosophical attitude to the attention paid to PL, seeing all the contributions as worthwhile, even if they do not capture the whole concept.

Another unique aspect of PL is its focus on the person. It expounds the idea that we are all individuals, with unique experiences, attitudes, opportunities and desires. Whitehead (2010b, pp.37-38) asks the question as we are all different why are we treated and assessed using the same criteria. According to Whitehead (2010b, pp.37-38) this is not to say that PL is outside the grasp of everyone, rather that PL will be unique to the individual. Roetert et al (2017b) endorse this idea, suggesting that giving all children the opportunity to be physically active can have positive effects on both their quality of life and lifespan. These views have to contend with the realities of society, as Slater and Tiggemann (2010) report in their study of adolescent girls, the pressures that can draw them away from PA can sometimes be stronger than the influences to take part. They go onto say these often take the form of negative interpersonal relationships between team members, it being perceived as 'uncool', sometimes due to the particular activity or simply a lack of motivation.

There are a number of features which set PL aside from other frameworks and approaches (Krader; Dudley et al. 2017; Krader 2018; Robinson et al. 2018b). Firstly, it champions a subjective

approach to PA, recognising each of us are moulded by the different opportunities, influences and experiences of our lives (Whitehead 2010b, pp.37-38). Secondly, it proposes the idea that, rather than a system which judges each person against others creating a standardized score, individuals work towards achieving their own level of PL. It accepts that we are not all equal and '*as appropriate to each individual's endowment*', have different physical abilities (Whitehead 2010b, pp.4-7; Robinson et al. 2018a, p.288). The rationale being that by setting unrealistic expectations for people, in terms of PA, policy makers may be turning individuals away from PA by setting unrealistic targets, effectively setting them up to fail (Whitehead 2010b, p.37).

Lounsbery and Mckenzie (2015a) show concern for what they regard as the trend away from the physical in PE to a more cognitive approach, suggesting that knowing has replaced doing in PE lessons. With the emphasis being on students knowing what to do without the requirement to actual do it. On the one hand this may be looked at with concern, but it raises the question of how important is knowing what to do in fostering participation in PA. Should students do what they are told or know what to do? Proponents of PL would argue that it is fundamentally focussed on the capitalization of their individual embodiment, giving them the motivation, confidence and competence to be physically active throughout their life (Cale 2018; Durden-Myers et al. 2018a; Ellerton 2018; Hickson 2018). Rather than reducing the time spent active it aims to increase the time spent engaged in meaningful PA (Dudley et al. 2017). In addition, Myers et al (2018a) emphasise the importance that pedagogical approaches need to be both adaptable, appropriate and challenging to the individual. Myers et al (2018a) go on to suggest that one of the key principles underpinning successful learning is giving students the knowledge and understanding of why and how to be physically active, something that is likely to require a certain mindset.

There is an argument that those that would reach these standardised bench marks are already likely to be physically active and motivated., and would be more likely to seek out opportunities to be physically active without the need of interventions (Erdvik 2014). Schemes and frameworks are generally trying to get the inactive active, rather than preaching to the converted.

Secondly, PL is promoted as a life long journey almost to the point where individuals never attain it, but spend their lives working towards it, on a 'lifelong journey' to PL. Roetert et al (2017a) go some way in developing this thinking reporting the IPLA consensus that PL is a life long journey, with different focusses at different stages of an individual's life, with fundamental movement skills at a young age serving to set the stage for lifelong participation.

2.2 THE PHILOSPHY OF PHYSICAL LITERACY

One of main reasons PL stands out and is gaining popularity both nationally and internationally is its philosophical underpinnings (Pot et al. 2018b). Proponents of PL see monism, existentialism and phenomenology as essential to anyone wishing to develop this concept (Durden-Myers et al. 2018a). Pot et al (2018b) recognise that for some these terms may seem attractive but hard to embed in practice. They do, however emphasise that without these underpinnings the attention of practitioners, strategists and policy makers may be restricted to purely physical health and fitness, ignoring the benefits to the whole person of enjoying and valuing PA for life. For many years strategies have been devised and put in place to increase the activity of nations, normally as a result of guidelines from various bodies with a vested interest in increasing PA generally or targeting a particular section of society that has either been under represented or ignored for various reasons. These strategies have generally been Government led, and have strived to meet at least part of their commitment to promote public health (Heath et al. 2012). Physical activity by definition does not imply any particular connection to the mind, with the World Health Organization (2018) defining it as 'any bodily movement produced by skeletal muscles that requires energy expenditure'. PL is underpinned by three philosophical principles, Monism, Existentialism and Phenomenology. This research does not intend to go too deeply into the philosophy of PL but a broad overview of them is appropriate.

Monism asserts that the mind and body are essentially one, it refutes the dualistic view which claims that the mind and body are separate, with the body essentially being a vessel that enables the person to achieve the movement they need to, in order to carry out their various goals and activities. This view of physical fitness is only of use to keep the body in a condition where by it can achieve what the mind wants it to (Crane 2000). The monist view of PL holds that the mind and body are one, and that PA is the physical embodiment of our cognitive and physical being. PL leans on the materialistic view of monism (as opposed to idealistic monism for example which considers everything a mental state) which suggests everything is a physical act, even thinking would be interpreted as such if the synaptic activity was considered a physical act (Pot et al. 2018b). Criticism of monism naturally comes from those that hold a dualistic point of view. As neither can be categorically proven, the criticism would be more aligned with that individual's person viewpoint, most likely developed from their own experiences of life.

The modern PE curriculum includes subjects such as physical training, practical performance, health and wellbeing and sport psychology (Department for Education 2014). It aims to motivate,

challenge and inspire students to make informed decisions about further study and careers. Within this students should develop their knowledge of the benefits of PA to their physical, emotional and social health as well as their fitness and wellbeing (Department for Education 2014). These aims introduce students to the idea of the mental and physical being connected. Pot et al (2018b) suggest that traditionally education has taken a dualist approach, with the purpose of PE to prepare the body for academic endeavours. This poses the question of nurture or nature, are we born with, or do we develop these attitudes.

The UK curriculum now encourages the development of students in a more holistic manner. By the end of Key stage 3 pupils are expected to have developed the confidence and interest to become involved in out of school activities, and the long-term health benefits of PA. At key stage 4 they are expected to be involved in activities that develop personal fitness and promote an active, healthy lifestyle, in essence they should be developing a positive attitude to PA participation and its importance as a part of their life (Department for Education 2016). This drive for PA to be more than just the physical act of sport, but include a cognitive intelligence and mental awareness of the benefits of being active throughout the life course start bearing similarities with the monist principle of PL. In reality the statistics show this curriculum may not be working, there are reportedly ten times more obese children now compared to forty years ago (Senthilingham 2017). Additionally, access to unhealthy foods and modern technology effects PA levels tending to imply that children are becoming less active (NHS Choices 2015). In addition, NHS (2016) cite obesity as one of the major consequences of physical inactivity.

More importantly from a PL perspective they may be valuing PA less than previous generations. This point is reinforced by Farooq et al (2017) who found that PA started to decline from the age of 7 ,indicating the present approach may not be having the desired effect.

The second philosophical strand of PL is existentialism, central to this idea is the principle that the interactions a person has with the world effectively create the individual. Essentially if they have positive meaningful experiences they are more likely to grow in a positive way, whereas if they have negative experiences they associate negatively with that activity and are unlikely to have the motivation to take part again. As individuals are constantly relating and interacting with the world around them their perception of it and attitudes towards it are constantly developing. This ongoing dialogue with the world around them is one of the key factors that determine our attitudes and motivators as we grow. In terms of PL these interactions are part of what keeps a person on their life long journey to PL. One of the key principles of existentialism is that everyone

starts as a blank canvas and is created by the experiences of their life. It emphasises the idea that individuals do not come into the world with any preconceptions, but by interacting with the world in everyday settings they effectively build character and attitudes from the experiences that shape them (Whitehead 2010b, p.24). It is important to consider that how the individual interprets the interactions may well have a significant impact on their attitude to PA, for example if their early experiences of PA have been one of humiliation and failure they are less likely to value PA as an important, positive part of their life. More importantly, they would be less motivated to take part in PA through their life course.

One of the criticisms of existentialism is that as the individual is so absorbed with the act of experiencing the world and being developed by it they tend to become very inward focussed and likely to spend more time thinking and less time doing, something which is contrary to the whole idea and purpose of PL and PA (Carey 2015). In addition, if Morse (2016) is to be believed and existentialism does give the individual freedom within the world, as well as free choice of what they are able to achieve, and that each of us is individual and authentic. How does this sit with the principle of PL that proposes that PA levels and attainment are   'appropriate to each individuals endowment'(Whitehead 2010b, p.5). Morse's (2016) suggestion that, in existential terms we are all capable of anything, has a certain allure to it. The idea that you could be an Olympic athlete or world record holder is tantalising. However, if we are all moulded by our experiences these may serve to contract as well as expand our horizons through the meaning we attach to those experiences. Relating this to PL and its acceptance that not everyone should be expected to have the same PA potential, and that that potential is subjective to the person it raises the question of how these two concepts can sit together, especially as PL also relies on the monist idea of mind and body being one. On the one side you have existentialism saying you can be whatever you want to be, and on the other you have PL saying you can be whatever you want to be but within your own boundaries, not truly free in Morse's sense.

The third philosophical strand of PL is phenomenology, this is defined as 'seeking to understand the world as it is interpreted by and through human consciousness' (Transformation project 2016). This branch of philosophy links well to existentialism, sharing a similar interest in the lived experience. Existentialism being the experiences and the creation of the person, and phenomenology trying to understand the world that the individual has created for themselves (Pot et al. 2018b, p.248). Standal (2016, p.17) describes phenomenology as looking at the

subjective objectively. He suggests that although each of us experience the world in our own unique way, phenomenology is less interested in that particular individuals experience, but more about the 'universal structures', of that experience. In particular, what aspects of the experience are essential components. In terms of climbing it may recognise that fear is an essential part of climbing but be less focussed on each individual's experience of it, and more on the effect it has on climbers. The idea of phenomenology looking at the bigger picture as opposed to the individual does call into question quite how it fits into PL. PL's focus is very definitely on the world as experienced by the individual and Standal's (2016) view of it raises questions regarding its suitability. If, as Standal (2016) suggests it looks at each individuals experiences for common themes this would undoubtedly be useful in terms of pedagogical approaches, but is searching for similarities as opposed to the unique meaning of individual experiences contributing to PL. Although Standal (2016) emphasises the idea that phenomenology is concerned with looking at experiences objectively they do recognise that phenomenology is concerned with the subjective experience. Standal (2016) views experience through a phenomenological lens as looking at the evidence and meaning from experiences. In addition, acceptance that all the experiences of individuals are meaningful in various ways, building on previous experiences to provide positive or negative knowledge. Pot et al (2018b) emphasise the importance, from a PL and PA point of view that these experiences should be positive in order to develop the individuals PL.

PL's emphasis is on how an individual person perceives their world and recognises that everyone is unique, the path they have followed through life to get to where they are is theirs and theirs alone. The experiences they have had and their perception of them may be similar to others but will ultimately be their own. Climbing can be seen as an example of this, two people may climb the same route on a climbing wall but have very different experiences of it dependent on their previous experiences and how they perceive it. The first may have had positive experiences when climbing, maybe being encouraged and given some coaching as to the easiest way to climb the route and may feel confident and competent to climb the wall. For the second the meaning may be completely different they may have had negative experiences, possibly not comfortable being high off the ground or suffered an injury while climbing. Although the route is physically the same, the holds are not different, and they are climbing on the same wall, for each their response to it, and the meaning they associate with it, both physically and mentally may well be very different.

The first reaching the top easily and the second struggling to the top or failing part way up the climb. These feelings may well be assimilated over time and be constructed of a number of different experiences that have shaped how they perceive the particular phenomena.

One criticism of phenomenology raises the issue of judgement. Everyone perceives the world in their own way, but what if they perceive it wrongly. What if their judgement fails to correctly identify something assuming it to be one thing when in fact it is another (Burgess 2015). In terms of PL, this may manifest itself when an individual considers something positive in terms of PL and PA that is actually negative. For example they may see other climbers appear to not warm up before climbing, these may be climbers they look up to and over time their perception becomes that warm ups are not necessary. This then leads to an injury which prohibits them from participating in PA while it heals and affects their confidence and motivation (Burgess 2015). This criticism appears to imply that individuals are almost not competent enough to manage their own experiences and interpretations of the world. Following the tenet's of existentialism and phenomenology, would it be fair to accuse individuals of misinterpreting experiences as Burgess suggests, or are they attaching their own meaning to them. As phenomenology accepts that the lived experience is both individual and subjective the management of experiences and how they are perceived would be introspective to the individual. The perception individuals have of an experience, irrespective of whether they judge it correctly or not all go towards building the person. In the example of the person that does not see warm ups as important, once injured they would hopefully learn from the experience and their perception would be better informed and more developed to include the knowledge that warm ups are important if injury is to be avoided, contributing to their PL in a positive way. In addition, they would start to learn that copying others may have negative as well as positive consequences for them .

Monism, existentialism and phenomenology share one common theme, their holistic approach to life (Pot et al. 2018b; Shearer et al. 2018). Monism regards the mind and body as inseparable with physical actions being the embodiment of this. Existentialism and phenomenology follow similar paths, with existentialism believing that we are all created by the experiences of our lives and phenomenology looking for the meaning in those experiences (Pot et al. 2018b). Whitehead (2010b) regards these philosophical underpinnings as essential to the concept of PL. Shearer et al (2018) go on to suggest that any understanding of PL is contingent on an understanding of the philosophies that underpin it. Shearer et al (2018) do however recognise that these philosophies,

if not fully understood or embraced have the potential to cause confusion around the concept, and may ironically in some cases act as a barrier to PL's adoption.

The philosophical underpinnings of PL are fundamental to the concept, in order for individuals to truly value PA as a part of their life there needs to be the monist connection between the mind and body, the mind needs to want to be active for the embodiment of it to manifest physically. PL contests that individuals learn and are created as they experience the world, most people would agree that they have been shaped to some extent by experiences they have had during their life, either positive or negative, and how that has had a lasting effect on them and their attitude. Existentially speaking the experiences a person has with the world serve to create the individual, and the breadth and depth of experiences a person has, from a PL point of view serve to make them a fuller person with richer experiences serving to make them more physically literate.

2.3 Interpretations of the concept

The term Physical Literacy (PL) means many things to many people, for some it is considered a rebranding of PE, or an attempt to gain academic credibility for PE (Lounsbery and McKenzie 2015a; Robinson et al. 2018a). Others see a connection between traditional literacy and PL and assume that literacy is included to comprise certain movements within an activity. Typically, this would be seen in a primary PE lesson with the children perhaps being instructed to go 'over', 'under', 'roll' or perhaps 'jump' during activities (Robinson et al. 2018a, p.293). As appropriate as this may be in ensuring children meet the aims of a lesson it is argued that it is not physical literacy (Robinson et al. 2018b).

These misunderstandings may stem from a general confusion about the term. Robinson (2018b) in particular feels this is the case, finding that PE teachers in Canada felt there was little or no difference between PL and PE, or that PL had simply come about as a way of giving PE more academic credibility. Lounsbery and McKenzie (2015a) echo this sentiment, although point out that so far there has not been any evidence that endorses PL. This raises the question of how and why these misunderstandings have come about, is it because the term is not clear enough, or the interpretation of it has become blurred by the number of different definitions that have been put forward by differing organisations. Whitehead, widely regarded as the leading academic on the subject has produced a definition which has been either adopted or adapted by many organisations (Edwards et al. 2017; IPLA 2017a; Arbour-Nicitopoulos et al. 2018; Jones et al. 2018;

Wainwright et al. 2018). The one thing that all these definitions appear to have in common is the absence of the first six words of Whiteheads 2010 definition:

> '*as appropriate to each individual's endowment, physical literacy can be described as the motivation, confidence, physical competence, knowledge and understanding to maintain physical activity throughout the life course'* (Whitehead 2010b, p.24).

Every piece of work reminds the reader of the importance PL places on the individuality of PA, underpinned by the philosophical principles of monism, existentialism and phenomenology. Jurbala (2015, pp.367-374) examines the various aspects of PL, recognising it is understood by many as a metaphor. He likens the ability to use language fluently with the ability to move fluently allowing personal interpretations and through that redefinitions. This may be feeding the confusion if everyone interprets the world differently and uniquely (something central to PL), and then comes to their own conclusions, clarity would appear to be needed but difficult to achieve especially if strategies rely on data.

Alongside this sits the various definitions put forward by different authors in an attempt to understand the concept or conceptualise it further. Rather than purely defending her definition, Whitehead (Whitehead 2010b, p.7) has recognised the value that each attempt at redefining PL has in furthering the understanding of the concept, although she makes it clear that she feels each attempt captures aspects of PL but, as yet does not encompass the totality of the concept. These definitions vary from Sum et al's (2018, p.26) '*an intelligence related to physicality'*, and Shape Americas (2018) definition of '*Physical literacy is the ability to move with competence and confidence in a wide variety of physical activities in multiple environments that benefit the healthy development of the whole person'*, which is adopted by other organisations within the USA such as Arizona Health and Physical Education (Mixer 2018). Sport Australia's (2018) definition is '*the skills knowledge and behaviours that give us the confidence and motivation to move throughout our lives'*. To further confuse the scenario The Aspen Institute (2018) also puts forward a definition, '*The ability, confidence and desire to be physically active for life'* a definition also adopted by Physical Literacy America. Even within Canada where the concept is embraced there are competing definitions, Sportball, an organisation that partners with schools across Canada define

it as *'the mastery of a range of fundamental movement skills that enable and encourage lifelong participation in physical and sporting activities' (Sportball 2017b)*. They also partner with Active for Life who in turn publish Sport for life's definition *'having the skills, confidence and motivation to enjoy a variety of sports and physical activities' (Sport for Life 2013)*. Just to add further confusion Sport for life also publish Whiteheads definition (Sport for life 2018b). With so many different definitions, at times crossing over each other it would not be unreasonable to suggest that the term is in need of either simplifying or a single definition being accepted by all.

Organisations within the US are not operating in complete isolation in terms of their differing definitions of PL, and Physical and Health Education America (Hickson 2018) concede that definitions within the country vary but do suggest commonalty around principles such as competence, knowledge and understanding of the importance of PA. All of these definitions generally follow similar themes, however The Long-term Athlete Development model has a fundamentally different approach to the concept, *'physical literacy is the development of fundamental movement and sport skills'* (Ellerton 2018), although undoubtedly focussed more on childhood physical development it adds another twist to the already blurred definition of PL.

Although there appears to be a number of varying definitions attempting to accurately define PL Edwards et al (2017, p.121) recognise that the majority of papers still adhere to Whiteheads definition. That said, Almond (2015) suggests that Whitehead's definition lacks a certain amount of clarity and contains a number of omissions.

This seeming disparity in definitions of PL may stem from the focus of the organisations that are putting them forward. For example, Sportball who teach sport to school children mention 'fundamental movement skills' in their definition, quite possibly due to their previously mentioned aim of supporting early childhood development (Sportball 2017a). Similarly the Long term athlete development scheme uses the same 'fundamental movement' phrase, most likely due to their aim of developing PL before puberty (Sport for life 2018a). Their approach would appear to suggest that PL and Fundamental movement are the same thing, something which Edwards et al (2017) refute seeing Fundamental movement as the teaching and developing of physical domain alone, as opposed to PL which also aims to develop the cognitive and affective domains. From this it may not be unreasonable to suggest that fundamental movement may be regarded as a part of PL, but in order to be considered as complete PL it needs the other domains to complete it. This area is commented on by Pot et al (2018b), who see the differing definitions

as diverting PL from its original conceptual course into a number of directions that suit the individual organisations. Sport Australia's definition adopts wording that bears similarities to Whitehead's original definition, sharing terms like 'motivation, knowledge, confidence and throughout our lives'. Sport Australia is the operating name of the Australian Sports Commission, part of the Australian Government with the stated aim of 'getting more Australians participating and excelling at sport' (Australian Sports Commission 2018). It would seem, if these examples are typical that there may certainly be a degree of subjectivity to published definitions of PL. Something that Edwards et al (2017) recognise, considering two approaches to PL, a Whiteheadian approach which is more complete, championing both the holistic and physical aspects of PL, and the Long Term Athlete Development approach, which follows a more sport focussed approach. Edwards et al (2017) also recognise the importance of declaring the underpinning theory and philosophical approach when defining PL, in order to avoid confusion, and assist when operationalising the concept. Braun and Clarke (2006) reinforce this stance from a wider research view point, suggesting that researchers should be explicit in their assumptions and ensure clarity and transparency flows through their research. The Oxford English dictionary (2019) defines the word definition as 'An exact statement or description of the nature, scope, or meaning of something'. The myriad of shades that the definition comes in presently blur the exact nature of PL for all stakeholders, potentially leading to confusion and interpretation in its delivery. Whichever definition is adopted it would seem vital that a consensus is reached, without one the very concept of PL may be in jeopardy.

2.4 Assessing Physical Literacy

There is a plethora of papers published reinforcing the notion of Physical Literacy as a concept that is gaining in both popularity and interest in different circles from health to education (Corbin 2016; Hyndman and Pill 2018; Barnett et al. 2019; Edwards et al. 2019; Ming-Hui et al. 2019). As the concept becomes more familiar the question arises how do the various physical education educators, in their numerous formal and informal settings tell if their students are becoming more physically literate, especially with the number of differing definitions?

The need to assess PL is understandable, if educators are to be able to justify why they have adopted a PL framework rather than following the more traditional routes, it is not unreasonable to want to know, and be able to show, whether something works. This is something that Tremblay and Lloyd (2010) recognise, commenting on the importance of measurement if PL is to be

accepted by Governments and governing bodies as a viable alternative to the traditional approaches. Something Lounsbery and McKenzie (2015a) agree, citing a lack of data based evidence as being a flaw in PL's credibility at present.

In Canada PL has been a concept that has become central to physical education, becoming integrated into PE policies throughout the country with a number of organisations working to increase various aspects of PA participation through PL (Sport for life 2018b; Active for life 2019; Public Health Canada 2019). Robinson and Randall (2017) suggest that an effective and appropriate way to assess PL is regarded as the missing piece that would allow the quantification of performance in an objective manner. They do, however, raise the cautionary question of what criteria should be used to assess PL, with a number of differing definitions of PL in Canada some common themes would need to be established to ensure both the reliability and validity of any assessment method. Papers by Robinson and Randall (2017), Edwards et al (2018) and Sum et al (2018) all recognise similar themes in their work related to assessing PL, they acknowledge the domains of PL (cognitive, physical and affective) or the closely related key attributes (motivation, confidence and physical competence and interaction with the environment) as possibly providing the answer to this issue. Hyndman and Pill (2018) suggest that presently PL is mainly associated with the physical domain and is conceptualised through traditional attitudes of PE. However Edwards et al's (2018, pp.666-670) results show a mixture of physical, affective and cognitive domains, with the physical and affective domains respectively being more prevalent than the cognitive domain. This goes some way in confirming Hyndman and Pill's view that there is still a bias towards the more physical/performance aspects of PL. Barnett et al (2019, p.120) focus on four learning domains of PL, psychological, social, physical and cognitive, differing from the previous authors domains, an example of the disjointedness that seems to be creeping into PL (Barnett et al. 2019, pp.120,124). However, Hyndman and Pill's (2018) suggestion that the physical domain is one that is being focussed on prompts the question of why they are not including the others. Is it because they are unaware, or are they still influenced by the traditional physicality of PE? To add further to the discussion Edwards et al (2018) suggest that one approach cannot adequately capture the whole of PL. They propose that a mixed methodology of a quantative research approach is more appropriate to measuring the physical elements of PL, whereas a more qualitative approach is more relevant to capture the more holistic aspects of the concept. It would appear that so far a single method of assessing PL has not been found. Barnett et al (2019) are of the opinion that assessments tend to prioritise elements of PL dependent on

their areas of interest. This raises the question of whether PL is too big a subject to be assessed in its entirety, and if only aspects of it can be assessed where does this leave the concept in terms of those wanting to provide a fuller PL experience.

Jurbala (2015) suggests that PLs popularity is due to, in no small part, the strength of the metaphor people attach to the term Physical literacy. Jurbala, (2015) Longmuir et al (2018) and Barnett et al (2019) proposes that with each differing interpretation whether by definition or domain comes a skewing of the concept understandably causing confusion. If common ground is not found it may well ultimately lead to PL becoming somewhat of an academic or pedagogical folly.

2.5 What we don't know about Physical Literacy

Within the academic and educational world there are varying views on what PL is and what it does. Is it, as Durden-Myers, Green and Whitehead (2018b, p.1) suggest ' accepted as a valid goal to work towards within education', or as Lounsbery and McKenzie (2015a, p.140) suggest ' a rose by any other name'. Lounsbery and McKenzie (2015a, p.143) go on to recommend that rather than educators jumping on, what they believe to be the 'trendy PL band wagon', time, effort and resources are spent prioritizing PE objectives, creating PE policy and conducting research. As Whitehead (2010b) considers PL an outcome of PA it may well be that the policy and research Lounsbery and McKenzie (2015b) want may well already exist within PL. Durden-Myers, Green and Whitehead (2018b, p.270) are in partial agreement, but see the issue more along the lines of a need for inward focus within the PE profession regarding the values, purpose and goals of modern PE. Robinson, Randall and Barrett (2018b, p.290) support this need for inward development that prepares teachers for planning and delivery of PL, as well as recognising the confusion between PL and PE that Lounsbery and McKenzie (2015a) allude to. These varying views agree that something needs to be done about the crisis of PA, and the need for a clearer understanding of PL. If academics and professional educators are confused about it, what chance do parents and children have when asking them to buy into the concept. As Durden-Myers, Green and Whitehead (2018a) write from a UK perspective, Robinson, Randall and Barrett (2018a) a Canadian point of view and Lounsbery and McKenzie (2015a) speak from a US perspective. All are united in their views that PE, PA or whatever it is labelled as needs to be valued more than it is presently if the alarming statistics surrounding child PA levels is to be addressed.

Lounsbery and McKenzie's (2015a, pp.140-141) suggestion that PL is effectively just rebranded PE, arises from similarities in the 2004 and 2013 PE standards which refer to a physically educated and physically literate individual respectively but are 90% the same . Similarities are inevitable but as Robinson, Randall and Barrett (2017a) recognise, there is confusion surrounding the two terms, but PE is a curriculum subject and they suggest PL is a goal of PE and they should not be in competition with each other. It should be noted that Lounsbery and McKenzie (2015a) are not necessarily against PL as a concept, but their issue is with it replacing the term PE in the US national curriculum, showing one can possibly be critical without be a critic.

Many of the skills that PL claims to develop such as the three key attributes may be seen as transferable. It is commonly assumed that skills acquired in one sporting activity can be transferable to another. Authors such as Durden Myers et al (2018a), Dudley et al (2017) and Mandigo et al (2007) suggest that these skills can in fact be beneficial to other parts of a individuals life, beyond PA. By influencing other parts of a person's life, they propose it can have wider reaching positive results beyond the purely physical.

2.6 Who isn't it suitable for?

PL is founded in the philosophical tenets of monism, existentialism and phenomenology. These are possibly the most obvious aspects of the concept that set it aside from others. But does this mean that those that do not subscribe to the philosophical ideas are barred from becoming Physically Literate. Burgmer and Forstmann (2018, p.229) would seem to think so, seeing a negative correlation between a belief in dualism and a valuing of the importance of PA. Their view is that those that believe in a dualist perspective do not connect the need for a healthy mind with a physically fit body, that the body is the physical embodiment of the mind. Whitehead (2010b, pp.22-23) in particular extols the virtues of monism over dualism, whilst recognising that those with a dualist view will never be in a position whereby they recognise the mind and body as one and the idea that physicality is the embodiment of our mind. From this point of view PL is not a concept that would fit for those with a dualist point of view (Pot et al. 2018b), although they may be physically active they will never value PA in the same way as those that have a monist outlook. The challenge would be two-fold for those promoting PL, firstly to change the thinking of those individuals then to promote the importance of PA participation for life.

2.7 Misunderstandings of Physical Literacy

As a concept PL consists of a number of differing, and to some, confusing principles. Pot et al (2018b) recognise this suggesting that, although many are inspired by the concept of PL, there is a problem when it comes to operationalising it. They consider that for many the concept is too 'esoteric' and as such many are tempted to ignore the philosophical aspects of the concept and use what is left (Pot et al. 2018b, p.270).

Physical Literacy has now spread beyond the confines of England, with Canada and Wales especially taking it to their heart. Schemes such as Sport for Life (2013), Active for Life (2019) and Passport for life (Physical & Health Education Canada 2013) all promote PL to various target groups. Public Health Canada (PHE) now recognise PL as the major target outcome of PE, with it firmly rooted in the curriculum, positioning educators at the centre of the strategy to create a physically literate nation (Public Health Canada 2019).

Embedding PL into the educational system has obvious advantages if the goal is to create lifelong participation in PA. However, considering the number of differing definitions and reported confusion surrounding PL the question arises do they all understand PL? Robinson, Randall and Barrett's (2018b) research focussed on the understanding of PE leaders in various Provinces in Canada. Their results indicated a wide spread confusion over the difference between PE and PL, either considering it a rebranding of PE or a method of highlighting aspects of PE that had become focal points, something endorsed by Lynch and Soukup (2016). Many held the belief that PL was simply a synonym for PE. Others saw it as simply a method to expose students to different PA environments and activities.

Lynch and Soukup (2016) regard terms such as PL as confusing to both educators, parents and participants. Their view of it as unsubstantiated and counterproductive, is quite a bold claim considering its prominence in Canada (Robinson 2017a). Their view that the introduction of terms such as PL only serve to confuse is based on their assertation that PL is to all intents and purposes rebranded PE (Lynch and Soukup 2016). If this is the case then they may have a point but as proponents of PL claim, the differences are more than just terminology driven. In particular that PL differs from PE in that it is not working towards standardised goals (Mandigo et al. 2009, p.30). The confusion they allude to compares PL to PE, as opposed to taking the view that PL is an outcome of PE. These views resonate with Lounsbery and McKenzie (2015a, p.144) who see very little difference between the two terms. Their recommendation being that rather than jumping

on the Physical Literacy 'bandwagon' efforts are put into increasing the amount of time students spend engaging in PA. Lounsbery and McKenzie's recommendations do however betray them somewhat. Their desire to see students spending more time engaged in PA is not only common sense but in line with Government recommendations. However, PL champions the ideal of creating individuals that have an innate desire to be PA through its philosophical underpinnings. What happens when they leave education and no longer have a structured approach facilitating their PA. The PA dropout rate amongst school leavers is a source of concern for Governments, with only 10 % of US and 19% of UK teens achieving the recommended activity levels (Donnelly 2016; Norton 2016).

Inactive teenagers may well become inactive adults reinforcing the importance of developing children that are motivated to seek out, value and participate in PA throughout their lives (Durden-Myers et al. 2018b, p.270; Robinson et al. 2018b, p.288). The crux to the debate of PL and PE may come down to individuals understanding and interpretation of PL, and whether they comprehend the differences between the two. If academics and other interested parties cannot separate the two then either PL is not getting its message across clearly enough, which to a certain extent proves their point, or there may need to be new approaches to better educate.

Rock Climbing Literature review

2.8 The history/development of climbing from its beginnings to present day.

Rock climbing in the United Kingdom can be traced back to Walter Parry Haskett Smiths ascents in the Lake District in the 1880's (Bainbridge 2013), although Thompson (2010, p.80) reports that as early as 1854 British parties were scaling major peaks in the Alps. This disparity between authors may be due to their definition of climbing, Thompson referring to Alpine peaks, mountains that would entail a mixture of walking and in some cases climbing to scale, whereas Bainbridge speaks of the purer form of climbing, with the aim to climb the rock face the sole goal, rather than using it as a way to overcome an obstacle on the way to a mountainous peak. Thompson (2010, p.7) attributes the emergence of climbing as both a reaction and result of changes in society, particularly the urbanisation and industrialisation of society, the spread of access opportunities and the emergence of a relatively wealthy middle class.

Mittelstedt (1997) gives an insight into the development of Indoor climbing walls reporting they came into being to serve as a venue for climbers to train when weather conditions precluded climbing outside on rock. In addition, they allowed them to train in a way that had previously been unthinkable. Climbers were able to practice moves in the relative safety of the wall increasing both strength and technique (Eden 2010; Thompson 2010, p.265; Nicita 2018). Some have seen this as a trend, the idea of taking traditionally outdoor sports like climbing and skiing, and 'indoorising' them. Making them more accessible to the masses, in terms of location, time commitment and skill levels needed for participation (Mittelstaedt 1997; Gagnon et al. 2016).

The wider practice of rock climbing has been likened to many things, Rickly-Boyd (2013) suggests it is more participatory focus setting it apart from the more traditional sports such as football or basketball. However, Salome and Van Bottenburg (2012) suggest that the increasing popularity of so called alternative, or lifestyle sports such as rock climbing have led to a blurring of the lines between traditional sports and alternative ones. They go on to suggest that the increase in popularity of these sports has led to the emergence of different groups participating in activities that they may otherwise not have been attracted to. Typically, these groups, called 'exercisers' by Salome and Van Bottenburg (2012) are motivated more by physical fitness, appearance and social contact, as opposed to others that are motivated less by factors such as physical fitness and more by belonging to a particular sub culture. It may be inevitable that as a sport becomes more popular and accessible, the demographic of those participating becomes more diverse, attracting people that would not normally have considered taking part. In climbing's case this may be partly due to the increase in the number of climbing walls and their higher profile and accessibility. This is borne out by the British Mountaineering Councils statistics that show an increase in the number of climbing walls from 1988 when there were 40 listed in the UK rising to 254 in 2003 (British Mountaineering Council 2003). In addition the latest Sport England Active Lives survey shows that adventurous activities including climbing are driving the increasing numbers of active people, more than any other activity (Sport England 2019).

These alternative, or lifestyle sports are typified by those participating wanting to be set apart from more traditional sports, seeing them as institutional and governed by a strict set of rules (Salome and Van Bottenburg 2012; Gagnon et al. 2016). The increasing popularity and accessibility of these alternative sports has manifested itself to the point where climbing walls can now being found in shopping centres and companies offering the opportunity to ski on real snow indoors or sky dive are found in retail parks in major cities (The Project 2018; iFly 2019).

2.9 Climbing as a lifestyle

It is worth thinking about what draws people to leisure activities, whether chasing a ball around a pitch, running round an athletics track only to end up back at the beginning or climbing a vertical wall using holds that someone has bolted on in such a pattern as to make it as difficult as possible. Wheaton (2004, p.72) suggests that, for many, leisure pursuits such as climbing offer an escape from normal life and a glimpse of what is possible or missing from our lives, or at least what we wish our lives were like. This aspirational embodiment possibly fuels many aspects of climbing, from the increase in provision and media interest, to the sustainability of the lifestyle through both clothing and equipment brands (Mei-Dan 2018). Even within climbing culture there are polar opposites, on the one hand there are the climbing walls offering, as Thompson (2010) says a safe and convenient activity. On the other hand there is the 'dirt bag' climbers, described by Rickly-Boyd (2012) as seeking a life that is fully committed to climbing. In some cases to the extent that they live full time in the wilderness in order to be able to climb full time, living a simplistic, nomadic life. In terms of why children take part in sport, Bailey et al (2013, pp.60-62) suggest that participation is determined by five factors;

- **Perception of competence**

  Bailey et al (2013) put this into two distinct areas, physical competence and social competence. Physical competence being the ability to interact with the chosen environment by mastering the particular skill required by the activity. Social competence relates to a child's ability to master skills such as making friends. Bailey et al (2013) go on to suggest that by mastering a skill children experience a sense of positivity about themselves which in turn increases their motivation and confidence. How ever they also point out that if they are not successful in mastering the particular skill this can have a negative effect on their motivation and confidence to participate. Whitehead (1993) develops this a little deeper, suggesting that motivation to perform tends to be intrinsic for many, do it for its own sake. She does recognize the alternative view that for some the rewards are extrinsic, and showcasing their abilities is the motivator. Normand et al (2017) suggest there are advantages and disadvantages to what they refer to as early

specialization. Although they recognize the advantages of children focusing on one sport in terms of heightened skill acquisition, recognition and talent development they do also identify disadvantages. Overuse injuries, loss of motivation and emotional exhaustion are all seen as potential issues for young children when exposed to excessive specialization (Normand et al. 2017). Morrison and Schöffl (2007) also recommend caution when developing young climbers, particularly in terms of specific issues unique to the sport. This includes potential damage to ligaments when finger strength training and the trend in climbing of wearing climbing shoes that are a size or more smaller than a growing child's normal shoe size. This is further endorsed by Mittelstaedt's (1997) view that the majority of climbing injuries occur to the smaller ligaments of the fingers, hands and elbows. In addition, Brenner (2007) suggests caution, recognizing that overtraining can lead to burn out which may then in turn have a negative influence on a child's attitude to lifelong participation in PA, something PL strives for. This raises a difficult question in terms of if children enjoy a sport and have the drive to participate and progress, how do parents and coaches steer them in a direction that keeps them motivated but without potentially damaging them physically and emotionally.

Bailey et al's (2013) second area is that of social competence. This would perhaps include such skills as making friends, communicating and building relationships. Bailey et al (2013) suggest that the two competencies are linked. Howie et al (2010) confirm the importance of social competence, reporting the positive effect it has on children's social skills, behaviour, school performance and dropout rates, particularly in physical activity setting. Competence in climbing has one particular aspect that sets it apart from others, fear. Climbing walls by their very nature tend to involve height, and for new climbers especially this may be a major barrier to becoming competent. Kerr and MacKenzie (2012) report that fear is a very real issue for new climbers. Although they propose it can have a positive effect on climbers. They suggest that initially it keeps the climber safe by stopping them doing anything beyond their capabilities. As they overcome the fear it allows them to push themselves further and gives them the confidence to take on harder challenges. Gallota et al (2015a, pp.684-685) however, suggest that aspects of fear in climbing are not that different to those experienced by others. During their testing of indoor climbing versus fitness training the anxiety level of the two groups was not significantly different, something they attributed to the climbers

training indoors, as opposed to what they described as a more challenging outdoor setting. The obvious difference between the two activities is the height issue which may make the fear rather than anxiety somewhat unique to climbing.

- **Fun and enjoyment.** It would seem to be an obvious statement to say that children are more likely to participate in activities they enjoy, and this is endorsed by several authors (Whitehead 1993; Allender et al. 2006; Şekeroğlu et al. 2017; Sport-England 2019). Bailey et al (2013) do go on to ask the question what do children consider enjoyment? They conclude that although enjoyment is an intensely individual experience, it can be broadly linked to achievement, their perception of their competence and social or intrinsic factors (Bailey et al. 2013, p.61). Conversely Crane and Temple (2015) suggest that a lack of enjoyment was a major factor in dropout rates from sport among children. They further link this to issues such as anxiety from competitions and the associated feelings of not fitting in that can result, something Allender et al reinforce (2006). In addition, the value of enjoyment as a strategy for participation amongst children in physical activity has been recognized (Weiss 2000). Weiss (2000, p.2) goes on to echo Bailey et al's (2013) view that factors influencing enjoyment vary from positive social interactions to mastery of skills. They do suggest that physical activity is unique in its involvement of movement sensations, the sensations of climbing for children certainly provide a sensation unlike anything they are likely to have experienced.

- **Parents.** Parents understandably have a substantial impact on the attitudes and motivation of their children. Bailey et al (2013) and Witt and Dangi (2018) suggest that this can have both positive and negative influences on their children's physical activity levels. They found that parents with little or no motivation to take part in physical activity tended to negatively affect their children's motivation. In the same way parents that were over involved tended to put excessive pressure on their child to perform and this was also a demotivating factor. Bailey et al (2013, pp.61-62) concluded that the best motivator was the parent that created a caring and supportive environment, where sport was not taken too seriously.

- **Learning new skills.** The challenge presented of learning new skills, and then mastering them was seen as a motivator for many children (Bailey et al. 2013). Light (2010, p.382) explores this idea further, recognizing that when children attend sporting clubs they do

indeed learn to play sport, but further than that they are learning important social, cultural and personal skills that will develop them and have an influence on the person that they become within society. This type of learning may not be explicit, but rather a subconscious development of their interactions.

- **Friends and peers.** For many children the social interaction that comes from taking part in sport is a significant factor in their participation. The building of new relationships, being accepted socially, working together and making friends played a significant positive role in children's participation. Conversely, feeling like one is being compared to peers had a potentially negative affect on participation (Bailey et al. 2013).

Bailey et al are not alone, with other authors citing similar factors influencing motivation (Csikszentmihalyi 1975; Kerr 2012). Kerr and Mackenzie's (2012, p.656) study of adventure sports included motivations that were possibly particular to adventure sports such as climbing, particularly risk taking and overcoming fear. These differing motivators reinforce PLs focus on the individual, in particular that a persons PA is dependent on a number of different factors so will manifest itself in an individual and unique way to others.

2.10 Lifestyle Sports

Activities such as climbing, surfing, skateboarding and sky diving now all appear to fit into what is now generally termed lifestyle sports. They share common themes such as being non-traditional, non-competitive or simply different from main stream sports such as football or tennis (Wheaton 2004; Rannikko et al. 2016). Wheaton (2004) goes on to suggest that what attracts people to the sports is their embodiment of so called alternative sporting values like being non-competitive and without formal regulation. However, as Wheaton herself goes on to explain these ideals of lifestyle sports are perhaps not without their complications and challenges. Snowboarding is now an Olympic sport along with surfing and climbing (Tokyo 2020 2019) which firmly place at least a portion of the sport as competitive, challenging part of the mantra of some participant's.

Edwards and Corte (2010) examine the commercialisation of lifestyle sports, BMX in particular, and find that although some participants resist it others whole heartedly embrace it. Wheaton (2010) suggests that as the profile of these sports has been raised by events such as the X games so has the diversity of those consuming it. Once the preserve of teenage boys these sports now attract different ages, genders and races (Wheaton 2010). Berry (2018) suggests that women

now make up 29% of the gender split in UK climbing walls. The increasing diversity of these sports should be a positive in terms of inclusivity of PA, something Rannikko et al (2016) suggest is a popular theme amongst lifestyle sports. The profiles of these sports has slowly increased to the point that, according to Turner and Carnicelli (2017) they are in some ways now considered main stream with highly paid athletes, TV coverage and large companies focussed on the brand. Turner and Carnicelli (2017) endorse this view suggesting that the public's perception of these lifestyle sports is driven mainly by the media and their desire to portray the glamourous and cool aspect of the sport and its athletes. Participants are certainly not disconnected from this, sharing content via social media of their exploits, feeding the media further (Smith 2020). It may be argued that this desire for media attention stems from more extrinsic motivators, with athletes perhaps attempting to gain recognition and affirmation from their peers. They go even further, suggesting that the only real difference between mainstream and lifestyle sports such as climbing is the viewpoint of the individual, something that may well have been shaped by the media. If the idea of extrinsic motivation is true it possibly brings into question any suggestions that lifestyle sports and PL may have shared ideals. Even taking this into account PL's attitude to PA being about the individual performing to their standard does indicate some shared beliefs between the two. Wheaton (2004) suggests that the draw for individuals is the alternative aspect, but it begs the question are they really alternative or do individuals perceive them as being alternative through the media lens. Wheaton (2004) comments on this theme, suggesting that the risks of participating in lifestyle sports have been diluted by the media resulting in inexperienced practitioners not always appreciating the very real risks involved in sports such as climbing. Supporting this idea of popularisation is the fact that the National Geographic sponsored climbing documentary Free Solo won an Oscar in 2019 (ABC 2019).

2.11 Directions within Climbing research

Although the profile of climbing as a sport has undoubtedly increased, research into its benefits does not appear to have kept pace. Mittelstaedt's (1997, p.27) work identified four main fitness benefits of climbing, muscular strength, endurance, cardiorespiratory fitness and flexibility. Saul et al's (2019, pp.24-25) recent work echo's Mittelstaedt's view, adding that training volume has a greater benefit than flexibility training, and cardiovascular fitness is an area that indoor climbers do not generally focus on. Saul et al (2019, pp.23-24) do pay attention to the psychology of climbing but tend to focus on the personality of climbers rather than psychological benefits

of climbing. Carbasho (2018) take a slightly more holistic view suggesting that self-confidence is perhaps the biggest benefit students get from climbing, followed by the mental attitude and fitness. Gallotta et al (2015b, p.676) suggest that anxiety is potentially a particular issue for climbers, seeing that higher levels of anxiety affect movement and the time it takes to complete a climb, and those with lower levels of anxiety tended to perform better. However, Hill et al (2018) findings suggest that climbing is a valid means of reducing anxiety, particularly in adults. Further investigation would possibly give a clearer picture of what triggers anxiety, fear of falling, social acceptance or climbing beyond one's ability. There would appear to be a need for more research into the specific benefits of climbing both physiologically and psychologically. In particular the benefits of climbing clubs to children.

2.12 Flow & Physical Literacy

One aspect of climbing that has received little attention is the idea of achieving flow. Eryucel (2019) uses Csikszentmihalyi's definition of flow as the '*the optimal mental state that occurs when the perceived challenges and skills are balanced'.* The idea of a balance between difficulties and skills is something Akyol and Imamoglu (2019) expands on in relation to flow. Although their study takes a broader approach to exercise their findings are of some relevance to climbing. Firstly, they found that those athletes that participated in more individual activities (such as climbing) tended to achieve a higher flow score, compared to those that took part in team sports. Secondly, they found that intrinsic motivation was positively linked to achieving a flow state, when compared with extrinsic motivators. Whitehead (2010b) suggests that Intrinsic motivation is fundamental to PL, and is an important aspect of an individual's PL journey. The common theme of motivation shared by PL and the flow experience introduce the idea that these two concepts may be linked in some way. Is a physically literate person achieving that flow state in their own PA or, is PL an appropriate way of developing flow in individuals. Eryucel (2019) regards flow as a state of total concentration whilst engaged in PA. As the definition implies this can only be achieved when the skills of the athlete meet the perceived challenges of the task. In a climbing context this may be being able to climb a route of a certain grade because of the skills that have been acquired and developed through training and practice. Kiewa (2001) expands on this subject, suggesting that traditional climbers especially set themselves strict rules which allow them to engage with an environment that they have little control over. This is important if they

are to stay, as Kiewa (2001) suggests, on the safe side of the borders of chaos. In addition, Kiewa suggests that in order to achieve the flow state climbers need to exercise a degree of self-determination as a part of their overall competence. Soulliard et al (2019) expand on the idea of flow amongst athletes, suggesting that embodying activities such as athletics share similarities with flow state in terms of physical competence and empowerment of the athlete. It may be worth considering whether flow and PL have a number of common themes and links. Is flow the physical embodiment of our minds and bodies working together in a monist fashion, as promoted by PL scholars such as Whitehead (2010b). Is PL, as Whitehead (2010b, p.30) suggests giving individuals the confidence in their physical abilities knowing that success is likely resulting in flow? As previously mentioned, when a climber feels they have reached that state of flow, are they in that moment becoming physically literate? Whiteheads (2010b) argument that PL is a holistic lifelong involvement in PA suggest this is unlikely. If flow is a state where the challenges and skill level meet, it may be argued that children that are attending climbing walls are perhaps working towards flow and PL. It may be optimistic to think they are in a position to achieve it as they are arguably in the developmental stage of their lives. Additionally, Boniface (2000) suggests that flow comes about partly due to intrinsic, rather than extrinsic motivators, a view that PL scholars such as Whitehead echo. Akyol and İmamoğlu (2019) suggest that although intrinsic motivation is linked to aspects of PA, extrinsic factors are often the motivators that get individuals started in a particular activity. In relation to this study extrinsic motivators such as rewards and self-image may play a bigger part in student's participation than more intrinsic ones. Bailey et al (2013) see the issue of motivation as key to children's continued involvement in sport. Only by creating deliberate play and practice environments will coaches give students the positive, autonomous learning environments that will motivate them to continue participating.

2.13 Conclusion

This review has examined in detail Physical Literacy and introduced Indoor Climbing, and a number of things have emerged from this.

There is a substantial amount of literature pertaining to PL, much of it in support of the term with the aim of adding further to the concept. Those that are critical of the concept appear to approach it from the angle that PL is to all intents and purposes rebranded PE. Some feel that it detracts from what they see as the real issue, particularly in education, of the erosion of the

amount of time students spent physically active. Other authors suggest that educators simply do not understand the concept, it may be interesting to consider whether this is their fault or PL's. It is unclear why there seems to be a growing number of definitions, although it seems clear that organisations skew their definitions to meet their aims. Again, it is interesting to consider why organisations feel the need to redefine PL, whether it is a business decision or an academic one. The missing six words of the previous definition only serve to contribute to the confusion around the definition. PLs aim of lifelong PA have to contend with the realities of the modern world and the draw away from PA for young people. This lifelong journey is something critics seem to miss, instead recycling the premise that it is rebranded PE. PL does not seem to lend itself to assessment in the traditional objective standardised manner. Authors suggest a number of methods, for some a mixed methodology dependent on which aspect of PL is being assessed. In addition, authors are of the opinion that individuals should only be assessed against themselves. PL is firmly anchored by monism, existentialism and phenomenology. It therefore follows that those that refute those ideas are less likely to embrace PL.

Indoor climbing came about initially as a way for climbers to keep climbing when the weather outside was inclement and they lacked the necessary friction. From there it has steadily increased in popularity to the point where it is included in the next Olympics and the UK alone has 254 walls in 2013. Authors suggest that climbing is regarded as an alternative sport when compared to traditional sports. The increasing presence climbing has is now considered to be blurring the lines between traditional and alternative sports. It is suggested that children taking part in organised sports do it for number of reasons including competence, fun and parental influence. Within this are the idea that children strive for physical and social competence and improve skills such as decision making and communications. Fear in climbing is an issue but once mastered it is suggested that it can unlock a child's potential. There is a lack of literature on the benefits of climbing beyond its physical challenges.

3.0 METHODOLOGY

3.1 Methodological approach

The aim of this study is to investigate whether climbing walls provide a valid means of developing physical literacy (PL) in the children that take part in organised climbing sessions. As a concept PL is not sport specific, rather it encompasses all aspects of purposeful physical activity (PA), at whatever level is appropriate to the individual. This can be from a gentle walk for an elderly person to athletes taking part in ultra-endurance events (Whitehead 2010b). The study will gather qualitative data from the coaches that teach the climbing sessions, focussing on exploring their attitudes, motivations and views of the sessions they deliver. To achieve the appropriate approach to data collection and analysis need to be taken.

3.2 Research Philosophy

As with any study the approach taken will be influenced by its ontological view (the study of being, or the nature of reality) and epistemological approach (the study of knowledge or the nature of knowledge) (Lofgren 2013a, 2013b; Jones 2014, p.18; Merriam and Tisdell 2015; Philosophy-Terms 2018). These are both terms that are standard inclusions in most studies, but it is worth spending a little time on them and any links they may have to PL in particular.

Ontology, comes from the Greek words *Onto* meaning existence or being real, and *logia* meaning science or study (Lofgren 2013b). This philosophical concept looks at what is real, or what actually exists, are material things that we can see and touch more real than thoughts and our consciousness. Within social research there are a number of different approaches to the subject of what is reality and the point of view researchers adopt. There are two general approaches to this question, positivism and interpretivism. Positivism proposes that there is one truth, that is measurable and observable because it does not change, and is more akin with the natural sciences and research tends to take a quantative approach (Jones 2014, p.20; Ryan 2018). On the other hand, interpretivism proposes that reality is subjective to the individual, context and situation, every person experience's a particular reality in their own way, dependent on their point of view of the world. This point of view, or truth will be shaped by their previous experiences and the outcomes of those experiences, either positively or negatively (Prakash 2012). For example if a person has fallen climbing and injured themselves they are likely to have

more negative association with climbing when compared to someone that had been successful in completing the climb, has been praised by their instructor and had a positive experience (Jones 2014, p.22; Ryan 2018). This has certain commonalities with existentialism, one of the underpinning philosophical concepts of PL. Existentialism proposes that a person's interactions with their environment shape their feelings, thoughts and attitudes, which in turn shape the individual (Pot et al. 2018b). Pot et al (2018b) take this further, proposing that as individuals experience the world this 'creates' the person, reinforcing the interpretivist proposition that there are multiple realities, unique to the individual, shaped by their experiences of reality. This study will follow a more interpretivist approach to its research. Interestingly Weber (2004) takes an alternative approach to the subject, suggesting that research need not be labelled as one or the other, but researchers should appreciate the unity of what they are trying to achieve, that all those engaged in research from whatever angle are searching for their truth.

Epistemology comes from the Greek words *Episteme*, meaning knowledge or understanding and *Logia* meaning science or study (Lofgren 2013a). It is the study of knowledge and seeks to answer such questions as, how do we gain knowledge and what does it mean (Merriam and Tisdell 2015). In order for something to be considered as knowledge it is proposed that it meets three criteria, firstly that it can be justified, secondly that it is true and thirdly that the individual believes it. The justification for something being considered as knowledge comes from evidence supporting that proposition.

There are two schools of thought within epistemology as to how we gain knowledge (Lofgren 2013a; Killam 2015). First, an etic approach, which takes an objective view of evidence, promoting the importance of not becoming too close to the subject being studied, and taking an outsider's view. This approach asserts that the researcher is able to apply logical scientific analysis and measure the phenomenon they are studying to get what they consider are both replicable and objective results (Punnett et al. 2017; Bergman and Lindgren 2018). This approach to research aligns closely with a positivist ontological approach, emphasising the idea that there is one truth that does not change dependent on an individual's point of view. In turn this approach aligns with a quantative methodology which promotes the idea of the collection of data that is objective, replicable and measurable against norms (Given 2008; Jones 2014). In the context of this study the researcher would test all students against a set criterion to create a norm using standardised tests, this would allow them to ascertain how they compare against

that norm, this may be a climb of a certain grade or exercises such as pull ups that are applicable to climbing.

The alternative view to this is an emic approach, which attempts to gain more of an insider's view of reality, what an individual experiences and feels during activities. It is important if the researcher is interested in a individuals perception of the world and what factors contribute to that (Markee 2013; Bergman and Lindgren 2018). It aligns more with an interpretivist Ontological approach, sharing the idea that people experience the world and reality in their own unique subjective way. This in turn allies more with a qualitative methodology that is also interested in looking subjectively at situations to gain an insight into a individuals feelings and attitudes to a particular situation and how they perceive that reality (Given 2008; Jones 2014). In a climbing context this approach would seek to find out the feelings and attitudes of those climbing towards their individual motivation to participate and what participation means to them, rather than the etic approach which may ask them to compare themselves to other members of the group to see where they sit against a norm.

This etic approach goes against the principles of PL, that everyone is not only on their own PL journey, but that journey is particular to them and cannot, or should not be compared to anyone else's as they are fundamentally incompatible, just as giving everyone on a football team the same size boots and expecting them to fit would not work (Whitehead 2010b, p.37).

In terms of research styles there are two main accepted approaches, as previously mentioned, qualitative and quantitative, qualitative is more subjective in its approach and seeks to examine and gain a deeper understanding of individuals experiences. The researcher typically digs deeper trying to find out why an individual experiences situations in their particular way. Conversely, the aim of quantitative research is to measure aspects of an experience in a way that can be repeated to produce consistent and replicable results. By its very nature the research has to be objective to allow it to be duplicated. Proponents of each approach are critical of the other, with qualitative research being criticised for its small sample size and subjectivity. Conversely quantitative research can be criticised for ignoring the individual and failing to recognise the idea that researchers may add bias (Hammarberg et al. 2016). Ultimately each approach is different by design and is appropriate to the particular objectives of each study.

Edwards et al (2018) review of PL assessment recommended that researchers should declare which of the many definitions of PL they will be adopting for their work. In this case the study will follow what is known as the Whiteheadian definition of PL,

'physical literacy can be described as the motivation, confidence, physical competence, knowledge and understanding to maintain physical activity throughout the life course' (Whitehead 2010b, p.24).

the reason for this is twofold, firstly because it is the definition that all other definitions appear to be broadly based on, and secondly it is the definition that was put forward by Whitehead and adopted by the International Physical Literacy Association (Whitehead 2010b, p.5; IPLA 2017a). In addition to this most other definitions use much of Whiteheads wording, including key language such as 'confidence' and 'competence' (Shearer et al. 2018). Canada, a nation that has whole heartedly embraced PL felt it necessary to release a consensus statement aligning itself with the IPLA and Whiteheads definition (Shearer et al. 2018, p.240) reinforcing the Whiteheads definition as the predominant one.

3.3 Research Approach

The aim of this study is to investigate whether climbing walls are a valid means of developing PL in students. The data collection will focus on the opinions and feelings of the coaches that interact with the students at climbing clubs and classes. There is the choice to take either of the two broad approaches to research, the quantative or qualitative styles. Each has traditionally been loyal to certain situations and types of studies. With quantative research following a more scientific and objective approach, more likely to give a yes or no answer, in this case testing students against a set of tasks which would likely give a 'physically literate' or 'not physically literate' answer (Hammarberg et al. 2016). Qualitative research is more subjective, being interested in why people have a certain opinion and see the world in a certain way as Hesse-Biber (2010, p.63) phrase it 'meaning makers of the world they live in'. Hammarberg et al (2016) suggest this type of view would be problematic for quantative research to capture, how would it capture subjective data in an objective way? Qualitative research on the other hand is able to capture the feelings, attitudes and opinions of individuals. By gathering more in-depth data through approaches such as interviews, enables the researcher to probe and delve deeper into relevant areas (Merriam and Tisdell 2015). What this is less able to do is give a definitive yes or no, or whether subjects agree or disagree with a particular statement or question. Hammarberg et al (2016) make an interesting point that quantative and qualitative researchers, to a certain extent see themselves at different ends of the scale, and that they are dismissive or suspicious of the other method. Rather than building walls between the different methods they may be

better off focussing on what really matters, the research, ensuring the appropriate synthesis between methods and objectives. As this research is interested in gathering the thoughts and feelings of the coaches at climbing walls it requires a design that allows them to freely express their opinions, also that allows the flexibility to delve into areas if relevant and so it will be qualitative in nature.

This study is using the coaches as subjects as opposed to children for a number of reasons. Asking them about their feelings and attitudes towards their climbing sessions may not elicit any meaningful data if the children have not developed the necessary vocabulary to accurately express what they have been feeling and experiencing. In addition, the nature of the relationship between the researcher, as an adult and the subject, the child, can often turn out to be an unequal one, with the balance of power swinging in the direction of the researcher (Mauthner 1997a). In practice this has the potential to lead to the researcher leading the child's responses and introducing a bias to the data collected. In addition, juveniles will need to be chaperoned during interviews, normally by a parent, who may also have an influence on the data collection, wanting to ensure their child answers questions in a way that reflects well on them as a parent. Conversely it could be argued that parents know their children better than anyone else, putting them in an ideal position to effectively translate what the child may be trying to articulate, this however is likely to only ever be a translation, diluting the data to an extent where its reliability and robustness may be called into question (Mauthner 1997b). Secondly the coaches are in a position to see the group as a whole and observe any trends or themes that develop. In addition to that this study has chosen to use climbing coaches as the subjects rather than students for a number of other reasons. Firstly, as professional coaches they may be regarded as experts in their field. This means that they will be able to offer insights into their world that come from a position of knowledge, skill and experience. Coaching regularly puts them in contact with students giving them a unique insight into the sport. This insight will be as a result of many hours spent interacting with students, developing a deep insight into the sport. In addition, the research is interested in their perspective as professionals, and wants to investigate their thoughts, feelings and opinions. The experiences the coaches have are likely to make them both interesting and relevant subjects.

3.4 The choices of data collection methods

Researchers have a number of differing methods of data collection at their disposal, each with its own, advantages and disadvantages. It is important for the researcher to align their data collection methods with their research approach and the type of information they wish to gather in order for them to collect data that provides meaningful, relevant results to their question or hypothesis (Jones 2014, pp.37-39; Watkins 2015, p.47). In terms of qualitative data collection, the researcher must adopt the most appropriate way to collect data, fundamentally researchers must decide whether they want to collect data from a non-intrusive, or intrusive standpoint. Firstly where they have no interaction or influence and purely observe the phenomena they are studying (Jones 2014, pp.175-215). Secondly they may want to investigate specific subjects so the data collection would need to be conducted in a manner that reflects the type of data they wish to collect, whether it be the meaning of experiences or the individuals perspective (Hammarberg et al. 2016). Each approach is suitable for different situations, dependent on the objectives of the study, although the researcher may have to come to terms with the idea that the decisions they make are likely to influence the data collection, something they need to guard against in order to provide unbiased research (Flick 2018). Qualitative research traditionally include methods such as interviews, focus groups and are now including methods such as photovoice (The Open University 2018, p.11). All these methods share common themes, namely being exploratory in nature, investigating why subjects feel the way they do about the phenomenon being studied and always taken from a subjective viewpoint. This is in contrast to quantative research that tends to use methods such as surveys, questionnaires and various forms of testing (The Open University 2018, p.17).

This study will be using two main types of data collection, questionnaires and interviews. The purpose of the questionnaire is to act as a sensitising device to guide the construction of the interview questions, both informing and influencing it. By using questionnaires in this manner the researcher is able to positively influence the accuracy and relevance of their interview questioning (Brace 2018). As Foddy (1993) suggests, researchers can sensitise themselves to the communicative norms of a group by using methods such as questionnaires to gain an insight into the language and attitudes of those being studied. In practice the questionnaire can essentially be a letter of introduction to both the researcher and research subject. Additionally, providing the means of opening common lines of communication and understanding prior to the main data collection. Jacob and Furgerson (2012) propose that those undertaking qualitative

interviews do so because they want their subjects to share their stories and to gain an insight into their lived experiences.

Questionnaires offer a useful method of interacting with subjects in a way that can firstly give a degree of flexibility (the subjects can be given the questionnaire which can then be collected at another time). In particular the time involved distributing them and the amount of intrusion/commitment the subject needs to endure (Jones 2014; Brace 2018). In this case the questionnaire also allowed the researcher to start building a relationship with the subjects. Those that agreed to fill in the questionnaires exhibited a willingness to be involved so also presented themselves as potential interviewees. By taking the approach of using questionnaires as a sensitising device it allowed for a gradual process of familiarization between the subjects and researchers (Brace 2018).

Brace (2018) and Jones (2014) suggests that questionnaires provide a method of collecting standardised information. By asking the same question to each of the respondents the researcher is able to gain an overview of the group's norms rather than the individuals. This in turn gives information that is likely to be typical of a particular group.

The interview allows the researcher to delve into the personal feelings of individuals, giving more of a subjective view. It allows for individual understandings to be accommodated for, and wording that is appropriate to the individuals understanding (Jones 2014; Arsel 2017). In addition, it allows for the researcher to question, clarify and explore as they feel is appropriate (Arsel 2017). In this study the researcher's interest is in the feelings, thoughts, experiences and opinions of the coaches. Interviews provide a setting that allows the researcher to explore these areas. This is something that other methods of data collection are less able to achieve. Specifically, this study is looking at PL, a concept that may not be fully understood or familiar with the subjects, a data collection method that allows a degree of interaction would seem appropriate to allow the researcher to ensure the validity of the data collected, and allows the coaches, experts in their field to fully express themselves.

This study collected data in two stages, first questionnaires were distributed in person at climbing walls in the Dorset and Hampshire area, targeting as many walls as possible. Notes were taken when chatting to the staff informally to give additional richness to the data collection and to allow a degree of triangulation via their comments to look for emerging common themes. Once this has been completed and analysed, interviews will be carried out with some of the

questionnaire respondents to allow further investigation of topics identified from the questionnaires. The principle of triangulation is promoted as essential by authors such as Abdulla et al (2018) who see it as a way of avoiding the susceptibility of mistakes within single method data collection. In addition, they see it as a means of making research more informed, complete and balanced. However, Noble and Heale (2019) suggest that triangulation has its limitations. They propose that it can add to the complexity of the research and that the value that triangulation brings to a study may also be overestimated. Suggesting that researchers may lean on the idea of triangulation as a way of ensuring rigour and validity of their work without considering what makes it rigorous and valid. Wilson (2016) also questions how triangulation is able to compare different types of data collection, although within research there is likely to be common themes that can be compared and triangulated.

In this case the face to face questionnaire has been chosen for the first phase of data collection. This is preferable over electronic questionnaires, such as email attachments which traditionally have a low respondent rate, partly due to the subject being able to simply log off, something which face to face questionnaires are less likely to suffer from. Patten (2016) does feel this is to some extent a situational issue, if a manager sends an online questionnaire to their staff the response rate is likely to be high (Jones 2014; Patten 2016; Brace 2018). In addition, the questionnaires will be designed to not be too laborious to complete, anything over 15 minutes being considered too long and the respondents enjoyment and dropout rates begin to increase (Brace 2018, pp.17-18, 26-27). The questionnaire has the advantage of enabling the researcher access to a higher number of subjects in a time effective manner (Patten 2016). The face to face interaction between the researcher and the subjects also has the advantage that the researcher can begin to build a rapport with the respondents. This has several advantages, firstly the subjects are able to clarify any points they are unclear on whilst completing the questionnaire, increasing the reliability and validity of the information by ensuring respondents understand fully the questions being asked (Brace 2018). Secondly it allows the subjects to become somewhat familiar with the researcher, building a degree of trust which will make them more likely to consent if asked to participate in the second phase of data collection, the interview. The third advantage is that the researcher has the opportunity to take notes about aspects of the interactions, giving a feeling of the attitudes of the respondents that may otherwise be missed (Brace 2018, p.120).

3.5 Influence of Literature review on data collection.

By using descriptors from Whitehead (2010b) the questionnaire has become a useful tool to sensitise the researcher and enable the questions for the interview to be relevant and valid. In addition to this Whiteheads (2010b) view that as humans we are different and should be treated as such contributes to the question of whether climbing should be an activity that involves reaching predefined benchmarks as measures of success, or whether success should be as subjective to the individual as a finger print.

Jurbala's (2015) suggested that we are all capable of movement, but it is the degree to which we move that is dependent on our individual PL. This piece of literature both contributes to and influences the questionnaire and interview. Jurbala's (2015) and Whiteheads (2010b) work adds to the idea that we each have our own capabilities. As such we should not be judged against others if success or development is being assessed. This idea of doing your best rather than a best that is only valid when compared to others sits centrally within PL and is an important factor that needs to be investigated within the study. The idea that success is a personal thing feeds into the question of what the coaches regard as success. Is their perception of success purely associated with getting to the top of a climb or is it connected to the individual doing their best. Robinson et al's (2018a) suggestion that approaches that seek to judge individuals against others may be turning people away from PA if potentially unrealistic targets are set is also relevant in this context.

Leading on from this is the philosophical tenet of PL existentialism. This concept suggests that we become the people we are through the experiences we have in life (Pot et al. 2018a) . This opens up a line of questioning that investigates whether the coaches felt that the skills learnt were transferable.

Whiteheads key attributes of PL have played a central role in the construction of the questionnaire and interview, being used as indicators of a Physically literate person.

METHOD

3.6 Subject recruitment

A geographical area of Dorset and Hampshire was predefined for this study. Climbing walls were identified as the most likely location to access climbing coaches. Every wall within the area was invited to take part in the study with 5 walls engaging with it. The mix of walls was as follows:

LEA owned	2
Private facility	3
Bouldering only	3
Roped climb & boulder	2

Table 1: Climbing walls by category.

There was no upper limit set on the number of questionnaires to be completed, this would happen naturally through a combination of the staffing levels, staff engagement and geographical saturation. Coaches were sought out to give a mix of experience, gender and location. Within each location the researcher made initial contact via phone, explaining the study. Once it had been established that coaches at that venue would participate, they arranged a time to come to the wall in person.

Those that did fill in the questionnaire were also approached as to their willingness to be interviewed. From the positive responses a selection was made that best reflected a mix of experience, gender and location.

3.7 Questionnaire Construction

The questionnaire will be constructed using the key attributes of PL, taken from Whiteheads definition, '*As appropriate to each individual's endowment, physical literacy can be described as the motivation, confidence, physical competence, knowledge and understanding to maintain*

physical activity throughout the life course' (Whitehead 2010b). From this definition three key attributes of PL were identified; (A) Motivation, (B) Confidence and physical competence and (C) Interaction with the environment *(Whitehead 2010b).*

These attributes describe a physically literate person and so are felt to be appropriate to use as descriptors. Whitehead (2010b) describes each of these attributes and the key wording from these descriptors has been used to create the questionnaire.

Motivation (Whitehead 2010b, p.31)

'Physical Literacy can be described as a disposition characterised by the motivation to capitalise on innate movement potential to make a significant contribution to the quality of life. All human beings exhibit this potential. However, its specific expression will depend upon individuals' endowment in respect of all capabilities, significantly their movement potential, and will be particular to the culture in which they live'.

Whitehead (2010b) states that in relation to motivation, '*physically literate individuals have a positive attitude towards participation in physical activity and will take steps to be involved in this activity on a weekly or perhaps daily basis'.* From this statement questions 1 & 2 were created, asking whether students climbed regularly and have a positive attitude to participation. In addition, question 4 examines whether it is important to celebrate student's personal achievements. This also comes from Whiteheads (2010b) work, specifically within her discussion of the importance of appreciating effort as a development of PL.

Confidence & physical competence (Whitehead 2010b, pp.44-47)

'Individuals who are physically literate will move with poise, economy and confidence in a wide variety of physically challenging situations.

To design questions to investigate the second key attribute of PL, confidence and physical competence once again the key descriptors were used. For instance question 5 comes from Whiteheads (2010b) statement that physically literate individuals will be confident in their physical ability knowing success is likely. Question 6 addresses the idea that the key capacities of an individual's movement are their coordination and control respectively (Whitehead 2010b, p.13). In turn, question 7 addresses the idea that a student's confidence is developed through PA. The development of skill is addressed by question 8, opening a dialogue about the skills the

coaches feel the students may develop whilst climbing. Questions 9,10 and 11 expand on this theme, looking at which skills improve the most, why and whether they are potentially transferable. This is regarded as important and informative as important aspects of PL are the development of an individual's skills and the ability to apply them to different situations.

Interaction with the environment   (Whitehead 2010b, p.44)

'physically literate individuals will be perceptive in reading all aspects of the physical environment, anticipating movement needs or possibilities and responding appropriately to these with intelligence and imagination'.

When looking into the final key attribute, interaction with the environment question 11 serves a dual purpose. Not only does it collect data pertinent to confidence and physical competence, but it gives an insight into the wider benefits to a student. This comes from Whiteheads (2010b, p.44) suggestion that physically literate individuals '*move with poise, economy and confidence in a wide variety of physically challenging situations'*. Questions 12 and 13 probe the idea that students become more confident, competent and at home the more time they spend at the climbing wall. Additionally, as they become more at home within the environment are they better able to meet the challenges of the climbing wall, both with guidance and independently.

The questionnaire has utilised a number of different question types, simple closed questions to give a more quantative answer, Likert scales have been used to ascertain how strongly the respondent either agrees or disagrees with a question. In addition filter questions have been used to enable respondents to move more quickly through the questionnaire and simple open questions to allow the respondents to give some details (Appendix 2) (Rothman 2000; Jones 2014, pp.154-158). Closed questions are useful to give pre coded answers, as opposed to more open questions which allow the respondent some freedom to express themselves. They give easy to answer and easy to analyse data which can measure behaviour and enable the researcher to restrict the answers (Brace 2018). The Likert scale allows the measurement of attitude, how much respondents agree or disagree with a question (Brace 2018). By breaking up these types of questions it is hoped to mitigate what Brace (2018, p.97) refers to as 'pattern answering', where respondents tick in a pattern, normally due to fatigue or boredom. Open questions not

only give a richer answer but allow the respondent to use their own phraseology when answering, in the case of climbing this may include terminology that is commonplace within the climbing community but not elsewhere. This gives an indication of their familiarity with the culture of the sport **and adds to the sensitising nature of the questionnaire**. These questions do however, rely on the respondents ability to interpret the question correctly and respond appropriately (Brace 2018). The mix of question types has been designed to break up any monotony for the respondent and to give a mixture of pre coded data, allowing the respondent a degree of freedom to express their views in a more open way. If the questionnaire contained only closed questions this would allow easily coded data but would possibly influence the respondents by restricting their options when answering.

3.8 Field Notes

During stages of the data collection there will the opportunity for interaction between the researcher and the subjects. This will not be in the more formal data collection setting, but during the preamble. At various times during the interaction the subject may make comments which would not be recorded on the questionnaire but give extra depth and richness to the data collection. To record these interactions, they were written in a field journal in a precis form. Field notes were originally a private record kept by researchers for their own use, however by the 1980s their validity as an additional means of gathering data was being recognised and they are now accepted as a central part of the researchers data collection tool kit (Phillippi 2017). The main aim of them is to give extra richness to the data collection by adding contextually rich interactions with the aim of adding further reliability to the data collection (Phillippi 2017).

3.9 Interviews

As with any data collection method interviews are suited to certain types of research, and within that certain approaches to the interview in terms of how structured or unstructured the interview is.

Interviews allow researchers access to their subject's perceptions of their world and give an insight into why they see it in their own particular way (Gubrium 2012). By giving subjects the opportunity to express this subjective aspect of their lives, researchers can tap into the existentialistic concept of the lived experience and the why and how of a particular phenomenon (Jones 2014, p.176; Mann 2016, p.48; Arsel 2017). **This has been especially true in this study**

where the subjects are experts in their field, giving not only personal but rich data. The skilled researcher can not only tap into the individual's perceptions of their world but also why they have interpreted those perceptions in a particular way.

Arsel (2017) takes the view that certain types of interview are more appropriate than others, whether they be unstructured, semi structured or structured. Arsel firmly believes that the unstructured interview is a thing of fantasy, or a 'romantic myth' (Arsel 2017, p.939). Suggesting that the combination of theoretical 'baggage' researchers have gathered and the research question or hypothesis exclude the possibility of a truly unstructured interview whereby the researcher allows experiences to appear naturally. Dana et al (2013) reinforce this view, considering the propensity for researchers to indulge in 'sense making' whereby they make sense of anything, irrespective of whether it is relevant or valid. Axelson et al (2010) take an opposing view, suggesting that unstructured interviews are valid, and in certain circumstances can provide more insightful data if used instead of, or as well as structured interviews. This reinforces the importance of matching the data collection method with the type of information required. In addition, the experience and skill level of the researcher may have a bearing on their preferred interview type, with unstructured interviews possibly presenting the most challenges to inexperienced researchers in terms of not steering or influencing the interviewee. In this case semi structured interviews were used, with a list of topics and questions but with the ability to digress from these if relevant. Semi structured interviews give the interview direction by having pre prepared topics and questions but the flexibility to digress and probe if more information is necessary (Jones 2014, p.177). Critics of interviews postulate that interviews are not, and can never be naturally occurring, authentic or real. The 'Dead Social Scientist' test proposes that interviews can only be seen as naturally occurring, authentic or real if the interaction would still have taken place if the interviewer had died on the way to the interview. Although obviously rather tongue in cheek, it raises the issue of the influence the researcher undoubtedly has on the interview and the relationship that is constructed as part of the process and interaction of the interview (Mann 2016, p.50).

There are several factors that should be taken into account when preparing for an interview. The context of the interview, both physical and interactional will affect the validity, reliability and ultimately the quality of the results (Mann 2016, p.58). In this study aspects such as language, setting and bias needed to be taken into consideration. Climbing, just as with any sport has its own language, terms such as 'top out' 'flagging' and 'dyno' may be familiar to climbers but to

those outside of the community are likely to be meaningless. By having a researcher that is familiar with the cultural anomalies this potential area for confusion was mitigated'. Alternatively, simply asking for clarification on unfamiliar terms would exclude any misunderstandings.

The questions and associated themes came from a combination of the questionnaires and Whiteheads (2010b, pp.12-13, 30-31, 44-46) key attributes. Using these attributes allowed development and continuity of the guiding information from the questionnaires. The interview had five headings:

- Opening question.
- Motivation.
- Confidence and physical competence.
- Interaction with the environment.
- General/closing questions.

The results of the questionnaires were used to influence and inform the interview questions, for example the results of question 3 (are they motivated when they see themselves improving?) showed a positive response and so a question/discussion point was introduced to the interview (do coaches think there is a link between motivation and participation) to allow this subject to be explored in more depth. In addition, Whiteheads (2010b) descriptor of motivation makes reference to having a positive attitude to participation making this area important to explore alongside exploring the coaches view on whether they felt motivation was important. As the study was focussed on exploring the thoughts and feelings of the coaches it was important to explore their views of not just the specific attributes in relation to PL but to get a feel for their attitude towards the attributes. If they felt motivation was of no importance to students this may indicate and influence their general attitude, as well as their attitude to the development of PL whether consciously or unconsciously.

Similarly, Q5 of the questionnaire asked about whether the coaches felt there was an increase in confidence as the students experienced success. This was another positive response and the link between confidence was explored further within the interviews.

The information from the questionnaires allowed the interviews to explore the why aspect of their answers. Why did they answer in a certain way, for instance why did every coach give a yes answer to question 3. The questionnaire gave an answer but not a reason or insight which is

what the interview facilitated. In addition, the questionnaires indicated a preference or particular viewpoint of the coaches which the interview would allow further depth and from that understanding.

Themes from questionnaire	
Q1	Regular attendance
Q2	Generally, want to be there
Q3	Getting better links to enjoyment, if they enjoy/are happy they continue and are happy
Q4	Personal feedback boosts confidence, by celebrating it coach is able to facilitate progression
Q5	Success = confidence
Q6	Linked to amount of time spent climbing and progression
Q7	Develop the ability to move self confidently to a degree
Q8	Confidence increases the most followed by strength, co-ordination and social skills
Q9	Confidence increases the most followed by co-ordination then mix of social skills and problem solving
Q10	Confidence because they get to know themselves better, co-ordination because they are always using it. social skills because they are working with others
Q11	Physical aspects transferable to other sports, social skills seen as life skills
Q12	Become more at home in environment
Q13	Skills are transferable within climbing, figure out what works for them

Table 2: Themes from questionnaires.

Questionnaire	PL attribute	Interview question themes
Q1	Motivation	How do you motivate.
Q2		Is motivation important.
Q3		Is there a link between motivation & participation.
Q4		What's the biggest motivator for children to climb- what do they get out of it.
Q5	Confidence & physical competence	How important is confidence in climbing.
Q6		Is climbing good at developing confidence, how do you recognise this.
Q7		How do you develop a student's confidence- can you develop it or is it internal.
Q8		Are there different types of confidence that develop.
Q9		Can climbing negatively affect confidence.
Q10		Does confidence & physical competence affect other parts of their lives
Q11		What is physical competence in climbing what if they don't develop it.
		How do you define success
Q11	Interaction with the environment	How do you see students develop within the environment.
Q12		How do you recognise when they are becoming at home in the environment.
Q13		What influences them becoming at home in the environment.
		Are these skills transferable.

Table 3: relationship between questionnaire & interview.

3.10 Sampling

Sample size within qualitative research does not have the reputation of being an exact science, with the nature of qualitative studies seeking to explore a range of opinions and their richness (O'reilly 2013, p.192; Malterud 2016, p.1753). O'Reilly and Parker (2013) concede that there is a genuine desire amongst researchers to produce a generic criteria that guarantees the quality of work. They do, however recognise the uniqueness of qualitative research creates a barrier to this and suggest that researchers need to cast a self-critical eye over their work to ensure rigour is maintained when establishing criteria. One area in particular that seems to raise criticism is that of transparency. How does the reader know what criteria the researcher has used and why? One solution to this may be for the researcher to declare their reasoning and justification within their work, if nothing else it would allow readers to see their thought process. O'Reilly and Parker (2013, p.193) feel this is something that's lacking in some work, even though there is an expectation that researchers will be explicit in their methodology. Unlike quantative research, where researchers aim for large sample sizes as a way of ensuring validity, Jones (2014, p.192) suggests that sample sizes of 5 or 6 can still provide meaningful results if the data is rich enough. Essentially sample size and quality has a direct bearing on the validity of a study (Sim 2018). Increasingly, researchers follow the principle of saturation, aiming to collect sufficient data to ensure they can firstly start to meet the objectives of the study, and secondly they have collected sufficient data that any further information would be repeating what they have already collected (O'reilly 2013, p.192).

Malterud et al (2016, p.1753) take issue with the traditional practice of sample size and theoretical saturation, an area they see as historically unregulated where, in their opinion researchers tended to claim saturation, not always with proper justification. Gubrium et al (2012) echo this view, seeing sample size as a fluid entity, more influenced by the research process. Malterud et al (2016) champion the concept of 'information power' as a means by which researchers can assess their sample size. They propose that the more relevant information the sample gains the lower the sample size can be. They suggest the elements to consider when determining information power include, study aims, specificity, quality of dialogue, links to established theories and analysis methods. Although they have proposed, what they consider a new approach, it may be that they have given body to the idea of theoretical saturation and put into words the determinants of saturation.

The exact number can depend on both the interviewer and interviewee being able to articulate and unpick the information as it emerges (Gubrium 2012, pp.243-244). In addition, to ensure as fuller picture as possible is gained, a cross section of subjects should be interviewed. In this case that meant coaches with varying levels of experience, and from larger venues to smaller more intimate walls.

The interviews were conducted individually for a number of reasons, firstly from a practical point of view arranging individual interviews is less problematic than trying to arrange all the participants of a focus group to meet together. Secondly and more importantly, by interviewing coaches individually the potential for them to be influenced by their desire to ensure their relationship and position within their group are maintained is mitigated (Jones 2014, p.196). The tendency to go along with the group or not disclose information for fear of affecting relationships, particularly in a work environment, dependent on their perceived position is somewhat mitigated. This is not to say they would have necessarily disclosed more individually but it removed the pressure from a group situation. Individual interviews are not without their own issues, without the mediating influence of other group members that may question a coaches claims the process is open to possible exaggeration.

This study has set geographical boundaries which directly influence the sample size. There are 9 climbing walls open to the public within the Dorset, Hampshire area each with at least one coach. The questionnaire was distributed to all the centres that wished to take part in the study, and from that information potential interview subjects were identified. To ensure the depth, richness and range of opinions were best represented interview subjects were sought from as many different centres as possible, whilst ensuring a range of ages, experience and gender were included where possible.

When deciding on sample size it is important to consider the appropriateness of the sample size in relation to the study. Blaikie (2018) suggests that attempting to determine sample size in advance goes against the spirit of qualitative research to a certain extent, and that as the researcher explores their subject the correct sample size will reveal itself. Whilst taking this into account the sample needs to be conducive with achieving the aims of the study. The questionnaire was completed by 21 coaches and 5 interviews were carried out. The questionnaire sample number came about as a result of predominantly geographical saturation. Every climbing wall within the geographical area was approached and every coach that was

willing to fill out a questionnaire did so. The questionnaire sample was higher than the interview sample to ensure a breadth of attitude was gathered that in turn contributed and informed the sensitising aspect of the interview construction.

To ensure the sample size created interviews that were informative, valid, and reliable the aim was to reach a point where no new data or themes were emerging from the interviews. Once this point was reached it would indicate that the main attitudes, thoughts and feelings of the coaches had been captured. In addition, a broad spectrum of coaches were interviewed, in terms of gender, experience and location to represent coaches from different locations (cities and more rural locations), and to capture the thoughts of coaches with varying levels of experience. It was hoped that this would give the best representation of their views. The richness of the interviews meant that once the fifth one had been completed no new data was emerging from the subjects. Taking inspiration from Malteruds (2016) view of information power, the richness of the interviews ensured the data was relevant enough to ensure saturation. Importantly the coaches were able to give intelligent, experienced and knowledgeable accounts of their experiences as climbing coaches. This was to a degree because of their familiarity with climbing and climbing walls. As experienced climbers themselves and as climbing coaches who, due to their work were immersed in the climbing world and its cultures to a greater degree than normal climbers. Having coaches that were subject matter experts positively influenced the sample size, meaning that once 5 interviews had been completed the quality of their responses meant no further interviews were needed or justified.

	Years climbing	Years teaching climbing
Interview 1 -Male	10-15	6
Interview 2 -Male	3	2
Interview 3 -Female	10	5
Interview 4 -Male	8	2
Interview 5 -Female	6	3
Mean	7.9 years	3.6 years

Table 4: Interview subjects climbing experience

3.11 Pilot study (questionnaires)

To ensure the questionnaires are not only fit for purpose but will produce relevant and rich data It is important that they are tested prior to being rolled out to the research participants. Questionnaires that have not been tested or piloted run the risk of producing irrelevant and meaningless data (Jones 2014, p.164). To go back and ask them to fill in another questionnaire is likely to negatively affect their confidence in the researcher. In addition, it may produce either a lower response rate or lower quality answers due to disinterest from subjects that have already filled out one questionnaire. It also enhances the rigour of the study by ensuring a higher quality product was distributed, with questions that have been checked to ensure they are coherent and produce the data relevant to the study (Lancaster et al. 2004). In this case the questionnaire has been piloted to 5 coaches working at outdoor education centres with a climbing wall prior to the main data collection.

3.12 Refinements of the questionnaire

The questionnaire was piloted to 5 coaches, this figure being 25% of the target of 20 coaches that will complete the actual questionnaire. All of those filling in the questionnaire worked as climbing coaches at a Local Education Authority (LEA) Centre with a climbing wall, they predominantly taught children from years 1 to 13.

The questionnaires took approximately 15 minutes to fill in and generally the questions were clearly understood, and appropriate answers were able to be given with a few exceptions. The following issues were identified with appropriate modifications made to the questionnaire to improve it usability:

- Questions 1, 3, 7, 8, 13 and 14 are "yes" "no" type questions, there was no option for a "I don't know" answer. This was forcing the respondent to have an opinion on an issue or statement they may not be aware of or may not have an opinion on.
- SOLUTION- By adding a "don't know" button respondents are given a fuller range of options, either agreeing with a statement, disagreeing with a statement or not being in a position where by they can give an answer.
- Question 6 asked about the efficiency and effectiveness of students, it was felt that these terms may be confusing.

- SOLUTION- Efficiency and effectiveness will be replaced by coordination and control, these are not meant to be synonyms for the previous words but will give an insight into the physical development of students.

- Question 7 was slightly ambiguous, it simply asked 'do they move in a self-confident way?'. Combined with only a positive or negative response available this did not take into account the idea that over time the student's confidence may increase, both in terms of their interactions with the climbing wall environment and their ability to negotiate the different climbs.

- SOLUTION- The question can be either reworded, given a Likert scale, or an open response where by the respondent answers in their own words. The question will be reworded to become 'do they develop the ability to move in self-confident way?'. This improves the link between the question and the studies objectives. Additionally, by changing the answer to a Likert scale the respondents are able to give an expression of how much they feel the students are developing.

- Question 11 asked about the transferability of skills, the answers from the pilot were very outdoor education/sport focused, this may be due to the inclusion of the phrase 'other activities', leading the respondent to focus on other sporting activities.

- SOLUTION- The question will be shortened, removing the words 'to other activities and why' this opens the question up to wider connotations.

3.13 Data Analysis Approach

Once data has been collected an appropriate approach to analysis needs to be established in order to meet the objectives of the research and answer the research question.

Thematic analysis allows the researcher to identify themes that are relevant to the study through a process of systematic reading and rereading of the data. This goes further than purely identifying common words, but involves themes, both implicit and explicit to be identified. This does raise the issue of reliability, where the researcher has so much influence over the interpretation of the work they need to guard against allowing personal bias, despite this thematic analysis is still the most common method of qualitative data analysis (Guest 2012).

This study will utilise thematic analysis, following Braun and Clarkes (2006, p.87) proposed six phases of thematic analysis:

1. Familiarizing with the data.

2. Generating initial codes.

3. Searching for themes.

4. Reviewing themes.

5. Defining and naming themes.

6. Production of report.

   (Appendix 5)

These phases are similar to Jones (2014) and Castleberry and Nolen's (2014, pp.275-276; 2018) five steps of thematic analysis for qualitative studies, although Jones and Castleberry use language that differs from Braun and Clarkes their stages are similar. Jones speaks about familiarization as the first step whereas Castleberry and Nolan term it as 'compiling', both refer to the need to firstly organise the data into a usable format. Then the data needs to be reduced or disassembled to produce the initial codes, from there it needs to be reassembled in an organised way and displayed to allow the interpretation and from that conclusions can be made. Taking inspiration from all three pieces of work the following can be surmised:

- In order to carry out thematic analysis successfully the data needs to be converted into a format that is easy to understand.

- The researcher needs to become familiar with the data, normally by reading and re reading it a number of times.

- Codes will only be established by becoming familiar with the data.

- The data needs to be picked apart to identify themes, it can then be rebuilt as the analysis progresses.

- Once all of this has been done the data needs to be displayed in a manner that will allow conclusions to be drawn from it.

Braun and Clarke (2006, p.80) suggest that one of the issues with thematic analysis is the researcher themselves. They suggest that in many pieces of work the researcher speaks about themes emerging from the data or revealing themselves over time. Braun and Clarke (2006) make the point that this implies the researcher plays an essentially passive role in the process, they suggest the opposite is true, that the researcher not only plays an active role in the analysis but is central to the process. The importance of this is clear if thematic analysis is to be regarded as a robust academic tool that can deliver valid and reliable results.

Thematic analysis was used in this study for a number of reasons. Firstly, it allowed a way of analysing the data in a manner that reflected the approach of the study. The qualitative, interpretist approach of this study will be supported by an analytical method that seeks to identify and explore more than just wording that may be significant. It will search for themes that provide a door to the feelings and attitudes of the coaches. In turn this facilitates a more in depth analysis of the rich data collected. It is hoped that this will provide a synergy between the approach and analysis resulting in a valid and reliable study. Additionally, although Castleberry and Nolan (2018) suggest that thematic analysis is a purely descriptive medium, they do agree that qualitative research is holistic in nature and that thematic analysis allows meaning to emerge from data. PL positions itself as a holistic approach to PA, and so using a method that shares aspects of this should result in more meaningful research.

PL is a concept centred around the core attributes of motivation, confidence and physical competence and interaction with the environment. In order to best answer the research question the data collected needs to be analysed in such a way as to reveal what the coaches see and feel and how that may relate to PL. By using thematic analysis, the rich data has been analysed to search for themes, that either supported or refuted any connection between climbing and PL. As opposed to using a method such as content analysis which looks at text or audio visual material for common words or content that may have a significant meaning or relationships (Jones 2014). What content analysis is possibly less applicable for is the interpretation of data to reveal reoccurring themes and the meaning within the data (Hsieh and Shannon 2005).

3.14 The relationship between inductive and deductive analysis.

Within qualitative analysis there are two broad methods. Inductive analysis focusses primarily on the data, exploring its meaning and allowing themes to emerge organically. Conversely, deductive or theoretical analysis tends to be directed by a researcher's theoretical interests, seeking out data that more directly correlates to the framing of the research question and any established theories (Azungah 2018). As Fereday and Muir-Cochrane (2006) suggest researchers can use an approach which allows elements of both to be utilised. This study uses a more deductive approach to seek out data which relates to the key attributes of PL to help meet the aim of the study. In addition to this a more inductive approach allowed the coaches to express their views in an unencumbered way that results in rich data that allows a deeper dive into their

thoughts, feelings, attitudes and experiences. Although the data is influenced by the key attributes of PL and some may argue that makes it more theoretical in nature it is inductive for a number of reasons. Firstly, the study is not seeking to, as Braun and Clarke (2006) suggest conduct 'a detailed analysis of some aspects of the data'. It has allowed the themes to emerge through the richness of the data itself. Secondly, the themes that have emerged are linked more to the data, rather than trying to connect them to the key attributes.. This study has utilised the methods concurrently, allowing the data to emerge in a more symbiotic manner.

3.15 Influence of literature review

Within the data analysis the literature serves a useful purpose. It contributes to the validity of the work by providing a link to established thinking for themes that emerge from the data. In PL terms the idea that we should all be treated as individuals connects with the data collected from the subjects, both informing and endorsing the study. Additionally, Wheaton's suggestion that one of the attractions of activities such as climbing are that they are regarded as alternative is echoed by the subject's views. This goes some way in endorsing the data from the study and provides an insight into how it may fit into the wider understanding of not only PL, but the motivators and factors influencing engagement in PA.

3.16 How did PL attributes inform the analysis

Throughout this study the key attributes of physical literacy have been utilised. These attributes have also played a part within the analysis of the data. Alongside searching for themes, the analysis involved searching for ones that related to the key attributes of physical literacy. This gave an insight into what motivation looked like in real life, in addition to the other attributes. Additionally, it provides a means of establishing whether climbing walls are a valid venue for

developing PL. The key attributes give an insight into the physically literate person and by using them as a part of the analysis can help to draw common themes out of the data.

3.17 Thematic coding process

The individual codes were summarised by looking for data that the researcher felt was appropriate, interesting and relevant to the study. This would typically be information that included the coaches views on the attributes of PL and their reasons for holding these views. The meaning behind this data was looked at, the richness of the data allowing for the meaning behind the words to emerge. This is one of the reasons that qualitative research does not always have the same sample size as quantitative research (Jones 2014). The richness of the data can give so much depth, and to a certain extent, an intimate insight into the subject's responses, that a larger sample size is not always necessary. By taking the raw data and looking for the meaning behind it common themes emerged which connected the data and provided a deeper understanding of the coaches' views.

CODING JOURNEY

CODE 1- Areas of interest identified & summarised.

CODE 2- Identifying meaning behind areas of interest.

CODE 3- Further development of meaning of data.

CODE 4- Initial themes begin to emerge.

CODE 5- Themes established and reviewed.

1. **Familiarizing with the data.**

   The aim of the initial phase of analysis is to become familiar with the data. This was achieved by transcribing the interviews and reading them several times. There are various methods of transcribing interviews that can save time (such as voice recognition and transcribing services) but it is important that transcribing was regarded as an opportunity to start the process of familiarization with the data. In addition, revisiting the data a number of times can positively influence the reflexivity of the researcher. In this case the researcher was aware of their own potential bias as a climber who's personal relationship with the sport may
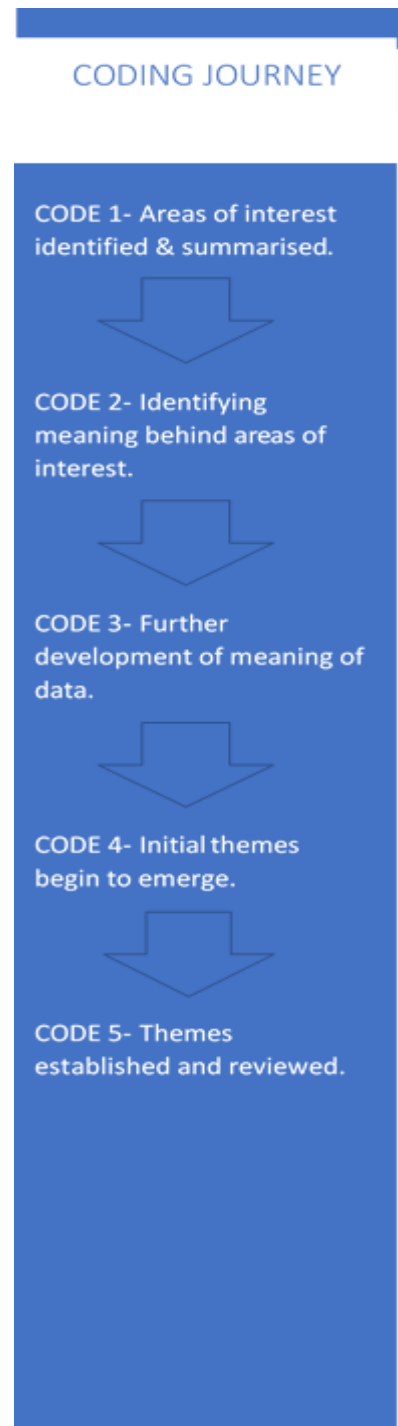
Table 5: Coding journey

influence their analysis if not kept in check. Additionally, as someone with a history of PL research it was important to ensure the analysis did not only look for positive correlations that supported PL, but also looked for data that may refute the idea that climbing was a valid means of developing PL. This approach allows the researcher to both become familiar with the data and leads into the second phase.

In line with thematic analysis protocols this study firstly listened to each interview. Then each interview was transcribed in full. Once this was completed the interviews were reread to highlight both mistakes and to further familiarize the researcher with the data.

2. Generating initial codes. 1st code (Appendix 5 p170-178)

This second phase of analysis began the process of searching for initial areas that may be of interest to the study. In this case the criteria involved looking for data that appeared to support or refute any connection between PL's attributes and climbing. Additionally, any data that was interesting in terms of giving insights into the coaches view of their interactions and perceptions of the students they coach. Braun and Clarke (2006) suggest that coding will, to a certain extent be dependent on whether themes are driven by the data itself or a underlying theory. In this case the coding is driven by both, although underpinned by PL, but not at the expense of ignoring any interesting and relevant data that may naturally occur during the course of the data collection.

3. Searching for themes. 2nd code (Appendix 5 p170-178)

Searching for and developing codes involves the researchers interpreting the data collected. In this case once areas had been identified that were potentially of interest and initial codes emerged the meaning behind the codes was interpreted. This phase consisted of taking the previously identified codes and looking for meaning beyond their climbing and situational context. By doing this the researcher was better able to dig into the meaning behind what the coaches were saying. For instance, the coaches spoke about the students getting better at climbing once they had been at the climbing wall for a few sessions. This is potentially about the need for students to feel at home and comfortable in a new environment before they are confident enough to push their climbing. Additionally, being motivated by the group may be as much about developing feelings of fitting in as it does with the group actively trying to

motivate each other. This phase relied on the richness of the data to bring out the meaning of the conversations. In addition to this initial themes start to be born.

4. Reviewing themes. 3rd Code & 4th Code (Appendix 5 178-183 & 183-185)

In order that the results are both robust, valid and relevant the emerging themes needed to be reviewed. At this point the themes are more than singular descriptive words, but are phrases or short sentences. They are starting the process of becoming themes. Code 4 starts to define these initial themes into overarching ones. This process ensures a check is kept on the validity of the analysis. In addition to this it allows a check to be kept on the reflexivity of the researcher by reflecting on the coding so far. By reviewing the themes and reflecting on whether they firstly represent the data assigned to them accurately, and secondly whether they overlap other areas allowing the researcher to check the validity of each theme. In addition, it allowed an opportunity to review the data to ascertain whether new themes emerged.

5. Defining and naming themes. 5th Code (Appendix 5 p185)

At this stage in the analysis the data has gone through a number of codes, reducing and grouping it to relevant, and manageable information. By this time the data has transformed into more than merely spoken words. It has now begun to take on a life of its own and becomes an insight into the deeper meaning behind the conversations that took place during the interviews. At this stage it was important to look at each theme individually and as a whole. Firstly, to ascertain the story each theme is telling, and looking at how each theme fits into the overall studies aims. At this point the themes should be giving some of the body of what they represent, and it is important for the researcher to identify why each theme is of interest to them. The themes can now be further refined to reduce them and to ensure they are as relevant to the study as possible. This produced 4 themes:

- Coaching attitudes
- Performance motivators
- Social inclusion/acceptance
- Facing fear

As part of this sub themes started to emerge. During the coding process it became clear there were areas which came together to create the overarching theme. For example, from within

the theme of performance motivators there were areas covering strategies for motivation, the desire to improve, the influence of success and the link between confidence and performance. These sub themes emerged from the data as the themes came together during this phase of analysis. As part of the ongoing process of reviewing and developing the themes and results/discussion it was felt the coaching attitude theme was not needed and the data from it was relevant to and fitted into the other themes.

6. Production of report.

Once the themes have been fully created the process of presenting the results and discussion began. This stage is essentially the researcher's chance to tell the story of their data collection. In this case it brought together the various themes and sub themes to tell the story of the coach's experiences and feelings. Additionally, it allowed the researcher through the data to create an account of the story the coaches told. By using a combination of quotes and the data itself the argument in support of the studies aims can be created. By connecting aspects of the literature review at this stage contributes to the validity of the study.

3.18 Ethics

Ethics form an integral part of the research process (Clark 2019). As Comstock (2012) suggests, when considering ethics researchers need to be mindful whether issues are serious, fair, objective and systematic. Essentially do we believe an ethical issue is serious enough to affect our subjects and study, are we looking at it fairly or with a preference of personal taste. Is it an overriding issue rather than one unique to the individual, and what we regard as good and bad. This introduces the idea that ethics are not just something researchers need to adhere to institutionally in order to conduct their research, but they should approach their research in an ethical manner (Jones 2014). Ethics are important to research for a number of reasons. Is the research morally and socially acceptable, are the techniques appropriate to the research aims and are the rights and wellbeing of others being taken into consideration and protected (British sociological association 2017). Ultimately the researcher is responsible for ensuring their research is ethically sound, whilst being supported by their institution's ethics board (Clark 2019).

Flick (2018) emphasises the important part ethics play in qualitative research, particularly considering the nature of qualitative data collection. As researchers are delving into a subject's

thoughts, feelings and opinions they need to be mindful of the impact this can have on the subjects and take appropriate steps to mitigate any issues. Clark (2019) emphasises the principle of do no harm. That researchers should be mindful of not just protecting their subjects from physical harm, but from mental and psychological harm. For researchers using a inductive, interpretist approach this raises questions surrounding how they navigate the individual subjective nature of each subjects experience, whilst gathering meaningful data. This can be addressed to some extent with the support of the institutions research ethics committee and by being sensitive about the research approach. In the case of this study any adverse effects may be offset to some extent by ensuring data is collected in an area the subject is comfortable in such as the climbing wall, rather than in a formal setting at the university. In addition, Flick (2018) suggests that researchers have to decide how to deal with conflicting issues whilst being respectful to their subjects and staying true to the aims of their research. Within qualitative research researchers may need to consider what is data and what is not. Are they only counting that data they collected during the interview for instance, and ignoring anything that was said before or after it.

To ensure subjects are as informed as possible on the research they are participating in they must give informed consent, this can be by way of information sheets and agreement forms to sign to confirm that they have an understanding of the research and their role in it (Jones 2014; Clark 2019). It is also important to ensure the language used is appropriate to the subjects, taking into account particular culturally and socially unique issues (Edwards et al. 2017). In the context of climbing this may mean ensuring that the researcher is respectful of the language and attitudes of the climbing wall.

Within this study all participants will be given a participant information sheet (Appendix 6), and a participant agreement form for both the questionnaire and interview (Appendix 6). The study will ensure ethical approval has been given by Bournemouth University prior to any data collection.

3.19 Conclusion

The aim of this study is to investigate climbing walls as a means of developing Physical Literacy within the students that participate in classes at climbing walls, focussing on the coaches attitudes, motivations and views of their sessions.

Because the study is seeking to explore the feelings, views and perceptions of the coaches teaching climbing a more overarching qualitative approach is taken, with questionnaires being used as sensitising devices. The Ontology of the study will be in line with the qualitative methodology and will be interpretist in nature. Alongside this it will take the Epistemological Emic approach, giving the insiders view of reality.

As previously mentioned the data collection will consist of two phases, a questionnaire designed to sensitise the researcher to the feelings and attitudes of the coaches, and a means of informing the themes of the interview. The interviews will then be analysed using a thematic analysis approach. The combination of these approaches will give the research a consistent and logical theoretical approach and allow for a rich in-depth study to be conducted.

4.0 RESULTS/DISCUSSION

During this study 21 questionnaires were filled out by coaches from 5 different walls, ranging from small independent walls employing only a few staff to large Local Education Authority establishments offering other outdoor activities alongside their climbing wall provision. Each wall offered climbing clubs or lessons, with different classes catering for the social climber to those wishing to compete locally, regionally and nationally. The questionnaire consisted of 14 questions with a 'any other comments' section at the end. Once this was completed 5 semi structured interviews were conducted with climbing coaches that had completed the questionnaires.

The coaches were each given a pseudonym:

Interview 1-Allan
Interview 2-Barnie
Interview 3- Charlotte
Interview 4- Dave
Interview 5- Elaine

From the data three main themes emerged,

- o **Performance motivators**: what motivates students to participate. Why is it important for some students to perform and what benefits are there for them?
- o **Social inclusion/acceptance**: for many students feeling that they fitted in to the climbing wall environment was an important factor in their participation.
- o **Facing fear**: one aspect of climbing was the necessity for students to deal with being high off the ground. Overcoming the fear attached to this was an important issue for students and coaches.

The coaches understanding of physical literacy varied, those that were asked specifically whether they had heard of the concept had a vague reaction to it. Coupled with this may have been the possibility that they wanted to please the researcher by giving a positive answer and not appear ignorant of the term.

"I'm familiar with the concept of what it's saying but not familiar with giving it that name particularly" (Allan).

"I guess the way you perceive sports to affect people, so if you said somebody came out their shell, so improves confidence maybe or improves not only that but physical exercise as well" (Charlotte).

They did however exhibit an unconscious understanding of the concept through their coaching. Although they did not really have a grasp of the concept when questioned their teaching unintentionally developed aspects of physical literacy. Their treatment of each student as an individual, and their approach to success being subjective to the particular student are examples of this.

4.1 Performance Motivators

Although the factors that motivated the students were varied in the coach's opinion, one particular motivator reoccurred throughout the interviews. Performing physically was cited as an influencer for many student's attendance. This is endorsed unanimously by the questionnaire (Question 3 Appendix 3). The coaches felt that some students had the desire to either push themselves or overcome obstacles to achieve a goal of completing a route or even a section of one. Dave's feeling was that there were elements of individuals that could not be changed such as arm length, height and motivation, and this would to a certain extent influence whether they were likely to achieve mastery in climbing. In contrast Barnie was of the opinion that, although motivation comes from the individual it is something that the coach can influence.

"I think everyone can excel at climbing but obviously there is elements to people that can't be changed. Their height, their arm span, as well as their motivation sometimes" (Dave)

"I think motivation can be assisted but must eventually come from the person" (Barnie)

These contrasting views may be influenced by the coach's personal attitudes and their own experiences. Dave's background is a competitive one, with track and field being his main discipline at school. This is in contrast to Barnie who has previously worked in an adventure centre with no obvious competitive background to influence him. It is interesting to consider the effect that the coach's backgrounds may have on the attitudes they bring to their teaching. Do those with a competitive background automatically bring that attitude to their coaching. Looking at it through an existential lens would tend to confirm this implying that everyone is created by their experiences. In this case Dave's experiences of competition may have influenced his coaching, whereas Barnies experiences may have made him less interested in performance and

more focussed in other directions. However, as Whitehead (2010b) suggests as we relate to and interact with the world our perceptions and attitudes towards it develop. Following this thought process leads to the idea that our attitudes may be a blend of all the experiences throughout our lives, and the meaning we attach to them. It may be in this case that Dave's positive experiences as a young athlete and his work as a squad coach influence his attitude that motivation is something you either have or do not have. This emphasises the potential long reaching effect formative experiences can have throughout life, and the idea that experiences are like pieces of an ever changing puzzle.

This desire to do their personal best is reflected in physical literacy which recognises that we are all different and should be motivated by developing our own skills rather than comparing ourselves to others. In some cases, the subjects felt that this was in some part due to, what they referred to as the 'instant gratification' factor that climbers get. The feeling of pleasure, accomplishment and pride that an individual gets when they get to the top of a climb. This is endorsed by McIntyre et al's (2018) view that young people are motivated more by being able to accomplish something physically and reinforces the importance of purposeful play rather than purely occupying them. Instant gratification was a term used by Muther (2013) to describe what he saw as modern societies attitude towards instant results, and its insistence on instant feedback and grades. In this context the subjects are possibly more reflecting on the nature of climbing and the feeling once a student gets to the top of a climb, as opposed to demanding fulfilment immediately. Although this feedback is very much in the present tense it is a reflection of the student's efforts rather than an indication of their attitude to society.

Motivation strategies.

This presented a challenge for the coach in terms of dealing with those students that aren't particularly motivated to perform and develop their physical competence. If Chen's (2015) approach to motivation is looked at in the context of this study, the coaches would either give the students specific activities or drills designed to develop motivation. Alternatively, the coaches create an atmosphere which is more likely to foster motivation. In terms of physical literacy, the second approach may be the more appropriate. Physical literacy reinforces the importance of individuals having the knowledge and understanding of physical activity so they can be responsible for their own lifelong physical activity. By creating an atmosphere whereby the students can access motivational experiences they are free to interpret the experience,

hoping that the phenomenology of these experiences will be perceived in a positive way. However, the atmosphere of the climbing wall, if open to the public, is likely to be influenced by many factors that may be problematic to manage.

The desire to improve.

The coaches felt that for some student's success was a major influencer on their motivation, and in addition, these were also the ones that were likely to go onto join the climbing walls competitive club, which normally had the aim of competing. In physical literacy terms this desire to improve is an integral part of motivation, coupled with the desire to be active. Whiteheads (2010b) suggestion that motivation should be regarded as a drive or eagerness to take a particular action implies in this case the drive or eagerness would be connected to success. Whitehead goes on to propose that the physically literate person engages in physical activity knowing that success is likely. From a physical literacy perspective this would be linked to an individual's existential development. They are confident that they are likely to be successful as a result of earlier experiences that they have perceived as successful. In this case the student's earlier experiences of physical activity would have been positive, either from their actual or perceived success. However, these students would not be expected to be physically literate but would be developing their physical literacy. The variety and number of experiences they have to draw on is likely to be less than an adults, implying that each experience they may be drawing from potentially has greater significance and influence when compared to a adults. The implication of this may be that a single negative experience can have a far greater impact on children than adults that are able to mitigate it against other experiences. For the students this desire to improve and push themselves can add to their physical literacy development. For one of the subjects who's main coaching role was working with their competitive squad this performance aspect was of greater significance than the others. Their views were more aligned with the aims of creating climbers that would be successful in competition, and as such the expectation was that students would be self-motivated to attend and train frequently. Those that attended less were perceived to be less motivated and their performance was likely to be poorer.

> *"I think if you are keen about one aspect [of life] and your outlook is positive, that motivation tends to transfer across to other things. Whereas if you are demotivated to one thing it can be a general demotivation, it's just a general demotivation. Which means they don't really excel at anything"* (Dave).

Success.

Success as a motivator works in tandem with increases in confidence and competence, something central to PL (Whitehead 2010b) and that was validated by the questionnaire (Question 5 Appendix 3). Success can however be a subjective term, one coaches perception of success may be linked to mastery of climbing, whereas another's maybe more in line with a student trying their best. This raises an interesting issue within physical literacy. On the one hand physical literacy suggests that success is linked to physical competence, but on the other hand individuals should not be expected to achieve the same

Table 6 Question 2:Do students have a positive attitude to participation?
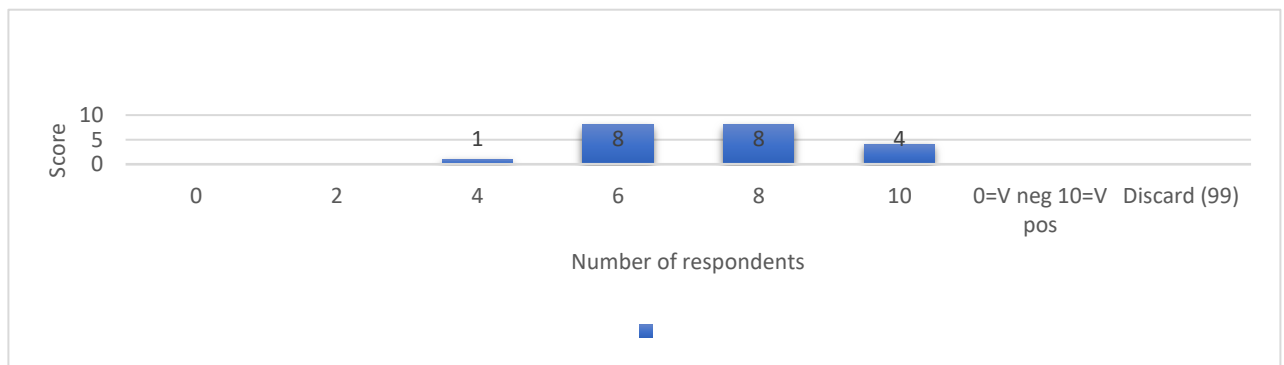
physically and should not criticized for it. So, in this case success may be getting one metre off the ground for certain individuals. This latter view of success shares more in common with the subjects who's attitude towards success was firmly linked to the individual student's personal ability, and that physical competence may be to a certain extent subjective.

> *"success is individual I will never, in fact it was one of my most famous phrases when we were climbing in wales, if you didn't get to the top. If one gets to the top and one gets a metre off the ground I do not care, you get to where you're at" (Barnie).*

> *"It is about getting to the top or getting further and them really feeling that they've achieved something which is really different for everyone" (Elaine).*

> *"If you treat them all as individuals and treat each issue of their motivation individually, I think that can have much more success. But it's also harder to do because you have to put in a lot of extra effort to tend to each person's needs, but I think it's worth doing if you can."* (Dave).

"Absolutely not I don't think I've ever had two children the same, ever because you just can't, there's just no possible way, we are similar, similar patterns but not remotely close" (Allan).

The motivation to perform and strive to gain mastery in climbing indicate a positive attitude towards the activity (table 1). In addition, this positive attitude may be a part of developing the physically literate student. An important aspect of physical literacy is the desire to seek out and capitalize on opportunities to be active. In terms of physical literacy, a variety of activities would be undertaken to fully develop physical literacy. In this instance the coaches felt that although they wanted the students to enjoy climbing, if they found another activity because of climbing they considered that a success.

"So, if they realise they like sport because I taught them climbing great, if they are really psyched for climbing because I taught them climbing even better" (Dave).

Confidence and performance.

The coaches were all in agreement that the student's confidence increased as they performance improved during climbing sessions. By being successful they gained confidence in their own ability. In line with PL thinking the confidence they gained from climbing successfully was typically exhibited in increases of their motivation to climb and their ability to climb and try new harder climbs.

"as soon as they've cracked it that's them and they will be up and down and up and down, and then coming back to you and saying what's the next most difficult or what's the next level of difficulty I could try" (Elaine)

"You can come down and play around for an hour or two which is good for the social aspect and it keeps them motivated to climb. But if they want to really excel they need to put in intended practice to develop their weaknesses in order to progress their climbing" (Dave)

This link between confidence, competence and motivation is accepted in PL circles, two of the three key attributes of PL being firstly motivation and secondly confidence and competence (Whitehead 2010b, p.15). The cyclical nature of the attributes is designed to be intertwined and mutually beneficial, in this case the confidence may be coming from increased performance which motivates the student to continue participating, if climbing walls are unable to develop

the performance in their students this may well have a negative effect on their motivation to participate.

> *"I think when they see other people do things they can't do that affects their motivation"* (Elaine).

Whether the confidence the coaches perceive is part and parcel of the students becoming physically literate is unclear but certainly physical literacy is about more than simply the act of physical activity in whatever form that takes. Physical literacy involves the knowledge and understanding to maintain physical activity through life. It may be that as students experience climbing the meaning they attach to the experiences develops their self-confidence which increases their knowledge and understanding of the importance of physical activity.

The motivation that comes from successful performance has been discussed but it raises the question of what if a student does not experience that success, what is the motivator that keeps them returning to the climbing wall.

4.2 Social Inclusion/Acceptance

This area was one that was possibly talked about the most during the interviews. The coaches all spoke of the importance to the students of feeling that they were not only accepted by their peers, staff and the wall but that they became, figuratively speaking a part of the environment. As they became more familiar in the environment they felt more able to step forward and their confidence to extend their comfort zone and communicate with others appeared to grow. The subjects felt this came about through a mixture of becoming familiar with the physical landscape, such as where the toilets were or the areas they were supposed to go at certain times, and what was expected of them during the sessions.

The desire to fit in.

The coaches reported that the desire to fit in was a significant issue for students. This supports the PL view that being able to interact with the varying demands of the environment in a confident and appropriate manner is important. From a physical literacy perspective, being able to interact with the environment includes having the ability to react to the varying demands that differing environments and situations may present in a confident and appropriate manner. The students in this study appear to be developing these skills through their interactions with others.

It was important to the students to feel that they were an accepted member of the group, in some cases by establishing friendships or via their climbing performance. Light et al (2013) takes the view that the predominant factor influencing children to take part in clubs was the social rather than the performance aspect. The overall results from the data collection supports this, with the feeling being that the students needed to fit into the environment, gaining familiarity and friendships before they had the confidence to perform. Some of the coaches felt that in some cases the climbing was to a certain extent a secondary factor, providing the venue for the students to build relationships and discover and develop themselves.

> *"If you can get them to enjoy the social aspect of it the climbing will not become irrelevant, but it'll be on the back burner".* (Charlotte)

> *"and then it's not even about the wall. He literally forgot about the wall halfway down, he started going "I thought I couldn't do something, and I could". Now he's not even thinking about the climbing now he's thinking about the individual thought of I can't…. I can"* (Barnie).

The importance of fitting in for the students can be looked at in two ways. Firstly, that the students are developing the third attribute of physical literacy, interacting with the environment. By becoming more competent and confident in the climbing wall they are better able to interact with the environment and this may also transfer to other environments. The second view would be that rather than becoming more competent, confident and ultimately independent they are learning to be reliant on the coach. If this were the case they are possibly less likely to be developing interaction with the environment because they would be less likely to be able to walk into a different environment with confidence.

> *"They will become so, not obsessed but they will be like oh my god this person has got me to this level I need to be with this person, and if they are taken from that instructor and put with a different instructor, you see such a change in who they are. They won't listen or they'll do things or become reserved again or everything that instructor has built up has been taken away by moving instructors" (Charlotte).*

> *"you know you've worked with them long enough that you can trust them to work on something"* (Elaine).

The motivation of fitting in.

The coaches felt unanimously that once the students felt at home and accepted in the environment their motivation to attend increased, along with their climbing performance. This was regarded by the coaches as a significant barrier to some students, something that in some cases decided whether they continued to attend or not.

> *"we've had a couple recently who their friend didn't get back onto the club because they didn't book in time and its really affected them, they've dropped out because, although they want to come having someone there with them is really important to them"* (Elaine).

Identity.

The almost transformative power that climbing had on some of the students was, in some cases profound. In certain cases, it seemed to give the students more than confidence but an identity, they had become a climber and had found a place they felt that they belonged and were accepted. The results of the questionnaire go some way in confirming this further (Question 10 Appendix 3). Table 2 indicating confidence was the number one thing students developed from climbing, followed by social and communication skills. This view is endorsed by Kulczycki and Hinchs (2014) work that takes the view that a fundamental feature of climbing walls is the friendships, camaraderie and social interactions that take place there. Although Kulczycki and Hinchs work focussed on adults the results from this study mirror theirs. The importance of the relationships that students build with each other and the staff suggest that this process takes time coupled with Light et al's (2013) view that the social aspect is possibly the most important factor influencing children's attendance.

> *"Slowly over time you can almost mould them into the climber"* (Charlotte).

> *"She used to come climbing a lot with her family, her father and brother, she used to be very low-level nervous climber, so scared about falling. Last year we did our first competition, so she entered that and then it was like a switch had gone in her head, literally about a day afterwards her dad rang me up and goes "she's changed, she's become ridiculously confident after doing that competition" just going into that situation with all her cohort, feeling that same sort of buzz, stretching the comfort zone completely"* (Allan).

"it's like you believe in them so they are like oh my god this person believes in me they know I can do it. It's like a friendship type of form has built" (Charlotte)

A pertinent question at this point may be is there something about climbing that means those that do it potentially develop confidence and an identity. The coach's views on why they climb gives an insight into this.

"I really like the way it appeals to people that don't fit into that traditional err, like football team" (Elaine).

"tried it and loved it, the idea of being different moving differently challenging yourself something you wouldn't normally do, overcoming fears and all that which is quite nice, I like doing that" (Allan).

"Climbing is a way to have a physical challenge that also has a mental aspect to it, that's more interesting than just running around a track. As well as that its quite unique in that it requires physicality, technique and mental ability all at the same time" (Dave).

A common thread throughout the coach's responses was that they regarded climbing as non-traditional or alternative. In addition, the mention of it as both a mental and physical challenge and the need to overcome fear seem to be part of the appeal. Climbing has a combination of physicality required to climb the wall whilst overcoming the fear produced by what they perceive as a dangerous or life-threatening situation. They may well have been told by parents or teachers on many occasions to be careful or not to climb the tree because it's dangerous. They are now putting themselves in the position that, from previous learnt behaviour is perceived to be dangerous.

"I think a lot of people have the fear before they have even tried it. So straight away they look at it and go I can't do that, and they have never even come close to it before. When they do it they are like 'that wasn't so bad" (Charlotte)

McWhorter et al's (2003) view that parents are key in motivating children to be physically active perhaps shows the complexity of the situation when on the one hand parents are told to encourage their children to be active, but on the other hand want to protect them from harm. As the students develop as climbers perhaps they are gaining knowledge and understanding of

climbing that will better enable them to make the informed decisions that will keep them safe and allow them to engage in the activity.

> *"yeah I think so, especially that social aspect as well, we've had a couple of kids who are petrified of heights, but they still come and they still get involved with all of the warm ups, and they'll try bits and pieces on the wall, and sometimes they'll stick to the traverse wall and they'll slowly slowly get there, but they do come out their shell in terms of social confidence as well".*(Elaine).

In physical literacy terms, developing the knowledge and understanding is part of the key to maintaining physical activity for life. This is perhaps one of the defining characteristics of physical literacy, the innate desire to be physically active through the knowledge and understanding of physical activity. Wheaton (2004) argues that for many climbing is more of a lifestyle than a sport, with its own clothing, equipment and culture. Could it be that students that perhaps feel they don't quite fit into the stereotypical mould find an identity through the climbing lifestyle. To a certain extent they perhaps learn what to wear, how to act to be accepted and what to say and how to say it. From a phenomenological point of view the meaning of these experiences is conceivably profound for those students. Not only are they hopefully finding a love of physical activity, but they perhaps gain acceptance into a group that welcomes them.

Transferable skills.

The coach's felt many of the skills that the students developed during their time at the climbing wall were to a degree transferable, the confidence they learnt whilst climbing may well help them in other aspects of their life. This idea was something that the coaches possibly had not considered, but once the question was asked they enthusiastically expanded on the idea.

> *"confidence is the most cross platform thing there is out there. It goes to home life, work life, it'll go to your ability, everything is built by confidence. Those that aren't confident won't always be able to achieve as much as they are capable of based on the fact they think they are not capable, and they probably are"* (Barnie).
>
> *"But if you don't have that already climbing's a really good way to get confidence. If you're confident in one thing it transfers to everything"* (Dave).

The coach's felt that the experiences students had during their time at the climbing wall would seem to be contributing to their personal development. The increase in confidence alone they felt was a transferable skill that could have a positive effect on other aspects of their life. This is a good example of the kind of effect positive experiences can have in the development of young people, and the power that physical activity can have in the right situations. In phenomenology the meaning of experiences is significant, not only to the individual but the meaning experiences may have in a more objective sense. In this case the coaches view that confidence particularly was developed during climbing indicate that it may be a particularly good sport for building confidence. Although the meaning to the students may not have been explicitly to develop transferable skills, a by product of the experience may be the acquisition of skills that would transfer to other aspects of their lives. In this sense climbing maybe regarded as a tool, providing the setting and purpose for students to meet, build relationships and develop themselves and their physical literacy.

> *"they're really transferable, you've got communication, you've got agility you've got every single thing that builds up a climber you haven't necessarily got in other sports"*
> (Charlotte).

Confidence was the main area the coaches felt was transferable to other parts of their life, something endorsed by the questionnaire (Question 9 Appendix 3 Table 2) going further than Roetert (2014) and Jefferies who recognised its importance in fostering participation in PA.

Table 7

Confidence	6
Co-ordination	4
Strength	3
Problem solving	2
Social skills	1
Interpersonal skills	1
Perseverance	1
Teamwork	1

The work by Dudley et al (2017), Durden Myers et al (2018a) and Mandigo et al (2007) goes some way in reinforcing the coaches view of this robust confidence, recognising PA generally as important in contributing to not only physical fitness but a range of social and other capabilities.

The results of the questionnaire (Question 11 Appendix 3) reinforce these views, as the respondents unanimously felt that the skills they developed during their time climbing were transferable to other parts of their life. This view confirms Durden Myers et al (2018a) and Dudley et al's (2017) opinion that the skills learnt via PL can have a positive impact on a individuals wider life beyond purely PA. The implications of these views contribute to the argument surrounding the importance of PA, and the part PL plays in child development and academic success for example. In addition to this Elaine recognised the important part climbing could play in keeping children in the at-risk ages of 10-14 in PA, and the positive effect it had on their whole life. This is particularly relevant taking into account Slater and Tiggeman's (2010) report that cited reasons for adolescent girls disengagement with PA included a lack of motivation, or being perceived as uncool. Confidence is one of the key attributes of a physically literate person, and that confidence is exhibited in a person's desire to be active, confident that they are likely to succeed. The confidence the students gained from their climbing experience will perhaps play a part in developing their physical literacy, although it should be noted that Capel and Whitehead (2013) view a physically literate person as taking part in a number of different activities. If this view were to be subscribed to climbing may contribute to physical literacy alongside other activities to effectively develop the concept. Additionally, it may be argued that the confidence the students gain from their climbing can be further linked to physical literacy when considering the meaning of the experiences through an existential and phenomenological lens. The coach's views indicate that the meaning that the students attach to their climbing experiences may go beyond purely climbing specific, the experience metaphorically speaking refracting light into otherwise dark places and bring them to life.

 The coach's feelings indicate the climbing experience results in increases in confidence for the students, something that would appear to be a positive in terms of their overall development. The wider reaching implications of children disengaging with PA are part of Whiteheads (2010b, p.4) rationale for PL. Her unease with the growing trend for physical inactivity and its implications to not only their development, but the implications on wider society reinforce the importance of developing attributes such as confidence.

The range of skills that the coaches felt their students developed went beyond the purely physical and apart from confidence their ability to coordinate and develop physically also benefitted from climbing (Table 2). The views of the coach's on transferable skills, when looked

at from a physical literacy perspective perhaps add to the more abstract feeling of physical literacy. The idea that a physically literate person has developed the drive, confidence and eagerness to value physical activity, in all its forms may well be partly as a result of the transferable skills they have learnt.

Everyone's an individual.

From the data collection it would seem clear that although there were common themes defining a student's motivation to climb, it is also likely to be a very personal experience. Some use their personal performance to try and gain social acceptance whilst others relied on developing relationships with staff and peers. This factor is unique to the individuals experience and the relationships the students develop over time are likely to have intensely unique and personal meaning. This perhaps has the potential to be seen as problematic in phenomenological terms. Phenomenology looks for objective meaning from subjective experiences (Standal 2016) , but if climbing wall students are all taking something different from it does that mean it has no phenomenological meaning. In order for it to have phenomenological and physical literacy relevance common themes would perhaps need to be unearthed from the deeper meaning behind those individual experiences. From a physical literacy perspective which is focussed on the individual, researchers may need to be mindful that they look at the subjective objectively if they are searching for phenomenological meaning.

The coach's feeling that every student was different and navigated their own way around the climbing wall environment dove tails into PLs third attribute of Interaction with the Environment (Whitehead 2010b, p.13). This involved students learning how to respond to the demands of the climbing wall environment. This may therefore be regarded as something that children are learning about and developing through their participation in climbing club. Charlotte added a caveat to this, although they agreed that for many students the social aspect was significant, in their experience younger children tended to become attached and reliant on a certain coach. In some cases to the point where their performance would suffer if they had to work with another coach. This suggests that differing ages may have different development capabilities and needs, and coaches' expectations and those of physical literacy practitioners may need to match these.

Confident in the environment.

The data from the coaches indicated that as the students felt more at home in the climbing wall environment their confidence also grew. This view was reinforced by the results of the

questionnaire (Question 12 Appendix 3) where all the respondents felt the students became more at home in the climbing wall environment over time. It was felt that this was one of the key factors that determined a student's enjoyment and continued attendance at the climbing wall. In this scenario the coach's felt their confidence came about because they established friendships, got to know other members of the group or became familiar with the staff. This seemed to be an important ingredient in the formula that gave positive results.

> *"if part of them having fun is hanging around and chatting we don't need to force them up the wall."* (Interview5).
>
> *"Yeah it's not about the climbing really, it's more about the confidence comes from, it's with all things really, it's from knowing what you're doing understanding what you're doing and knowing that you can repeat it comfortably"* (Allan).
>
> *"That environment is important, just with climbing, climbing people get to know other climbing people"* (Barnie).

These differing motivators go some way in explaining the various reasons why people chose to take part in climbing. For some, proving themselves physically is the key to becoming confident, for others it is more about being accepted socially by making friends and developing relationships with others. This does prompt the question of why they display these preferences, is it that those that chose to prove themselves physically are less able to interact socially and build relationships that way. On the other side, is it that those who are not motivated by the physical side of climbing so much but rather develop the social skills do so because they lack the ability to climb well enough, or the confidence to gain acceptance in this manner? Physical literacy's answer, according to Whitehead (2010b) and Roetert et al (2017a) is that it is more about recognising that each of us are different and unique and that we all have very personal motivators and preferences when it comes to taking part in PA. The coaches in this study seem to recognise that each student experiences climbing in a different way and the coaches approach needs to reflect that.

4.3 Facing Fear

One aspect of climbing sets it apart from many other sports in terms of the challenges it presents the individual. The fear associated with climbing, in particular the fear of falling from height created a significant barrier for many climbers. The fear associated with this act of distancing ourselves from safety is understandable for most people, and according to some of the subjects

is the biggest factor that their students have to overcome. Beyond the technical difficulty of the climb or the complexities of interacting with the climbing world the subjects cited this as one of the major barriers that students needed to overcome to unlock their potential and enjoyment of climbing. This view is supported by Kerr and Mackenzie's (2012) work that found that fear was the main barrier for new climbers, but as with this study once it had been overcome climbers tended to flourish. The coaches felt that this was an area that they could have a positive influence on.

> *"I think a lot of people have the fear before they have even tried it. So straight away they look at it and go I can't do that, and they have never even come close to it before. When they do it they are like 'that wasn't so bad"* (Charlotte).

> *"If we are looking at the adaptation of fear, to the production of them overseeing the fear, becoming in charge of the fear and moving forward that can happen a lot quicker at a climbing wall and then we can put them in a new phase where there is a whole new level of fear again"* (Barnie).

> *"it's really different for everyone, one of the kids we had that was really scared of heights it would be can you get to that next hold"* (Elaine).

They were able to support students that were afraid of the heights and help them overcome the fear associated with it. There was also a link between the fear that students felt and the deliberate way that coaches took students outside of their comfort zone. They did this by setting challenges for the students that would systematically introduce them to experiences that were either unfamiliar (new routes or techniques) or pushed them to use what they had learnt on a harder or more challenging climb.

Fear, confidence and performance.

The coaches felt that this was a normal part of learning to climb and as they took students outside of their comfort zones, so their comfort zone expanded. This led to the point where students became less fearful and more confident in situations that would previously have scared them and affected their ability to perform. The phenomenological meaning of this experience may have both positive and negative outcomes. If the coach pushes the student too far the experience may be perceived negatively. The skill of the coach is fundamental in knowing exactly how far to push the student. How the coach knew this may come from experience and training.

It is interesting to consider whether fear is a monist or dualist issue. Monism is an essential part of physical literacy, taking the stance that the mind and body are one and inseparable. In this case the mind is telling the body that the situation is unsafe, and the body may be injured as a result. This indicates possibly more of a dualist approach with the mind telling the body what to do. Conversely it could be suggested that the mind and body are working together to overcome the fear, more of a monist approach. This aspect of fear was purely connected to the physical act of climbing and did not include any social aspects of fear the students may feel when first attending climbing club and the necessity to interact with other students that were unfamiliar to them.

Parental influences.

What they did cite as an influencing factor was that of student's parents, namely the perceived fear that parents felt for their children when putting them in a situation which they perceived was potentially hazardous. The coaches felt that parents in particular had a perception that climbing was a dangerous sport, where in fact the coach's attitude was that it was a reasonably safe sport due to the training the coaches undergo and the safety checks that are part and parcel of climbing sessions.

"when they come climbing we keep it strictly safe and there is never a time when they are unsafe, but a parent looking up at their child on the wall and the child looking down at their parent there's a eeriness where they are not sure if they are ok and they're not sure if they are safe" (Barnie).

"I would assume a lot of the ones that are really good are the ones that parents are quite engaged and doing things like that and so they naturally become more comfortable because everyone around them does it whereas the ones that tend to be quite fearful are the ones who maybe don't have such active parents" (Allan).

Bailey et al's (2013) work confirms this view, suggesting parental motivation plays a large part in their children's activity levels and attitudes towards PA. in this case if a parent transfers their own fear onto their child the child may exhibit the same traits, potentially stifling that child's potential. Higgs et al (2019) suggest that part of the reason for this can be traced back a generation to when risky play was commonplace. They feel that now movement is so tightly controlled that those norms are no longer recognisable. The other factor that all the coaches

agreed on was that overcoming fear and building confidence was not something that happened over night.

Developing their physical ability also took time, whether it was increasing flexibility or strength. One coach (Elaine) felt that age played a part in the amount of time it took for the students to develop to the point where they could become more independent and the coach could trust them to work unsupervised. Another (Allan) felt that students needed to go away and process what they had done in order to accept their new level of achievement and ability. Physical literacy is considered a lifelong journey of physical activity, with the individual constantly developing their physical literacy. The coaches view that attributes such as overcoming fear and building confidence takes time fits with this view. As the students become more at home in the environment they are better able to develop aspects of their physical literacy such as confidence and motivation. Additionally, the coaches recognised that the rate at which this happens will be different for each student because each student was unique with individual strengths and weaknesses.

The significance of unlocking fear.
Climbing walls are somewhat unusual in that a by-product of their business is making their customers scared for their safety. Although the coaches all reinforced the fact that climbing was safe due to the training, assessment and safety measures they adhere to, the perception is that it is a dangerous sport. This perception possibly adds to the appeal of climbing to some, as the coach's personal views mentioned,

> *"tried it and loved it, the idea of being different moving differently challenging yourself, something you wouldn't normally do, overcoming fears and all that which is quite nice, I like doing that"* (Allan).

Although fear was very evident during student's earlier experiences climbing it was something that they needed to overcome, with the coach's support, if they were to unlock their climbing potential.

> *"So, putting some one in a position which I suppose simulates that fear and worry, but isn't a bad place is quite helpful for kids"* (Barnie).

The coach's worked to reduce the fear the students felt to then unlock their potential. Once the students can overcome the fear they felt their confidence increases as does their performance.

> *"well at the start of the session they're just making a few steps up and they are really really struggling. Even some times to even get over the top of the top out boulder, and as soon as they've cracked it that's them and they will be up and down and up and down, and then coming back to you and saying what's the next most difficult or what's the next level of difficulty I could try"* (Elaine).

This supports Kerr and Mackenzie's (2012) view that although fear was evident in new climbers it played an important part in keeping them safe, preventing them from taking on challenges that were beyond their capability, and putting themselves in potentially dangerous situations.

Looking at fear through the lens of physical literacy and its key attributes links to interaction with the environment and the confidence that comes from that. As the students became more at home in the environment their confidence increased, and they were able to deal with the fear associated with climbing. It should be recognised that the coaches in many instances play an important part in this process, emphasising the important part coaches and teachers play in developing their students. It may be that the coach's are able to empathize with the students as they may have gone through similar experiences in their climbing career.

"Climbing is a way to have a physical challenge that also has a mental aspect to it, that's more interesting than just running around a track. As well as that its quite unique in that it requires physicality, technique and mental ability all at the same time" (Dave).

Dave's view of climbing being a mixture of mental and physical raises an interesting point. Physical literacy is a concept based on monism as one of its philosophical underpinnings. Is the mixture of mental and physical that Dave mentions coming from a monist or dualist perspective? He appears to be saying that for him climbing requires the ability for the mind and body to work together, a monist approach. However, is the body holding on to the wall because the mind is trying to protect itself from harm. For Dave who disagrees with those who see climbing as somewhat of a spiritual passage it may be more of a dualist approach, his mind wants the challenge of climbing so he uses his body to achieve this.

 "I fundamentally disagree with people that think of it as a spiritual passageway, to me it's just a sport I like doing" (Dave).

This concept of fear sets climbing apart from many other sports, the perception that an individual is, through choice putting themselves in a potentially life-threatening situation. Kerr and Mackenzie (2012) view fear as a kind of moderator, initially keeping the climber safe and then reducing as they become more confident. They are then able to take on harder challenges, this reinforces the inference from the coaches that once the students overcome fear they are better able to take on harder climbs and challenges.

> *"once you see that they have actually gone "ahh" something has clicked in their*
>
> *brain and gone "I can do that", then they will keep going"* (Charlotte).

Overcoming fear would seem to be essential if students are to not only unlock their potential but to more importantly enjoy their climbing. Coaches recognise that fear is a factor for many students, possibly because they have gone through the same process in their climbing and can have a degree of empathy for the students. This is however something they have thought about and appear to recognise that it needs to be addressed in a particular way to help the student overcome it. This is another example of the need for a coach's attitude to match the needs of the students and environment. Coaches are trying to help students make sense of their experiences, and manage them in a positive way, influencing their lived experience. This extra barrier that coaches and students need to negotiate indicates that at the initial stages climbing may be a sport with significant challenges.

PL has now been defined by numerous organisations, from numerous countries. The intention is presumably to clarify the concept, and as the Oxford dictionary describes the word definition as 'an exact statement' (Oxford English Dictionary 2019). It is hard to see that the number of definitions are a positive influence on the development and adoption of PL worldwide, they possibly serve the needs of the various organisations that create them but are likely to be self-serving. This view is supported by Pot et al (2018b) who's view is that, although the subject has been discussed, fundamentally the definition informs practice and with differing versions, differing operationalisation of the concept are likely to occur. A common definition would have the effect of bringing together and creating a common purpose that all proponents of PL can get behind. Edwards et al (2017) suggest that authors should declare their underpinning theory and philosophy when defining PL but would PL not be better served by one definition that eradicates the confusion that multiple definitions may be creating. In the case of climbing walls, it could be

argued that all they want to know is why and how they incorporate physical literacy into their programs. It is perhaps more for the governing bodies of sports to look at definitions, and even then one definitive definition would mean that every governing body would have a common understanding.

One part of the definition that has been dropped from Whiteheads (2010b, p.24) earlier definition is the reference to PL being appropriate to an individual's endowment. The assumption would be that it was felt that this section was no longer needed because it is implied by the rest of the definition. The danger of this is that by relying on an assumption areas of interpretation may creep in. One area that this study fitted extremely well with PL is the feeling of the coaches with reference to their expectations of each student. They never once mentioned that students would be compared or tested against other students. The exact opposite was true they were explicit in their view that, in climbing students are judged on their own accomplishments, defined by what they can do irrelevant of what the rest of the group may be achieving. This is an important factor in developing self confidence in a student's ability, recognising and reinforcing the idea that students cannot do better than their best. By leaving out this important precursor they are to a certain extent opening the door to objective comparisons within PL practice, which goes against the principles of PL as recognised by Shearar et al (2018).

Conclusion

This chapter has investigated the feeling and opinions of climbing coaches. Three main themes have emerged from the data, Performance motivators, Social inclusion/acceptance and Facing fear. It has discussed the coach's feelings about what motivates children to attend climbing walls, and factors that make climbing an unusual activity. It has also explored the coach's attitudes to their students and how they approach success. Analysis of the data collection has made it possible to investigate whether climbing shares any of physical literacy's key attributes of motivation, confidence and physical competence and interaction with the environment. In addition, it has explored potential links between climbing and the philosophical underpinnings of physical literacy, monism, existentialism and phenomenology.

5.0 CONCLUSION

This study would appear to be the first to investigate physical literacy and climbing walls in the same study. It is also perhaps the first to look at whether climbing is a valid activity for developing physical literacy.

Three main themes have emerged from the data, performance motivators, social inclusion/acceptance and facing fears.

The coaches felt that motivation was key to students attending climbing. Mastery was one motivator the coaches felt was significant and as it developed so did their confidence and motivation. The alternative to mastery was the desire for social acceptance. For many students the coaches felt this was also a significant factor, not only determining their enjoyment but their attendance. In physical literacy terms motivation is one of its key attributes, along with confidence, physical competence and interaction with the environment. Fear was seen as a significant factor within climbing, and one that the coaches viewed as pivotal for students. Dealing with their perception of fear was important to allow them to develop as a climber but also perhaps played an important role in keeping them safe. The coach's approach to this subject was important as there was the potential to turn a positive experience into a negative one if they over stepped the mark. However, with the appropriate approach they could help students deal with fear.

Physical literacy is a concept that is underpinned by monism, existentialism and phenomenology. The appeal of climbing for one coach was the combination of mental and physical challenge, prompting the question of whether climbing is monist or dualist. Further investigation would be needed to ascertain whether the mind and body were working together in a monist manner or the mind was controlling the body in more of a dualist approach. If climbing is approached as a lifestyle that gives an identity rather than purely a sport it may influence these attitudes. From an existential and phenomenological perspective, the experience and meaning individuals attach to climbing and how that contributes to their physical literacy development are of interest. The coaches can play a significant part in whether the experiences are constructive or destructive. Their attitude to individual success especially may impact on the student's motivation to attend climbing and the meaning they associate with it. In this case the coaches treated success as unique to the individual, without comparing students to each other as a determinant of success.

Confidence in particular was highlighted by the coaches as the number one attribute they felt their students developed from climbing. From this it appears that climbing walls are a valid place to develop confidence as a key attribute of physical literacy. In addition, the coaches were of the opinion that performance and social inclusion both contributed to the motivation of their students, indicating that climbing may also be suitable for developing the motivational attribute of physical literacy. Although becoming at home in the climbing wall environment was important to the students a physically literate person is deemed to be at home in a variety of environments. Climbing walls are a single environment so they are unlikely to be a valid place to fully develop this attribute. They may however, in conjunction with other activities contribute to the third attribute of physical literacy, interaction with the environment.

The myriad of definitions that are circulating for PL have certainly been published in an attempt to clarify the concept, albeit for a certain target audience. This proliferation of definitions has the potential to confuse and blur PL further unfortunately, exactly the opposite of what they are trying to do. It may be in the IPLAs interest to either bring all of the definitions together to create one accepted definition, or to accept that every organisation will have its own version of it. If national governing bodies are to be encouraged to buy into physical literacy, multiple definitions are likely to serve to only confuse and confound their efforts. In addition, time may be better spent focussing on the operationalising of PL to truly imbed it within practice which is after all exactly what it has been developed for. Without this operationalising it runs the risk of becoming an academic folly.

Areas for further research within this area may include qualitative investigations directly with climbers to confirm and enhance this studies results. In addition, studies of a similar nature but focussed on different sports with the aim of producing evidence based recommendations for individual sports suitability as platforms for the development of physical literacy.

Academic contribution

Firstly, this study has contributed to the understanding of the key attributes of PL and their relationship to each other. This has been achieved through their use within the study as the determinant of PL, and their influence within the data collection. It builds on the work of scholars such as Whitehead (2010b) and Capel and Whitehead (2013) by examining the key attributes within a specific sporting activity.

By using the key attributes as indicators of PL competency it has contributed to the understanding of the use of these attributes as a means of assessing PL. This is possibly the first study to do this making a contribution in terms of the development of PL understanding from authors such as Robinson et al (2018a) and Durden Myers et al (2018a).

Through this studies work investigating physical literacy it contributes to the work of previous authors in both expanding the understanding of, and contributes to the development of physical literacy.

Finally, this is thought to be the first study to link physical literacy and climbing walls. This may increase not only awareness of, but the understanding of the culture of the climbing wall. In addition, it is possibly the first study to consider physical literacy and lifestyle sports in general. In particular the potential common themes shared by these activities and physical literacy such as individual achievement.

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APPENDICES

APPENDIX 1- Blank questionnaire

APPENDIX 2- Questionnaire results

APPENDIX 3- Interviews (including initial codes) & interview guide.

APPENDIX 4- Coding

APPENDIX 5- Ethics forms

CLIMBING WALL QUESTIONNAIRE.

Please fill in the appropriate circles to indicate your answers. If you have any questions or queries please ask the researcher. All questions are about the students you coach during climbing sessions.

1) Do your students attend climbing regularly?

YES ⬭ NO ⬭ DON'T KNOW ⬭

2) Do the students have a positive attitude to participation?

VERY POSITIVE ⬭ ⬭ ⬭ ⬭ ⬭ VERY NEGATIVE

3) Are they motivated when they can see themselves improving?

YES ⬭ NO ⬭ DON'T KNOW ⬭

How do you recognise this?

....
....

....
....

4) Is it important to celebrate each student's personal achievements and why?

....
....

....
....

5) Does their confidence increase as they are successful?

A LOT ⬭ ⬭ ⬭ ⬭ ⬭ NOT AT ALL

6) Do you see an increase in the coordination and control of the students as they get better at climbing?

....
....

....
....

7) Do students develop the ability to move in a self-confident way?

A LOT ⬭ ⬭ ⬭ ⬭ ⬭ ⬭   NOT AT ALL

8) What types of skills do you see developed during climbing sessions?

....
....

....
....

9) Which of these skills improve the most?

....
....

10) Why do you think this is?

....

....

....

....

11) Do you think any of these skills are transferable?

....
....

....
....

12) In your opinion, do students become more or less at home in the climbing wall environment over time?

MORE ⬭ ⬭ ⬭ ⬭ ⬭   LESS

13) With practice are students able to develop their movement to match the challenges of climbing?

YES ⬭   NO ⬭   DON'T KNOW ⬭

If yes, please explain your answer

………
……………..

………
……………..

14) Over time, do students develop the ability to use the skills they have learnt independently?

YES ⬭ NO ⬭ DON'T KNOW ⬭

Any other comments you would like to make

………
…………

………
…………

………
…………

………
…………

………
…………

Thank you for taking the time to fill in this questionnaire

APPENDIX 2 Questionnaire results

Question 1

Do your students attend climbing regularly?	yes	no	don't know	Discard (99)
	18	3		

Question 2 Do the students have a positive attitude to participation?

Number of respondents
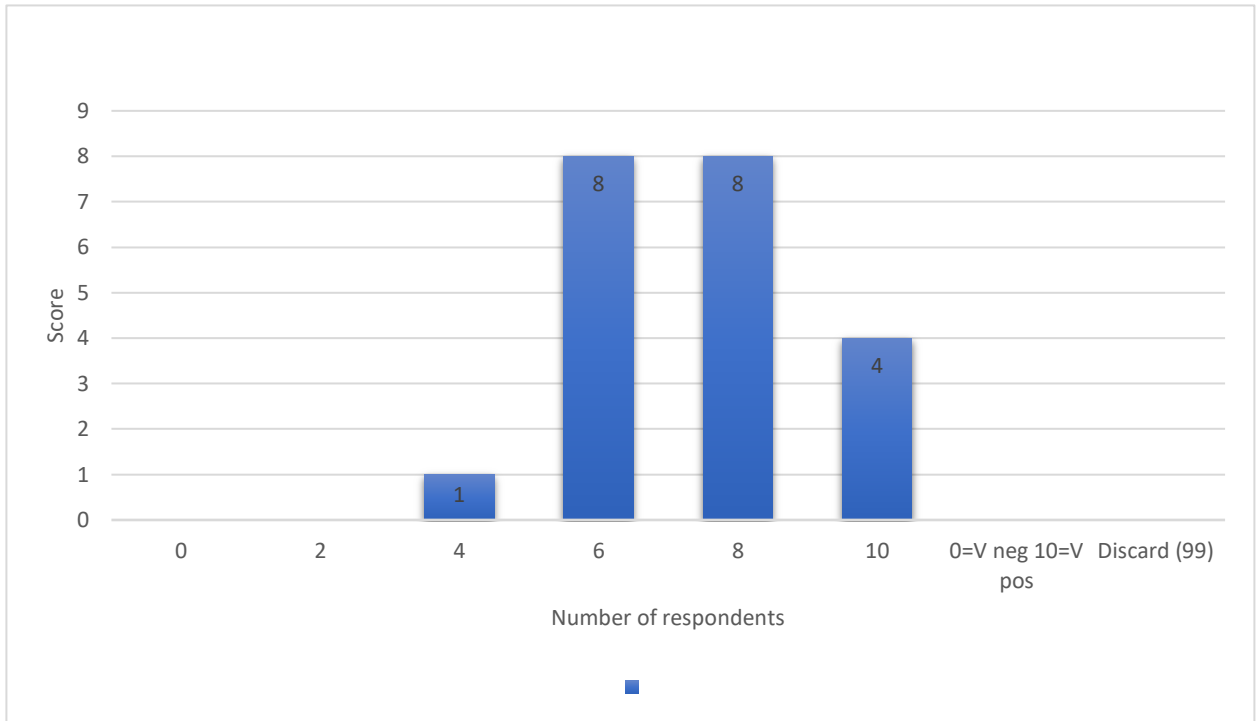
Question 3

are they motivated when they can see themselves improving?	yes
	21

How do you recognise this?

1]In almost every occasion when a student completes a project they all ways ask for a new one.

2]Wanting to try "harder" things, displaying "good" technique, generally happy.

3]Its obvious if someone "wants" to climb and is vital that you give input to boost morale and to climb better.

4]They show pride in what they do i.e. want to do it again.

5]If they are into climbing then they will be visibly happy with their improvement and happy about it, otherwise they won't be too bothered as they're just here for fun.

6]They are pleased when they complete a route they have been working on and are motivated to find a new project.

7]An increase in enthusiasm, happiness and engagement.

8]Expressions and behaviours change once successful. Encourage verbal recognition of success.

9]Become very animated and eager to repeat climb/action and continue.

10]Speak to them, can be depressing but drives them to work harder.

11]Simply put they engage more with the tasks at hand/ more disposable energy.

12]Enthusiasm. Keep climbing and persevering on routes.

13]Our routes are graded so they can see the numerical value of the route

14]They come and tell you when they have achieved something new. They ask for new challenges.

15]Through the NICAS scheme and differentiation within club sessions. Certificates also issued.

16]Students are often more keen to try harder climbs.

17]I can recognise this because you can relate to where on the wall they reached the previous time round.

18]Increased enthusiasm and more questions being asked about "what's next" or "what's this for".

19]Willing to have another go. Become more confident in their interaction with myself and others.

20]Thy are full of smiles and energy when they succeed.

21]Setting goals, how do they measure success? Work with the group to identify theses. Setting challenges.

Question 4

Is it important to celebrate each students' personal achievements and why?

1]Of course as we are here to help them all improve, and when they do its uplifting for the student and myself.

2]Yes, to build confidence, to understand progression.

3]Yes- each achievement is crucial for development. It is very important they work as a team to achieve.

4]Yes, any achievement no matter how big/small it may be it should be celebrated.

5]Yes it's important to recognise their achievements as it encourages them to improve and they enjoy themselves more.

6]Yes because its motivating for the students and increases their self-confidence.

7]Yes, so they are encouraged to aim higher.

8]Yes it's nice to feel that someone is happy and positive for you to succeed.

9]Definitely! A blanket "well done" can be very insincere, whereas tailored feedback boosts confidence and wellbeing.

10]Yes, they are climbing by/for themselves. Celebrate as it gets them motivated to climb.

11]Yes, to help them realise (become proud) of their achievements rather than comparing themselves to others.

12]Yes. Makes each student feel valued and that their achievements are worthwhile.

13]Yes, promoting self-efficacy is really important. Boulder shack should always be a positive place.

14]Yes- recognition builds their confidence and encourages them to try more challenging climbs.

15]Confidence, sense of value, for them to understand pathways to certificates.

16]Yes members of our climbing club receive certificates on completion of the different
levels. Which helps to reinforce these achievements.

17]Yes, because it will spur them on to achieve more positive things in the future. Negative
focus will only deter progress.

18]Yes , climbing tests physical ability as well as possible fears and comfort zones. What
may seem easy for one may be very daunting to others.

19]Yes , the student must recognise their own achievements and what they did to do this so
they can learn and apply in the future.

20]Yes- to keep them motivated.

21]Yes , it's a powerful way for them to notice this.

Question 5

Does their confidence increase as they are successful?	0	2	4	6	8
				1	12

Question 6

Do you see an increase in the coordination and control of the students as they get better at climbing?

1]Definitely, we do quadriceps in our warmup and the amount of students who at the start cannot
co-ordinate their hands and feet but then develop this quickly.

2]Yes and no.

3] Yes the more they climb and develop. They follow the climbing principle of coordination.

4]Yes, the better they see themselves get the more effort they put in.

5]Definitely, when they start they are generally quite fumbly but over time they become at ease on the
wall at height and move a lot easier.

6]Yes better awareness of body positioning.

7]Yes.

8]100%

9]In some. Adolescents during a growth spurt can become very uncoordinated. Adults- yes agree with statement.

10]Yes

11]Yes definitely.

12]Yes developing fundamental skills happy alongside climbing.

13]Yes, especially as co-ordination-based climbs become more mainstream.

14]Yes.

15]Yes , significant increases.

16]Balance and hand eye co-ordination often improve the longer students come to our clubs.

17]Yes, although we very rarely do more than 2 climbing sessions them so hard to tell.

18]Mostly. This tends to be with those who are achieving more.

19]To a degree, I don't have them for very long to see much of a change.

20]Yes.

21]Over a week less so. Climbing clubs yes.

Question 7

Do students develop the ability to move in a self-confident way?	0	2	4	6
				5

Question 8

What types of skills do you see developed during climbing sessions?

1]Hand eye coordination, problem solving, performance.

2]Social skills, movement skills, confidence skills.

3]Planning, conservation of energy used, method, pace and initiative in dynamic situations, coordination.

4]Not only in a climbing aspect e.eg movement, but in social skill.

5]Movement skills, they mov a lot more fluently overtime and are much better at reading routes and finding their way up the walls.

6]Responsibility when belaying others, perseverance when projecting a route, communication with climbing partner, confidence.

7]Flexibility, use of leg strength rather than relying on arm strength. Planning and looking ahead while climbing.

8]Hand/eye coordination, body confidence recognised, strength increase, decision making improves/assessment of personal risk develops rapidly.

9]Communication and interpersonal skills. Coordination and motor ability and grip strength.

10]Depends on what skills we focus on.

11]Patience, balance, flexibility, coordination, stamina, strength confidence, social skills and problem solving.

12]Physical movement skills, focus and perseverance. Social skills. Group interaction and teamwork.

13]Proprioception improves. Especially as confidence improves.

14]Footwork improves-increased awareness/proprioception, strength and awareness of strength/how to use it improves, balance, awareness of centre of gravity improves co-ordination.

15]Trust, social interaction, increased friendship- confidence.

16]Social skills around the rest of the group improves.

17]Listening, teamwork, strength, confidence.

18]Confidence, trust, communication, teamwork.

19]Confidence and trust. Also learn the belaying etc. Problem solving, both physically
and psychologically.

20]Space awareness, ability to problem solve, learning to understand own skills and
abilities, helping others.

21]Belaying/teamwork. Some climbing skills.

Question 9

Confidence	6
Co-ordination	4
Strength	3
Problem solving	2
Social skills	1
Interpersonal skills	1
Perseverance	1
Teamwork	1

Question 10

Why do you think this is?

1]This one, continues having to use this skill

1]Hand eye co-ordination.

2]99

2]99

3]It is essential for them to climb and they are
always doing it.

3]Co-ordination, initiative, conservation.

4]When they see themselves get better they open
up to others more.

4]Social skills.

5]To start with climbing is quite unnatural to
some people but they quickly adapt to their bodies.

5]General co-ordination and strength.

6]They learn to trust the ropes and belayer and also
gain more confidence in their own ability.

6]Confidence.

7]They tire quickly when using arms only. Once they work out the legs are stronger their general climbing improves.

7]Switching from relying on arms to legs.

8]Climbing requires internal focus and assessment of potentials-this develops confidence through understanding of what our limits are.

8]Co-ordination and confident movement.

9]Climbing is incredibly social, non-judgemental and encouraging community.

9]Interpersonal skills.

10]Climbing is a skill-based sport relying on coordination and body awareness.

10]Body awareness.

11]All equal unless one skill is pushed more than others.

11]Because it uses all of these skills every session.

12]Bouldering typically requires multiple attempts for success.

12]Perseverance.

13]In order to move through the grades, to be successful you have to show control.

13]Generally control. Mainly of the limbs.

14]Happens naturally with practice-subconsciously unlike learning techniques which they have to practice consciously.

14]Strength awareness/how to use strength.

15]The need to communicate with others to achieve shared
outcomes/similar goals.

15]Confidence and interact with others.

16]Because each time the student pushes their comfort zone
they build more self-belief.

16]Self-confidence.

17]They can instantly see an improvement in their efforts
getting higher up or achieving a higher grade.

17]Confidence, with heights especially.

18]Achieving any goal and increasing trust with peers makes
them feel they can push themselves further.

18]Confidence.

19]Need to improve to increase skill in climbing and get up
the climb.   19]Problem solving.

20]The way people climb is very depended on their height
and weight which forces you to climb in a very personalised
way.   20]Ability to solve problems.

21]They are working with very different children through the
week.   21]Teamwork.

Question 11

<mark>Do you think any of these skills are transferable?</mark>

1]Yes as being able to know what your body is in today's life and don't end up being clumsy.

2]99

3]Without doubt these skills transfer to many other aspects of life.

4]They are transferable in everything they do in life.

5]The general fitness gained and the functional muscle built is very useful for a wide variety of sports and day to day activities. The problem-solving aspect of climbing can also be useful elsewhere.

6]Perseverance and communication.

7]Yes the ability to plan a climb.

8]Yes focus and assessment skills transferable- problem solving to a point.

9]YES! All of them are excellent life/personal/work skills.

10]Yes.

11]All of them to life and other sports.

12]Yes, particularly soft skills- focus determination etc.

13]Yes, the basics of climbing are the same as
fundamental movement skills, Run jump etc.

14]Strength, balance, coordination can be transferred to
other sports and day to day life.

15]Yes, all. Although most of the children are unaware of
how
transferable they are.

16]Pushing your comfort zone can be applied to all
activities
whether they're physical or academic.

17]Yes, listening to the safety talk and working together
as a team.
Very important in the future.

18]Yes.

19]Yes, the ability to plan and problem solve is essential
both in
school and life.

20]Yes, absolutely.

21]Yes.

Question 12

In your opinion, do students become more or less at home in the climbing wall environment over time?
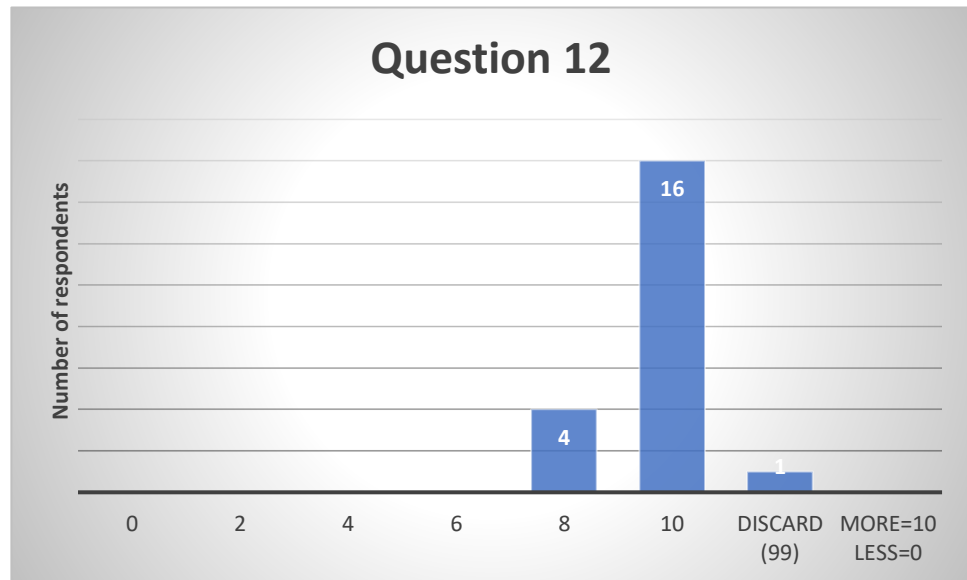
Question 12

Question 13

With practice are students able to develop their movement to match the challenges of climbing?   yes 20

If yes, please explain your answer

1]Yes as they adapt to work serious climbs techniques, especially as they haven't developed physically

2]99

3]It is like anything the more they do it the more you teach them they grow in ability.

4]The more you push them they will find ways to work around their problems.

5]Over time they adapt and learn how to move efficiently, e.g. moving their weight, instead of hanging, and they get stronger in their hands and fingers quite quickly so they can use holds better.

6]Students generally climb better on their second attempt at a route because they adapt their movement and body position to match the style of the route.

7]The more they practice the harder the route they can do.

8]In general yes. They will improve definitely, to a point. Depends on motivation.

9]Awareness of route reading, hold types, movement and placement required is learned over time.

10]Purposeful practice is the best way to improve your climbing.

11]Because that is climbing, building skills and using them when appropriate.

12]Students typically learn and develop basic movement skills as they climb.

13]They have to understand the intricacies of specific situations. A subtle change can make a significant difference to their performance.

14]Students pick up moves related to specific climbs (when projecting- can repeat moves more easily over time) and learn moves to use more generally to apply to multiple climbs.

15]Most, through training/coaching- although some are physically challenged due to build and strength. For them
the social interaction outcomes are very important.

16]Certain techniques and moves have been learned over time which can be applied to all future climbing rout

17]Coaching techniques you can help them focus on the correct terms and movements, not the wrong ones.

18]Developing techniques and increased confidence allows students to feel more comfortable.

19]Familiar moves with muscle memory and able to think back to a different climb and apply to a new route.

20]Well, they learn to figure out what works in what situation and what doesn't and then put in practice.

21]Setting problems and challenges for them to overcome.

Question 14

Over time, do students develop the ability to use the skills they have learnt independently?	yes	
	20	

10]It depends if the coach allows them to develop their independent thinking skills, self discovery not telling. If a coach shouts lots so climber doesn't have to think, so they won't think.

15]Evidenced trough the independence we give them during climbing.

Any other comments (AOC)

Any other comments you would like to make

1]They gain a lot socially and their ABCs of development.

2]blank

3]As an RCI myself I have found that climbing has allowed me to control my environment and am far more co-ordinated as a result.

4]blank

5]blank

6]blank

7]Once thy have climbed for several terms, the majority of climbers improve as a natural progress.

8]blank

9]Climbing is a great full body workout, building on body awareness and flexibility before muscle strength.

10]See question 14

11]blank

12]Climbing can be both a physical and
mental challenge and offers opportunities
to develop physical and social skills.

13]blank

14]Many of the students also use their climbing lessons
as an opportunity to socialise as well as exercise.
Confidence develops not only with support from their
coaches but from
their peers. A good group dynamic is key to
young climbers' development.

15]blank

16]blank

17]blank

18]I feel climbing shows great development
opportunities for
those who see some success, however, can be a struggle
for those
less confident or with lower physical ability.

19]blank

20]blank

21]blank

Interview Guide

INTERVIEW QUESTIONS/THEMES

OPENING QUESTIONS

- How long have you been teaching climbing.
- What does climbing mean to you.
- Does the term Physical Literacy mean anything to you.

Barriers,
links to personal attitudes,
particular to climbing,
why do you think this is

MOTIVATION

- How do you motivate
- Is motivation important
- Is there a link between motivation and participation
- What's the biggest motivator for children to climb- what do they get

Want to climb
Increased engagement
Harder climbs
enthusiasm

CONFIDENCE & PHYSICAL COMPETENCE

- How important is confidence in climbing
- Is climbing good at developing confidence, hoe do you recognise this
- How do you develop a student's confidence- can you develop it or is it internal
- Are there different types of confidence that develop
- Can climbing negatively affect confidence
- Does confidence and physical competence affect other parts of their lives
- What is physical competence in climbing/ what if they don't develop it

Develop trust
Becoming in tune with environment
Coordination- always using it, body awareness
Able to adapt to challenges of climb

INTERACTION WITH ENVIRONMENT

- How do you see students develop within the environment
- How do you recognise when they are becoming at home in the environment
- What influences them becoming at home in the environment
- Are these skills transferable

Problem solving
Social skills   **probe**, what are they
Skills transferable to sports and life

GENERAL QUESTIONS

- Can everyone climb
- How does climbing compare to other sports
- How do you deal with differing physical abilities of students
- Is it purely about climbing or teaching them to be physically active for life
- Relationship between the key attributes- Motivation, confidence & physical competence & interaction with the environment.

As appropriate to each individual's endowment, physical literacy can be described as the motivation, confidence, physical competence, knowledge and understanding to maintain physical activity throughout the life course'

Interviews

R= researcher   S= subject

Green= positive examples   Red= negative examples   Gold= great quotes

Interview 1

R-How long have you been climbing and teaching climbing

S-I've been climbing since, I can't even remember, probably 10-15 years climbing teaching for 6 years I got my SPA so formally teaching.

R-What does climbing mean to you obviously your here, so it means a lot to you?

S-Yeah it was never It was never intended to be that so when we started it was just through college with Mr. Johnnie Ray he was very passionate about it, tried it and loved it, the idea of being different moving differently challenging yourself something you wouldn't normally do overcoming fears and all that which is quite nice I like doing that

R-it's definitely a different sport

S-it's quite an introverted sport compared to a lot of sports Which tend to be quite extroverted difference in a sense you don't have to be particularly social you can just get on and do what you want, and people accept it

R-And I think maybe to a certain extent it can be as individual or team orientated or sociable as you like

S-To a point It depends what you're up to

R-yes you need someone to hold your rope

R-physical literacy, is that a term that you are familiar with at all?

S-Only when we spoke about it before I'm familiar with the concept of what it's saying but not familiar with giving it that name particularly, ability or willing, lots of phrases we used to use for that type of thing

R-I wanted to talk generally talk about the motivation of the kids that come climbing. Do you tend to find that the kids are motivated when they come to you?

S-Depends, yeah so it's that thing isn't it, depends if they've been before or climbed before or whether they are new climbers, so existing climbers yes depending on what they used to do. So, rope climbers tend to kind of be quite calm about it all till you take them off the rope then they find it quite exciting. New children are quite scared or excited, it's a flip thing there's no set thing, the majority of them will go round and look at it and go ooh my god were going to do that and after they try it again that oh I can do that it compounds that confidence in their own ability to move.

R-And do you think that's unique to climbing?

S-No I think it's the element of risk added into it that creates that I think any sport that has that risk element or the element where there's a potential for that sort of non-safe environment naturally motivates you to assess and develop and you get a lot more out of it when you do it in that sense when you do it.

R-And do you find that they always become more motivated or…?

S-No not always

R-Why do you think that is, if they don't become more motivated?

S-They get more confident, so some children are naturally not motivated to do something they don't want to do which is fine. So, our aim generally is to get them on the wall, get them confident in their ability to move and to know that they can do something and to encourage that sort of progression rather than motivating them to do it that's got to come from inside hasn't it. If you like doing something you want to do it more, you can't really make somebody motivated to do something we just try and make it as fun and balanced as possible to sort of give them an over view of climbing but moving as well and socialising, all these different aspects that come together to form an experience

R-Do you find, does that have to be quite an individual thing to each child?

S-They all have their own different things haven't they, they are all individuals they are all different they have you said motivations reasons for doing it enjoyments depending on their physical development so its balancing that out amongst the group, you can never, if you have a group of eight kids you can't tailor make it for eight kids because it just doesn't work, you have to general plan it you adapt to fit that batch of people, the longer you work with them you get more concise knowledge of what does motivate them and what they enjoy which you can then you know motivate them in that sense, just by knowing them.

R-Your experience as a coach, over the years have you got better at working out the ways to get the kids encouraged and the things that would motivate them?

S-Sometimes I think I've got better at understanding children which is the crux of it all because they are all individual yes you can have a set of skills which give you a grounding in how to do AB or C but if you can't engage a child its utterly pointless there's no connection, if you've got the connection then you can pretty much get them to do what you want them to do and you can encourage them, you can develop them or move them along a path that's more beneficial. I tend to focus on the fact that I've got a connection with that child and therefore we work for that rather than different ways through it.

R-Do you find motivation wise if the kid clearly isn't motivated to come climbing does that have a big effect on whether they keep climbing and how they are at climbing?

S-Absolutely its very much led by, you know we've had currently we have a number that come to clubs but the same number that don't come anymore because for whatever reason they didn't gel with it or enjoyed it but didn't feel like they could continue, or they had other interests which motivated them more.

0732

R-I was going to say why do you think it is, do you think it is a case of climbing wasn't for them?

S-It wasn't necessarily that climbing wasn't for them it's just not one of their primary focusses or primary enjoyments, if you've got a footballer and you put them on the climbing wall they are still a footballer, they may enjoy climbing but they are still going to want to play football, so it's very much a case of where their motivation lies, understanding where a child's coming from and what they actually want to get out of it.

R-I suppose its maybe why they are motivated as well what motivation is made up of.

S-Oh yes you have reward centred, achievements ability, generally if they've got a sporting back ground and they have grown up in that sport then they tend to default to a point or have preference of what they want to do so a lot of the ones that are really active children that do lots of other stuff just climbing just wasn't the one that they wanted to continue at the moment. Its centred around them and its in their best interests to do what they want to do and be motivated so I wish them luck.

R-I suppose if you have someone who isn't motivated, and you can't force them, but you have parents that are saying keep going keep going then does that become a negative thing?

S-It can we've got a guy in our climbing club who does that his parents are quite wealthy, very lovely, he's a nice guy but he comes along but he climbs for half the year and crickets for half the year and that's his thing, loves cricket, likes climbing but loves cricket so comes climbing in the off season but as soon as cricket starts again we won't see him for six months, but when it finishes hell come and climb avidly for six months until cricket starts again then he's gone again, it's just the way it is but his parents engage him in lots of different things, he's busy every night of the week he just randomly turns up and they've booked him into this, kind of what am I doing here.

1312

R-Last thing about motivation, when the kids are motivated how do you know that they are motivated?

S-Its easy

R-Is it sort of..?

S-It reaches the point where the whole session just flows really simply because they are motivated and engaging with what you're doing. When you find they're not engaged you tend to have to work a lot harder to do things and get the group moving and you generally can't achieve your goals for that session. The more engaged and excited you can get them at the beginning it just makes the whole session flow a lot more simply.

R-Moving onto my next theme which is confidence and linked in with that is physical competence as well. Is confidence something that's A) important in climbing and B) something you see developing within the student?

S-Their confidence in their own movement or ability to move that's important but that comes from them doing it and achieving it themselves under guidance, that just comes as a point, it's not something, again you can, again you can encourage confidence through experience but you can't make them confident, again its just setting things up for success or they can do something or what they particularly want to achieve at the level they want to achieve and through that trying to reinforce and review and make them recognise they have achieved it and done what they wanted to do which builds that within themselves "oh I can do that, or I can achieve this or I can reach there, I didn't think I could ever do that" and then you can build from that.

R-That achieving is quite interesting because it you know if there succeeding what do you determine as success?

1521

S-what I see for me, I work with a little lad on Sundays he comes in every week for a confidence boosting session for an hour. When he came in to start with, he's only six a tiny lad, his low spectrum autism with various other things, but is a very nice young lad but has difficulty moving in certain ways, his body just doesn't work that way and cant articulate it but what have we been working with for now….eight weeks and he's, for the first five weeks he won't jump, can't jump doesn't know how to jump, well he knows how to but he can't make himself jump, so and climbing and certain arm articulations he can't do just can't in his brain process that movement regardless of how you try to get him into position help to just feel it he just can't articulate it which is fine but the last two weeks he's suddenly… normally we get him in have a little run around get him warm then we'll just traverse along the bottom row with a bit of help, we just base the session around doing little things like that and a few other challenges. Then last week just came in and went straight up the wall no help chatting away quite happy. There was suddenly just a point they get to where something clicks and it becomes like "ah yes I feel confident doing this now, I'm happy doing this now"

R-What do you think the little thing that flicked the switch for him was?

1707

S- its, I don't know, it's a mixture of feeling welcome and feeling like you're happy here it's a mixture of knowing what you're doing and that acceptance that you can do it so you don't have to think about it, if you have to think about it it's very hard to be confident in doing it because its low level confidence that's one of the four levels that I can't remember what they are now. But it's that sort of not autonomous movement sort of thing so it's a thinking movement. Um he's just I've had it with quite few of the kids , lots of them where it gets to the point where suddenly it won't happen while there here usually, it'll just be they'll go away after an ok session then next week their brains just process something they need to process and they've just accepted the fact that can do that now and they can just do it and its wonderful to watch it's just like stand back and watch and shadow or helping them kind of, its quite surprising when it happens sometimes because its unexpected when it comes literally no warning and straight up the wall

R-Presumably you have other students who come in and are naturally very talented and rocket up the wall, so for them traversing around would be….

S-A bit boring, they will still enjoy it cause its still really good strong exercise, we have a little four year old that comes in and she is absolutely exceptional so she just goes up everything, its different, it's a different acceptance, I don't know whether it's an acceptance of their own ability or they have a higher level of self-confidence or awareness of their self-confidence or whether it's down to their experiences they have been encouraged to have when they are younger, you don't really know cause we don't have that level of back ground but I would assume a lot of the ones that are really good are the ones that parents are quite engaged and doing things like that and so they naturally become more comfortable because everyone around them does it whereas the ones that tend to be quite fearful are the ones who maybe don't have as active parents doing things….

R-So they're not exposed to things..?

S-Yeah to a point, whereas other kids we have completely reverse that thinking so there's no set pattern there's too many variables

R-So that determinant of success from your point of view when you go "yeah that kids achieved 100% is that very individual to the child so your little eight year old lad, if he managed to traverse all the way round without stopping is that a bigger achievement as the kid that comes in and zooms up and down a really hard climb

2025

S-Its more to a point cos you've got a direct feedback on what you've put in, from the coaching and what help you've put in and they've got more direct recognition within themselves and their own achievement. If you've got somebody that's really confident, then you've got to set things up a bit differently to challenge them, and you've got the praise thing where you've got to rearrange certain things to make it challenging to put them in a situation where they're going to get any greater stimulation out of doing it other than what they already have.

R-And its whether are we all, should we all be judged by the same expectations and expected to reach the same level?

2104

S-Absolutely not I don't think I've ever had two children the same, ever because you just can't, there's just no possible way, we are similar, similar patterns but not remotely close.

R-So confidence wise linking that to physical competence can the kids build confidence even if they don't become particularly competent at climbing?

S-Yeah it's not about the climbing really, it's more about the confidence comes from, it's with all things really, it's from   knowing what you're   doing understanding what you're doing and knowing that you can repeat it comfortably. So, it's not necessarily, you get some people that are naturally self-confident who will try everything and you get other ones that develop it and

it comes through accepting your ability to do something either through you're naturally talented towards things or you've understood how to do it and feel comfortable to do it.

R-It's that argument, I was speaking to someone and they were saying who's the better climber the person is technically excellent and can place the gear really well and can set the climbs up really but only really climbs to 5a or the person that can lead sport routes to 8a and I thought that was quite interesting.

S-It is because its utterly irrelevant, if they enjoy climbing great that's the crux of it. If you're talking about who's got the most technical competence then it would be the stronger climber because you have to be stronger to do that.

R-So we will move on from there the next bit is about interacting with the environment which we've probably indirectly talked about really when you've said about them becoming in tune with the environment, do you think it important for them to be able to interact with the climbing wall as an environment in its own way and does that affect their motivation and confidence?

S-Yes I think like all things if you try something new you've got a new environment, new situation in a climbing wall you've got new routes up things have changed it naturally reengages your brain more because you've got to work through processing again, if every things the same then you have maybe a higher level of competence but a lower potential engagement from that. Because you already know what you can do in a situation, or you know how it works, you already know how it works and you know you've tried this or that therefore there's nothing really new to engage you in that

R-Do you think that confidence that they build up is transferable to other sports and life in general?

S-Yes I think it is. we have a girl who comes, she's in our squad actually she's only 12 a young one. She used to come climbing a lot with her family, her father and brother, she used to be very low level nervous climber, so scared about falling, x y z. last year we did our first competition, so she entered that and then it was like a switch had gone in her head, literally about a day afterwards her dad rang me up and goes "she's changed, she's become ridiculously confident after doing that competition" just going into that situation with all her cohort, feeling that same sort of buzz, stretching the comfort zone completely. Being expected to perform a little bit of pressure and coming away feeling like she has done the best she can do, changed, her mum phoned up a week later saying what have you done to her. It's not something particularly that we've done its just her being in a situation that suddenly kick started her awareness of herself and actually thinking I can do this I can do all that stuff I'm better than I think I am

R-I was going to say, apart from getting better at climbing and enjoying themselves when they are here they are getting more confident and they are getting motivated to be active, is that an intentional thing or a happy by product of the fact that they are climbing?

S-Its both we aim to challenge people, to get them here to stretch them a bit, not to the point where they are in danger, obviously you can go too far up the wall. But its case of trying to see where they are and trying to encourage them to go to the next level if they're up for it. Usually through games and challenges are the best options, especially with peers because that's when

it naturally self-motivates them to do different things. If Bob their mate who they go to school with is always better than them, suddenly it's like well actually, it just introduces a different learning mechanic or different focus

R-One of the key things with PL, one of its aims is lifelong participation, do you think that you have an influence on the students that come, on setting them on that road?

S-I don't know

R-It's an interesting one

S-Its interesting I don't claim, that would be very immodest to kind of go oh yes I've made a life changing contribution to their life", if we can have a positive impact on their life then that's all you can ask of anyone.

R-I thought it was nice earlier when you were saying if they're not motivated then they stop coming and its obviously not for them, and that's fine. I thought it really nice that you were saying that's ok because climbing nots for everyone and some people it doesn't work for them.

S-No its really not for everyone

R-That's another thing, is it about purely teaching them climbing otherwise you wouldn't have a job but is it in part about getting them physically active and trying to encourage them to be active?

S-I think it's different, I've done a lot of cycle leading I've done a lot of mountaineering, all these other things and the biggest thing is helping people understand what they are capable of doing. I've had it with adults, literally 60 or 70 year old adults who have taken on trips where we've cycled across Italy or something like that and we've got to end of like 5 days of riding 8 or 10 hours a day and it's just like "I didn't know I could do that anymore" and you can just see it it's that people are naturally pessimistic about their own abilities to do things, so I think when you can upset that a bit and say don't be pessimistic be optimistic. Look, you can do this it's really good, not many other people can do that and suddenly it opens up a different thought seed in their head and makes them think differently about their own personal power and ability to do something so if I can do that to people yeah happy, I don't want to make them climbers I just want to make them more rounded people.

END

Interview 2

R- how long have you been teaching climbing

S- I've been teaching climbing for the last three years properly I started up in wales for a company called CMC adventure, I started there as an assistant in house training under the supervision of a SPA, did the scheme through them at the time and eventually adapted to become a RCI which was the updates single pitch award as the senior instructor at the wall here.

R-how long have you been climbing yourself

S-so I've climbed less intensely for a little bit of my life previous , probably last two three years previous, not done anything properly had my own gear as such, but my time in wales was spent climbing a lot and so I suppose the two previous and three coming in now most times at CMC we were either out with kids or personally out climbing, two three times a week, so there's a lot of climbing that's taken place quite quickly but it has given me quite an adapt knowledge to climbing in general and being around certain people like MIAs so the multipitching so they've been a real inspiration and guidance as well because they've assisted me in learning how to climb and give me random tips now and then which have come in handy when I've had to teach myself.

R-what does teaching climbing mean to you, why is it so good

S-so to start with I didn't like climbing, I was a sailing instructor to begin with climbing was never really my thing I preferred being on the water which is why I also do sea kayaking and canoeing but climbing for me is an adaptational sport that gives you challenges that although sea kayaking etc do give you, climbing's is a very dynamic experience, especially for children safety and being safe has consumed the world in my opinion leaving it quite open to interpretation of you know, make sure you have your hand sanitizer on the beach for the kids. There's been a lot of kinda safety precautions, so when they come climbing we keep it strictly safe and there is never a time when they are unsafe, but a parent looking up at their child on the wall and the child looking down at their parent there's a eeriness where they are not sure if they are ok and they're not sure if they are safe, and in that zone you begin to see them adapt into their own abilities and ultimately it allows them to build into who they are. With that in mind its quite a unique sport that offers you things that loads [of other sports] can get, you can get it inland or not and you can build them artificially granted there are artificial lakes but it's not the same sort of vibe. On

these climbing walls you still get the height and the experience and the situation that you put the kids in they begin to not only begin to adaptively work for themselves but they can't rely on their parents, and in some cases I've found the parents are so nervous about it 'oh look how high my child is' that they begin to look at their parents and they are like am I going to make my own judgement on my emotion or am I going to look at how my mum looks at me as I am climbing and she's like oh no what are we going to do. Then you as the instructor have this unique chance to coach them and help them up the wall safely, and kind of show them that it looks unsafe to people that aren't trained doesn't mean it is.it gives them a chance to adaptively learn in situations where not everyone knows what's going on

R-perception

S- yes perception, I suppose if you walked into a hospital and you saw stuff going on there you might look at someone on an operating table and think there close to death and they could be having something really simple, but for the doctor its just every day and he's like in and out in a minute he'll be fine. You've not got that perception so you think it's not ok, same applies to the climbing wall, people will look at the climbing wall. People will look at the climbing wall and think that's unsafe, or oh my word what if this or that happens, and we just know it's not going to. So, putting some one in a position which I suppose simulates that fear and worry, but isn't a bad place is quite helpful for kids, especially as they grow older.

0547

R- do you think climbing's unique in that it can put you, challenge you in that way, with fears, if you play basketball you probably don't that fear.

S-I think as an outdoor instructor being qualified in multiple activities, I think there are times in sailing when it can happen, there are times in sea kayaking where, especially when you're out on the waves it is very much like that. It's also a very freeing atmosphere, I think the climbing wall is the most intense, because it will be the same every time you do it the intensity, you can build up a resistance to that. Building up a resistance to sailing or kayaking, although possible, can take a little bit longer for children in my opinion. If we are looking at the adaptation of fear, to the production of them overseeing the fear, becoming in charge of the fear becoming in charge of the fear and moving forward that can happen a lot quicker at a climbing wall and then we can put them in a new phase where there is a whole new level of fear again so each time you adapt you can put something else in place immediately. In sailing once they've got over the waves, and the boat and the boom that flies over their head like me I used to be terrified of that. Once I was over that actually most things were ok, the only thing you'd ever worry about was the weather, oh my word I'm out in too stronger wind and I'm scared but the boat itself never scares you. On this wall the wall itself always provides the challenge, even if it's the same day, because its indoors its constant, so I think its unique in that sense, I think every outdoor sport

brings the potential, but indoor climbing brings I suppose the ability of rival challenge in a safe environment a lot easier and a lot quicker.

R- I have a few themes I want to chat about the first one is motivation. How important do you think motivation is to students?

S-I think motivation, if you look at the basis of what motivation is if you aren't motivated you won't go anywhere is my honest opinion. If you look at schools and the way they operate, for me personally I'm looking at going into the NHS, so I read biology books now and I find them interesting. And they stick a lot more than when I was at school and the teacher told me I had to. The motivations not there, there's no purpose or reasoning behind it so why am I doing it. When you give them a motivation you're giving them a reason, and when you've got a reason it becomes a lot more sort of self-sufficient if you like they want to do it, do you know what I mean. So, if you look into the scenario of a climber that's climbing every day because their mum or dad told them to their adaptively climbing like a robot because there's no real need to but their able to because you're humanly able to because of the muscle strength, great. When you look at the climbers that are motivated to climb because you've given them a reason like the award systems we hold here at the wall or their working towards a goal of achieving a certain route they've been trying for a couple of months. We had one the other day that completed a yellow that they've been trying to for like two months. Now if you watch them adaptively try to overcome this challenge, within this short period of time they go through the frustration the trial the training the retry the fail the retry the train then the success. In this small block period I think especially with kids they learn so much in such a short period of time, and also the euphoria you get from completing the task, it goes to show that if you push and try when the task is completed it looks a lot better. If you could climb everything in that wall first time no hands, why would anyone climb it, it would be pointless. As opposed to that with the motivation and the proper response you're not just climbing because ultimately at that point they're not always thinking about the wall they're thinking about what they're capable of, and when they start thinking about what they're capable of that will enter change into the wall and them in terms of their own perception of themselves so motivation of the wall is one thing but it goes hand in hand with causing them to motivated to know they're capable too. And with self-esteem within the young population being so low if we can provide them with even a little bit of motivation to know that they're capable who wouldn't.

R- is motivation something you can create or is it something you can give them a situation and it comes from them.

S-motivation has got to come from them, you can put them in circumstances that allow them to think for themselves to motivate. For example, if I had some one that's climbing all the time and I go to them that one over there looks proper beasty, I reckon you should try it and see how you

do. Now I haven't told them have to I've given them the idea to, now if they go I really don't want to then fine, but if they go I guess I'll give it a go and they only get half way then when they come down I'll tell them what went well, what techniques their missing, what they need to work on to adaptively complete the route and I will be able to lay in front of them a plan of how they can get to the top. It's like dangling a carrot you go up and they go how do I do that how can I and all of a sudden, you've got them inspired because they want to complete the task, and you've given them a viable way of doing it. Providing they work towards it; I think motivation can be assisted but must eventually come from the person.

R- do you think there is a link between motivation and participation

S- without doubt, yes I think if you can't motivate the participation will go down, because ultimately doing something without a goal is boring, everyone does something for a reason, even if someone gets up in the morning a says I'm gonna watch tv for a while there's a motivation behind the reason they want to watch tv, whether it's to relax people mistake the concept that if you relax you've got zero motivation, you have got the motivation but you've got the motivation to not do anything that's still a motivation. So yeah, I think massively that without some, I think that motivation although it can't be created by someone else it can be contagious, if you've got enough motivation and you are being proper buzzing about climbing it will rub off on other people and ultimately those that are climbing today and I have asked them how their climbing what they're climbing it all comes together quite quickly. Now if they turn round to their mates and go oh I did a sick 5a the other day and their mate goes I have no idea what you're on about what's that, and they start going on about climbing all of a sudden you have motivation introducing new participation, because people are motivated to talk about climbing, if they weren't motivated it wouldn't be happening. The reason homework isn't done much by kids is cos there's no motivation. If all of the sudden they all started doing homework and though it was amazing of course it's going to happen more isn't it because the participation goes up because the motivation is high. If you look at students that are highly motivated at school their homework gets done quick, you look at those that aren't motivated it doesn't get done and I think in terms of that I think that proves the participation to willingness quite effectively.

1440

R- you mentioned the peer thing; how important do you think those other members of the group are and that whole climbing wall environment

S-if these guys don't connect and they don't know other people eventually it fades out, we need each other whether we like it or not, and some people don't fit this bill and I generalise when I say that we are as a species kind of groupie if you like. We like to be within groups, we like to have our friends, we like to be known we like to have our likes and dislikes and we like people who think the same as us, that's why you have political parties or you have certain people in certain places. That environment is important, just with climbing, climbing people get to know

other climbing people and then all of a sudden you bring your mate along and then your mate gets into climbing and then they start climbing and that's how it starts. The whole outdoor sector including every outdoor centre I know relies on people coming along and trying it, liking it and getting involved. It relies on people getting enthused enough to then come back. If they like it a little bit but not much and don't come back then I'm not doing my job well enough because I need to make sure this sport continues and the best way to oversee that for people to understand and learn how great this sport is. Then once they've got it that's not going out. The fire they've lit themselves for the passion that doesn't go out, making them do something and then being like you should get other people to do it, they will go out and try but they won't have the passion inside of them. Without them actively wanting

to you won't get anyone else in the sport.

1626

R- do you think once they've got that passion, you talk about that flame inside of them, does that ever go out

S-without a doubt there's no way it can sustain itself all the time. Which is why going back to groups is so important, cause I've had fizzed out days when I don't want to climb, but someone else comes along and says course you do, picks up the rope off me back slaps me round the face and goes we're going climbing. Now that happens because they know I like climbing, but you're going to have days like when you get up for work and you don't want to go to work, sometimes you want to go to work and sometimes you don't, its exactly the same. The motivation will only keep going if there's a couple of people in the group that means that when one dies out the other one relights it again, and when that person needs relighting that person does it and that's why it requires a group. A singular person the moment their flame goes out for climbing who puts it back on, no one because they're on their own so it needs that group ethic otherwise no one would be climbing anymore really.

R-what do you think the biggest motivator is for the kids are climbing here

S- for the kids and motivation, their biggest motivation eventually , and it doesn't happen straight away, is they'll want to improve or prove to themselves that their capable. In today's environment they end up in a position where by they have to do well, because otherwise they fail in life, and I think there's a big problem in the education system toward that because it points them all towards a grade, and so they aren't given the chance to prove themselves to be themselves, they have to fit between these grading line. When you're out there climbing they pick the climb and they climb it, they pick the climb where they want to be at. We don't force them to climb it , I don't arrive and go you're doing red then green then yellow then you're leaving. Who'd want to do that, no one. So, when they arrive they look at a climb and they get excited and they think I really want to do that, so you facilitate them to. They get halfway and they go oh I can't do it, so you shout to them 'you can do it'. Now at this point they either make or break and that's fine, but when they do go for it, they come back down and you see it on their face, you picked it, you rose to the challenge, you completed it, and that wasn't forced, you

weren't forced to do that route, you picked it, you weren't forced to continue you chose to. That means a lot to them individually, if I chose the route for them to begin with and made them do it, what part of that are they going to feel is theirs well none of it. But have they both got to the top, yes but actively one has succeeded in their own one and the other has been forced to do it.

1927

R- is it important for them to be able to make their own decisions as they progress

S-the world doesn't let kids make decisions anymore. I think they need to be able to…. how are you going to adaptively learn if no one gives you feedback? If you don't end in that position there's no way of you knowing, they don't know where their limits are on this wall. I make sure of that; I don't let an instructor not let them climb something. One of the first things I introduced is I don't want any instructor going to them are you sure you want to do that ; I don't want to introduce that doubt. I want them to look at 15 on the overhang wall that they really can't do and I know they can't do and they go 'I want to go up it' and you let them, and if they come back down and they don't make it to the top you go, you got that high that's awesome shall we work and get you to the top, and they are going to say yes, they're not going to say no. people are like what if they fail and they'll feel really bad, they feel really bad already if you've gone 'I wouldn't go on that you're not capable', or 'I wouldn't go on that because it's a bit hard for you'. You've set their boundaries their head then goes oh I can't do that, well yes you can , if you put the boundary in their head, if you tell them you can't do something if you give them a grade and say if you don't get to here soon you're out. Then you are caging up the next prime minister if you like, you've no idea what people can get to. I had one of the most nervous climbers that I can remember back in Wales, we only had them for the week and they only went climbing once, only got two climbs in on the wall right, the first one goes up and gets about a metre off the ground and goes 'I can't do I can't do there's no way', and the teachers like 'come down' and I was like no you don't just agree with them that they are incapable because then they feel that they're right in saying they're not. So, he came back down, and I stood in his face and went 'you're going to get to the top, you can't come back down if you come off the floor, that's the rule'. So he said 'I'm going to untie', so I said 'you're going to climb and you're going to get to the top', and he goes half way and he goes 'I can't do it', same wobble, here we go again, so I looked at him and I said 'you told me you were going to climb to the top so do it'. And when he gets to the top it's like he realises he was wrong, it was like because of how many boundaries and barriers we put in kids ways to tell them how they have to be and need to be , they forget that they can try harder, because they always hear that word don't they ' try harder, do your best, try harder', it loses its gravity as to what it means. When he comes of the top of the climb he couldn't stop reminding me that he'd done it, like I wasn't there, that's how badly he kept reminding me, like I was forgetting every five seconds and he needed to remind me just in case I forgot. That means a lot, and I was happy to hear him tell me over and over again because what you also then know is that he's feeling it in his heart, he's feeling like he's capable, and then it's not even about the wall. He literally forgot about the wall halfway down, he started going I thought I couldn't do something, and I could. Now he's not even thinking about the climbing now he's thinking about the individual thought of I can't….I can, and that change in itself, you never know. That kid could now go on and get in a maths exam and go I can't, I can, and it's snapped, and you've improved

2310

R-what do you define success with a student as, is it always getting to the top

S- success is individual I will never, in fact it was one of my most famous phrases when we were climbing in wales, if you don't get to the top if one gets to the top and one gets a metre off the ground I do not care, you get to where you at. Because we all fall into that risk of thinking the top is the goal, but if you are absolutely scared beyond belief and can't cope and get a metre off the ground, that's a meter more than you thought you were going to do and that's amazing. But the problem is, and I'll link it back to school, which suppose shows my reflection on school, but if you are getting E in maths and you get a D no one celebrates because C is the margin, but there's no celebration because they've gone one grade up, they're might be a bit of well-done but normally they'll go well done you've only one grade to go, what does that even mean. They've still tried their hardest and we've still told them they're still not good enough. If I've got a kid that's gone a metre up in the air and they are nearly crying and they look at me they say I got to a metre, and I go that's good next time we'll try and get them to the two-metre mark. I've already crushed their individual ability; I've already crushed their own ability to find themselves in that light of I've did well. I've removed it I personally can affect the I did well, and I didn't do well in the person. As can any teacher, any person realistically as can any parent. I suppose in that sense the individual ability of that person is important. I will happily crack open the champagne for an adult with a vertigo that's got 30cm off the floor while shaking and nearly head butting the wall cos of how much they are shaking, than I will for a 45 year old bloke that's thought to himself oh I really want to give climbing a go, got to the top came down dead chuffed. They both achieved something amazing but the problem in today's society is we judge how high we get and that's not the goal. If I was judged against an airline pilot for how well we fly a Boeing that's an unfair advantage for the pilot, he does it for a living but yet we expect, it's like my favourite quote 'it's like asking a goldfish to climb a tree' they can't. So, if you've got someone in the same category and you've got a monkey and a goldfish, what ones climbing the tree better, we already know the answer to that. So, it doesn't matter, it shouldn't matter whether the goldfish can't get to the top of the tree. If it even gets to the bottom of the tree, its already succeeding, it's out of water. It's almost made a bigger achievement than the monkey because the monkey is expected to get the top of the tree and back down again . and it's that individual understanding that I think is crucial in an environment like this, every person that climbs I want to feel a success, even if they've just about got off the floor.

2640

R-why do you think there is these differences between people, one person can get an inch off the floor another goes straight to the top

S- I was terrible with heights when I first started, I'm a climbing instructor now. I couldn't do heights, I refused to multipitch for a year I couldn't do it didn't want to do, and honestly people are wired differently, why are paramedics, policeman fireman. Its where they fit, it's like asking a doctor or nurse why they are a doctor why they are a nurse, or a nurse why they aren't a doctor or doctor why they aren't a surgeon. Because that's not them, the world expects, when they get to the age when they're about to get a job they are like what would you like to be, why are you asking them that when for whole of their previous school life you've told them what to

be, you've told them what grade to go to you've told them where they need to be at you've told them if they're behind or in front. You've told the whole class who the model student, you've told the whole class inadvertently who isn't. then you get to an age where you expect them to make a life decision. How are they going to make a decision when you've ruled their entire life on how well they are doing based on a number in front of them, and all of a sudden it comes down to what would you like to be when you're older, and some people know, and some don't. if you don't know then all of a sudden you're wrong, funny that isn't it. Oh, they don't really know what they do that's a lost hope. Although it's a lost hope because you've told them what they have to be their whole life or because they've not got to the standards you wanted them to they already feel a failure and they are not even 18. How you can make a kid feel like they are not capable, and they've failed themselves before they even reach their 20s is an upset in my opinion, it's a catastrophic failure. How are they supposed to adapt from there? This climbing wall and outdoor sector gives them a chance to turn around and go you are not a failure, you can and will achieve providing you put your mind to it. I think that if anything is an absolute gift to be able to do that, and I value my job highly to give myself the ability to do that

R- my next theme is to do with confidence and physical competence, how important is it for the students to have confidence and build confidence.

S- let's be honest if you don't have confidence you end up working a job that probably don't really want somewhere in the middle of somewhere and you don't want to be there but you know you have to have a job , or you are at school and you really want to give something a go but you don't really do it because what if it goes wrong and you start worrying about things. Anxiety is a massive problem in today's generation along with depression, and it's causing a lot of problems. This wall does the opposite, this wall gives them the ability to not worry, and to give them the self-esteem that allows them to be confident, now confidence you know when you go to a job interview and they say you want to be confident but not over confident, whatever that means. I guess it just means don't be arrogant. But if you don't believe in yourself how on earth are you supposed to achieve anything, if you don't believe in yourself. Let's really grind it down, relationships, how you meant to be in a relationship with someone if you're not confident in yourself, how are you going to be confident with someone else. If you don't know yourself it's not going to go anywhere, if you are driving and you don't feel confident to drive then you can't drive properly. Going back to the Boeing before the pilot gets on the flight he says oh I don't feel very confident about this flight I'm off the plane, I'm not staying on the plane without a confident pilot. Because all of a sudden it's like great if you are not confident about your ability I'm certainly not staying. So, if you get a kid now who's like I don't really think I can climb that, but in this environment that doesn't hurt anyone. So, they're not being happy isn't going to affect anyone else. We can work on that , in this environment cause they are not affecting anyone else with their non-confidence. Their confidence we can slowly build, and we can go to them come with me we are going to do this and then at that moment you might tell them what they are climbing because you need to adaptively think on how we can build their confidence over time so eventually over time they can become self-sufficient. The confidence building, I think is a building block of adult hood. Confidence is important for a number of reasons, taking stand against things that aren't right, whether that's you feel like you feel you are being emotionally

bullied at the work place you need to be able to speak out, you are not going to speak out if you haven't got confidence.

R- it's quite a transferable thing?

S- exactly right ==confidence is the most cross platform thing there is out there==. It goes to home life work life it'll go to your ability; everything is built by confidence. Those that aren't confident won't always be able to achieve as much as they are capable of based on the fact they think they are not capable, and they probably are.

R-do you think climbing is particularly good in the way it builds confidence in students.

S-climbing is unique in the fact that it provides opportunities to have confidence in themselves and also kind of, I would say the outdoor sector is, sailing and kayaking provide different challenges to climbing==, ultimately I would say it is like other outdoor activities in its ability to provide confidence, however I suppose how climbing has route involved in most centres, routes and progression through them allows progression to be shown in a more systematic way than say sailing, if everyone is sailing in straight line you don't see what they are doing. In this scenario you know when someone is beasting it and when they are not, you can see the progression that occurs, and that's visible to everyone not just the instructor. So, I suppose in this environment it's a systematic approach to seeing how well they are doing, and I think its unique in that sense.==

R- how do you recognise that

S- ==you recognise the confidence building in how well they climb, and how, you can see the way they move. If someone is feeling not ok or anxious you can see that in their body language==. Ultimately if they are climbing and they think they can do it they climb well and if they are climbing and they don't think they can do it they don't climb as well, and that's a very real and true experience

R- do you notice the difference in them generally and the way they interact with the group and instructor

S-==massively, the more confidence you get then you feel you can talk to people the more you integrate in the society of climbing==. The more they might find more climbing partners, who then push their grade even more and if they push their grade they become more confident the more they increase their self-worth and that improvs the whole group and they can build on that. Then all of a sudden everything links back in.

R- are there difference types of confidence

S-==climbing is social, you need two people,== if you are climbing without two people that's soloing and even then people do it with a partner, even people that solo do it with a partner and they will be soloing together

R- to share the experience

S-exactly ==it's a social event climbing==

R- do you think there is a link between their confidence and physical ability

S- it's a tough one, I think you do need to have some physical ability in order to climb, that's a general statement. If you are overweight and unable to construct yourself you aren't able to climb the wall necessarily and that is a confidence problem. But then at the same time if they work hard and adapt and get down to a suitable weight and then begin to climb then of course. Climbing should be for everyone but then you have to understand because of the physical attributes it requires you to be you do have to be at a certain shape or fitness to be able to climb. That's not prejudice of climbing that's a simple fact, same with mountaineering hillwalking sailing kayaking you've got to have that ability. I think it can knock people when they are not physically able to do certain things. For contrast if we say they have a bit more of an ability so they can climb the wall but they are really struggling past 5c, and they are just not getting it thy just can't climb any harder but they really want to get to 6a but they can't and it's all a bit how am I going to climb it. I was in that position, I had a mate who climbed an E 1 before me, and he started probably within 6 months of before I could climb. They had done a bit of climbing before and just kept pushing and pushing themselves. Now I am a very cautious person and I was only on the VS's and couldn't get to the E1s. it was a little bit annoying seeing them just instantly succeed it was really upsetting but we are good mates and I do really appreciate that fact that he can do they and I am sharing that with them. Not that I can do them but I can appreciate that fact that he can do them, and I love to go watch and cheer him on and its still and achievement and actually yeah it still knocks confidence but that where group comes in and that's where it becomes important and the confidence to tell that person how you feel. I told him I feel pretty annoyed that you're able to climb better than me mate its pretty upsetting to be honest and was like well I can give you some tips and help you get there if you want, and actually over time I realised that it's a kind of jealousy of not being able to be as good as someone else. But if you are truly friends with someone you work through that and actually the confidence that comes out of that. I know I'm a good instructor and I can't climb as well as him, but I won't let get in the way of being a good instructor

R- you're enjoying climbing

S- exactly, if you don't enjoy climbing and you try climb harder because you want to climb as good as other people. I love climbing and I will always at my level because that's what I enjoy. If people are like you are not a real climber because you can't climb up to this grade then in my opinion they are not really real climbers either. I have no time for people that think you have to climb to a certain grade. Obviously to be an instructor you have to be able to climb up to severe that's ok that makes sense. But I think it's wrong to expect climbers to expect or look down on people that can't climb to a certain level

R= the next bit is interacting with the environment, we have covered it naturally as we have gone on, how do you see the students develop within the climbing wall environment

S- well at the moment I am actually devising a new way of doing climbing here, I am hoping to have a board which will have everyone's names on it and they will have a new instructor and they will be with different people climbing every week to really crack through the waves and let people know who they are climbing with unless they are doing a qualification or award. I think it really important that a climbing wall is social, it's important that the kids have the ability and adapt into that environment. The environments great, everyone knows each other, everyone

will be able to interact with each other everyone's happy help each other out, if someone's stuck on something someone else might chip in. That's good that's really nice and that's a great way of having it and the more people there are in that community I think adaptively the better people become at climbing. A bit like diversity councils that come together and that richness that flows from it, the same is happening here. The different climbing styles different ways to climb, people that like to climb in different environments, I like over hangs, I don't like chimneys I don't like that. That builds and begins to improve and eventually how you get well rounded climbers

R- what do you think is the biggest influence in them becoming at home in that environment

S- it's the group aspect

R- it's not the getting better at climbing

S- because you will get better at climbing if you have group behind you, I had my mates who climbed 3 grade above me behind me. I improved my grade because I went with them climbing, seconding up the routes they went up, slipping and falling all over the place, but it improves my climbing because they are pushing my grade because I'm climbing with them and its really blooming hard. But also, they are always encouraging me because I look up to them because they are my mates. It works because of that group ethic mixed in with that physical ability mixed in with their encouragement mixed therefore with my perception of my self improves

R- it can be a great motivator actually if you are with someone who's not quite as good as you

S- yes agree massively, and vice versa, someone's who's better than you, my best mate I used to climb with him. We went to the Peaks climbing for three days, day one I poured boiling hot water over my leg and thought that's climbing trip over and he went we are going climbing lets go. We would push it and push it on things that looked really difficult and you know what it was thanks to him that I got those climbs in because I wouldn't have otherwise. And that really helped me get my RCI, and there's a lot to be said about climbing with people that you can not only relate to but also rely on

R-how do you think climbing compares to other sport

S- I think with outdoor sports it becomes a level playing field with sailing kayaking canoeing gorge walking those kind of things it does link it with climbing, I think they are quite similar in the way they adapt and give that challenge. In terms of normal sport s however I think they are an entirely different ball game (laughs), they don't give the same level of ability to push yourself granted it does in professionalism and you get into really pushing yourself and get into Sunday league teams and whatever but honestly I don't believe it provides the same ability that outdoor sports do, it doesn't give you the edge or drive and it doesn't have that same environment for sure.

R- for you as a climbing instructor is it about climbing or is it about being active

S- it's about the kids, it's about them, I always want to help people for the record I'm currently trying to join the NHS ambulance service, my heart has always relied on other people and I want to help other people badly. I just felt right now there is too much selfishness and it needs to be

gone, and again with these kids I believe the education system is failing them. I believe that there isn't enough stuff there to keep them ok. Mental health is such a big problem at the moment it's on the rise and we are becoming aware of it and that's great, but it needs to be adaptively looked at and things like this, schools need to wake up and come over to us because we can provide the opportunities that they are looking for their students. ==We can push their students, but we can show them that they are capable we can show them that they are confident , we can show how them that have the ability they just don't think they do, and that will help.== These things help people with those problems, and they don't have fight it alone, there are loads of different places they can go obviously. But I do believe, especially at this wall I want as many of them to come along as possible ==I just want this wall to become a place where they can adaptively learn where they can adaptively become, to know themselves, to be ok with who they are.== ==To feel confident to work as them and not anything else, and not worry about what other people think but know that other people think they are great, that where I want them to be at==. Not think well does that person think that I'm a bit of a nutter, it saddens me because they care so much what other people think, and I think that's fair and I do understand that and its probably been like that forever, people are always worrying what people think. But in the climbing environment I think it can provide the ability to know people think they are awesome. ==When you climb well and you're with a mate and they finish they climb you high five at the top and you are like what a legend can't believe you did that absolutely brilliant can't believe you did that absolutely nuts and you go mad.== That's the feeling that these guys need these guys need to know that they've done well because otherwise they don't, and that's just not helpful.

END

Interview 3

R- how long have you been climbing and teaching climbing

S- I've been climbing myself about ten years now, not as long as most people. But I've been teaching it about five years. Went through college and went up through there. That's the only reason

R- what does climbing, and particularly teaching climbing mean to you, is it just a way of paying bills

S- for me, to start with it was what I enjoyed doing , so I thought combine what I enjoyed doing with a job and it'll be the ideal scenario. Then it got to a point where I didn't necessarily need to teach it anymore because I've got other work that pays the bills but now you get a connection with the kids, you enjoy what you are doing, it's got to a point where I would happily come in a and do it for free.

R- that's really nice, does the term Physical Literacy mean anything to you

S- I guess the way you perceive sports to affect people, so if you said somebody came out their shell, so improves confidence maybe or improves not only that but physical exercise as well. So, if for instance someone strives to do a certain route but then you put them on bouldering or traversing and they struggle with it it's the way their body respond to what they are doing.

R- ok our first theme is motivation; do you think motivation is a big factor in the students that you work with.

S- definitely, I think it's less motivation from us, I think its motivation from the people they are with, so a lot of them, one of them will be a climber and has been climbing for two or three years now, and another person will come in and we'll pair them up, and suddenly I guess you've got healthy competition between the two. They motivate each other like one will, even if they don't know what they are doing they will shout up going right foot on that red by your knee, and it motivates each other, even if it's not motivation as in I will do this its motivation as in I can do this.

R- do you think it's important for them to be motivated when they come climbing

S- yes so if they have no motivation they probably would not really be willing to learn, not really take in the knots not really want to get the whole way up the wall. Whereas if they were motivated they'd be like oh my god that persons just gone up there I need to be same as them I need to get to the top

R- so there's a big factor of the peers

S- competition, healthy competition. They push each other but not to a point of oh that person can't do it, not like unhealthy rivalry.

R- do you think that's the biggest motivator for them

S- definitely, peers more than anything. Yeah

R-do you think climbing's unique in that

S-yeah cos a lot of people will have different skill sets in climbing. Some kids will be really strong and will be able to do a wall just because they are strong. Whereas you get other kids that are smaller or taller and have got the technique to get up the route whereas other kids will just use their strength to get up it, so there are different levels of what they can do.

R-if they are not motivated do they still come, do you get kids here that are not motivated but still come

S- you get a few of them, you get the odd kid, the typical one where the parent wants them to go to a club. But a lot of them , if you can get them to enjoy the social aspect of it the climbing will not become irrelevant, but it'll be on the back burner. But even by being on the back burner you can go oh I want you get halfway up this wall. Even using aspects like the blindfolds, kids seem to love not being able to see and going up the wall. Something like that they aren't thinking about I'm here to climb oh this is boring; they are thinking oh this is a bit strange this is something I've not done before.

R- and stepping away from the motivation theme for a moment what do you think about climbing as a sport, as there are lots of different sports that kids are exposed to. What do you think is so great about climbing?

S-it's so diverse, you will often see many children in certain sports, and they will have a stereo typical what this person should look like, or what this person should be able to do. Whereas if you come climbing you could be any size, any weight, you could be literally whatever size person you are, and everyone could do it because there's always different levels of progression. Its fitness but not in you have to run this in order to complete the sport, its' you do it in your own time in your own way, and if you get to the top you get to the top if you don't, come back down and try again. Eventually you'll get there, it's not a case of you have to do this now to be good at it.

R-what do you define success for your students, is success getting to the top.

S-no (laughs) , I reckon it starts the very first day they walk through. When it will be the case of in the very first session all you care about is that they are learning how to tie the knot, even if they can't do it, they are getting the rhythm and routine of doing. Then it's a case of go up the wall however you see fit, this is how you come down the wall, just do that for the whole session. Then the next week your kind of they do the knot with a bit less help, and you go do rainbow up the wall first time second time oh do you think you could just pinks and blues instead of pinks, blues and greens. Slowly over time you can almost mould them into the climber, they can come in with no experience, no knowledge no anything and you can make them the person that's going to be the best climbing outcome.

R-is success an individual thing

S-team, because you've got to rely on your belayer as well, a lot of people think it's just a one-person sport cause it's just one person up the wall. If you didn't have that person at the bottom to be supporting you or telling you where to go, or even just being there just belaying for you,

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you wouldn't be able to do it at all. So, the success is between both of them, even if the second party at the bottom isn't doing anything.

R- why do you think there is this difference between the children that might come in a be able to climb to the top and the others that might only be able get two moves up, why do you think there are differences.

S- a lot of children when they come in and you ask them about their previous experience a lot of them will say oh I've climbed trees, and that's the one that always stays with me, oh I've climbed trees, ok well actually you might not think its relevant but the biggest thing possible, because the main thing with climbing is the height, like a lot of the kids will look up the wall and think oh my god that is so high. But once they are climbing they'll get further and further, and they will suddenly realise they are nearly at the top, but then it comes into a state of shock. So, then they will go ok I need to come down now, and you will go ok one more step, one more step, you can do it, one more step. Then if they don't want to do it lower them down then go ok I reckon you can go that step higher this time, I want you to touch such and such hold. It's a case of slowly breaking them in because a lot them will come in and think they know exactly what they are, doing exactly how to climb, and then its moulding what they thought they knew about climbing with what climbing actually is.

R-is that whole fear thing a big rock to break

S- yeah, it's quite a big bravado, because a lot of them come in pairs and you notice it more with boys, when they come in pairs and its the competition between them, one of them will be like oh yeah I can climb that one, and the other is going yeah I can do that, and you're thinking you're not too sure about that one. When you actually get to it the one that definitely said they could struggles, but the one that seemed like they were going to struggle actually got to the top straight away. So, it's like the rivalry kind of equals out, and they become equal to each other because one might pick up the belaying quicker than the climber and it's like the little things that kind of break each other down. It's not the climbing doing it it's between each other.

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R-how important do you think confidence is, is climbing good at building confidence.

S- it's a strange one I think, because a lot of children start off with either all the confidence in the world and realise it's not how they expected it, or they will start with no confidence and suddenly they become this different person so they either over or under judge themselves. So, a lot of them will think oh I've not been good at any other sport, so I won't be good at this, or they'll come in a think oh yeah I'm good at all sports, so I'll be good at this and they're not. So, it's a case of its testing themselves in probably only the heights, it's never anything to do with the holds cause you'll find with all of them if they did rainbow could hold onto the smallest crimps on the wall , if they had something bigger to put their feet on. So, it's not the holds although they think it is, they think oh my god I can't hold onto that, but they can, so its more the heights they have to get over before they can get over anything else.

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R-once they get over that [fear] do you see an acceleration in progression

S-yeah, you see the acceleration, as soon as they realise they can do it, you might offer do you want to go again, or move onto a different wall, a lot of kids if they weren't sure about it they would go onto a different wall, but once you see that they have actually gone ahh something has clicked in their brain and gone I can do that, then they will keep going and going and going even just repeating the same route, just getting used to what they can and can't do. Pushing their own bodies until they actually decide 'I've got this now' and then thy go onto a different wall

R-is that one of the things with climbing, kind of learning what you and your body is able to do.

S-I think a lot of people have the fear before they have even tried it. So straight away they look at it and go I can't do that, and they have never even come close to it before. When they do it they are like 'that wasn't so bad

R-so their perception , like a lot of things. So, we have covered this a little bit but how do you notice the confidence in the kids as its building up

R-it's not to do with the climbing, they come out their shell as a person. You could start off with them and you know they are nervous because they hardly make eye contact with you or hardly have a conversation with you, give one-word answers, when you are talking with them about school or their weekend or something like that. But as soon as they have got confidence in the climbing they feel like they've almost, not earned your respect but come up a notch and actually they are like well I've come closer to what everyone else can do, and then they come out their shell and they have a bit more of a conversation, and then you will push them bit harder on a wall and they will come have a conversation even more, it slowly builds up that rather than the climbing itself.

R- so they become more at home in the environment as well

S- yeah and they become trusting of you. If you said to someone or you gave them all the reassurance in the world and said you can do it you can do it, just one more step, or right foot out to the left, anything like this, it's just the little bits of encouragement, it seems like nothing but like the smallest of words change who they are as a person because it's like you believe in them so they are like oh my god this person believes in me they know I can do it. It's like a friendship type of form has built, literally building a wall up and up

R-without that relationship you are building up with them are they still going to progress and become confident

S-they can do, they can become confident in their own ability, but you'll often be trying to help them improve like their technique in climbing but you'll find they won't listen to you, so I feel like it's important to build up the friendship with them because then they become more trusting of you and know you are only going to do things to help them not make it harder for them. Once you've crossed that bridge you can kind of push them almost to their max

R- if they have a negative experience, say they are struggling to achieve what they think they should achieve, does that then have a negative effect on confidence

S- it depends on how the instructor or the people with them deal with it. If they have got somebody and they get only halfway up the wall and the belayer s going 'that was easy they could of done that' the climbers gonna be like oh ok I didn't realise it was that easy. But it's a case of if you give them right encouragement they'll believe in the world, like if you tell them they can do it slowly as you become more aware of what they can do and aware of them they'll start to believe what you tell them. So, if you can build them up and go you can do that, just do this or change this just the little things to tweak in them and you'll find a dramatic change in their climbing ability.

R- we have covered this earlier a bit but everyone that comes in, have they got the potential to climb to the same level or is everyone different.

S- everyone's different in some aspect but they are also the same, because everybody comes in no matter what fresh, no matter if you've climbed somewhere else you come into somewhere new that you haven't climbed before and I dunno the way the teach to belay is different or the knot you use is different, or the knot you use to tie in is different, there's always something that one person will be better at than another. So, I think there's so many aspects that go together to make a good climber that it isn't just how good you can climb it's the outside bits as well. I don't think you can be a good climber unless you give the other people around you the respect and encouragement, because if you are constantly putting somebody else down about their actions that's not gonna make you a good climber, cos in every sports person you need to build other people up because it's not about tearing other people down

R- as a climbing instructor how do you deal with all those different abilities of people

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S- so I think it probably a case of, to build the confidence between the climber and the belayer if you said to the belayer to shout up to climber to do this that or the other, build it up there, they become almost on a par with each other, in the aspect of the person down the bottom, even though they might not know exactly what I am telling them. If I said to tell the climber to dyno this bit. The belayer may not have a clue what a dyno is, but if the person on the wall does it and it works the climber up there suddenly has so much more respect for the belayer, going oh my god he just said that, and it works. So even if you can balance it out cos then the belayer is learning what a dyno is cos he just seen it happen on the wall, and then it's a case of if that can be mirrored on each of the climbers and belayers on every wall slowly get a balance and it's not about you have to a route this way and this way only. If everyone has different ways to climb it like I said earlier some climbers us their strength as their ability and others use technique. If each of them can rub off certain aspects on each other they will become level with each other.

R-next theme is about interacting with the environment. Can you see if students become more at home in the environment?

S- you can yes, it's gonna sound really petty but certain kids thrive better with certain instructors. They will become so, not obsessed but they will be like oh my god this person has got me to this level I need to be with this person, and if they are taken from that instructor and put with a different instructor, you see such a change in who they are. They won't listen or they'll do things

or become reserved again or everything that instructor has built up has been taken away by moving instructors. That's why a climbing climb like it's not school so you mustn't be told you have to go with this person. I think they should have the freedom to trial and error and if they more comfortable with a certain instructor I think they should be allowed to be with that person, instead of being put with someone where they feel completely uncomfortable and out of their comfort zone and it pulls them back

R- why do you think they do have those preferences

S- you find a lot with the younger ones, as soon as you walk through the door and without being there a second they'll be like can I be with you. It's almost overpowering, you'll build up this bond where you trust them, and they trust you. There's a girl who was in the first session, I started here the same time as she started so we were both new at the same time, finding our feet. It's a case of I helped her to build up and she managed to get to the top of the wall, managed to tie in herself and how to remember things, then four months later they changed the rules and they had to go with different people. This girl ended up going with someone different, she didn't want to go to the top of wall, she only wanted to do easy routes shed forgotten how to tie in. it it's the little things that you don't really think about affect the children

R-so in that scenario she became quite confident in the environment but then that changed when she was with a new person

S- as soon as she was with a new person. She was more coming for the social aspect than for the climbing aspect. You see improvements of her confidence on the wall, but her technical ability or strength didn't change. So yes, she could get to the top of the wall but she would only be able to do them on a 5a b or c. she would struggle to get any higher than that, and you know that's her boundary, she struggles to get any higher than that the odd occasion you might be able to push it and see if she can do it. But as a general basis you know that person can't do it and will struggle, so you are not going to say you must do this or that. As soon as they are taken from the person they put their trust with and put with suddenly new, that person is going you do this this and this they go oh my god I haven't got any control of what I am doing anymore, and they go straight to back into the person they were when they first walked through the door.

R- they haven't got the independence to do it what ever

S- they need to , like everyone says you have to walk before you can run, you've got to build up and build up and its gonna take so many falls and knock backs before she gets any confidence. Then suddenly chucking her into doing a 7a that you know she has no way of doing but just for the sake of doing it it's not going to work with that child and it's just going to make them so withdrawn

R-how transferable are the skills they learn in climbing

S-really transferable, you've got communication, you've got agility you've got every single thing that builds up a climber you haven't necessarily got in other sports. So, for instance if you compared football and climbing, you'd find so many differences, at the end of the day with football you go out to score a goal, you don't score it with four of you kicking it into goal at the same time. Whereas climbing if you didn't have the person standing at the bottom giving you

enthusiasm telling you where to go you wouldn't be able to do it at all. So, it's very much although it's not a team sport it is a team with your belayer at the bottom.

R-what do you think the biggest skills they learn climbing

S- I would say it's got nothing to do with the physical aspect of it, it's the way they interact with others, the language they use to get their point across. Like if some child doesn't know what a dyno is they've got and try and make it in simple terms to get it across and that's going to make it so much easier for them to fit in everything they do in life because if they know how to talk to certain people in certain aspects its going to make their lives so much easier. Cos' they know they can't go in there thinking everyone else knows exactly what they know, they have got to be like ok I will start at the basic level and if I understand that this person is on the same level as me then I can build it up. It opens them up to be in any work or school space and they've got the freedom to say what they want to say, and they can do it in as many ways as possible to get their point across

R-do you think climbing walls are good at helping kids to be physically active for life

S- I do , as I said it's a sport where you don't have to get up the wall in a set amount of time. It's something that when you've the knowledge and outline of it you can go anywhere and use it. You can go to so many climbing walls and you would know what you are doing. You wouldn't be oh my god I'm the newbie I don't know what I'm doing. You can do it for as many years as you want because it's not a race, it's not necessarily competitive unless it's with someone you want to be competitive with. It's something you can do at a leisurely pace you can progress as you want to, you don't have to progress if don't want to. You could do it if you had a broken arm you could probably still have a go. It's not something that if your injured then you're out for months because it's such an easy sports that can be easily manipulated, like ok you can't climb but you can do bouldering so there are so many aspects that can be changed to suit everybody

R- last question, for you is it purely about teaching children to climb or teaching children to be active

S-teaching children to be active, I think it's become…. I used to think that when I was growing we were reaching the point here we were getting new technology like year nine or ten, whereas now a days everyone is glued to a phone or iPad, no matter what there's a screen in front of them and everyone thinks that's leisure time in certain people's eyes. They talk to people through a screen, they don't have actual communication, whereas they are not learning any skills for life by sitting in front of a screen all day. Even if they do an hour at the climbing wall and then go back what they do in front of the computer at least they are getting some form of a break some form of human interaction because you are not going to be able to sit in front of a screen and play games you've got to learn skills that are transferable that you learn when you are climbing or doing any sports.

END

Interview 4

R-thank you very much for having me here and letting me talk to you. Firstly, I just want to get a bit of background info about yourself. How long have you been climbing and teaching climbing?

S- I have been climbing for 7 or 8 years now, and I have been teaching for 2 years, ish

R- is your climbing mainly indoor based

R- yeah but not out of choice, we don't have outdoor things that aren't multiple hours away. So, I get out [doors] when I can but because the only place that I can climb is indoors, the majority is indoors.

R-what does climbing mean to you, in particular as a climbing coach, why is it so go, you might think it isn't good

S-it's alright I like it. I fundamentally disagree with people that think of it as a spiritual passageway, to me it's just a sport I like doing. When I was at school I was a sporty kid, my background is track and field which is quite monotonous and boring, cos it is just run as fast as you can or throw this as far as you can or jump. Climbing is a way to have a physical challenge that also has a mental aspect to it, that's more interesting than just running around a track. As well as that its quite unique in that it requires physicality, technique and mental ability all at the same time, to such the degree it does. Competing at any sport requires all of them but I feel that climbing requires more of them all at the same time to an extended level almost. I like climbing outdoors more than indoors, and as well as being an athletic kids I was adventurous and climbing allows me to have an excuse to get out at the weekends and phaff around in the outdoors.

R-does the term Physical literacy mean much to you

S- in regard to what

R- as a phrase I suppose

S- it's not something I think about too much, but I know it's a thing

R-is it something you'd heard of before

S- a little bit but not overly familiar

R- was that through coaching courses or….

S-chatting to other coaches really, I like to learn all the time, so I often chat to people who are more experienced and better than I am in order to learn what they know. That term has come up a few times but not I have explored it too deeply beyond that

R- my first theme to chat about is motivation. Do you think motivation is important with your students?

S-yes like any sport the more you do it the better at it you get. In our squad we have two sessions a week and we have an 80% attendance rate that they are expected to meet which is about 14 sessions a month. Some kids only do that, or do both days a week, some kids do those as well as two or three other sessions a month just because they are motivated and want to excel at the sport. You can see that, the ones that put more effort in definitely get more out and I've had some of the less enthusiastic and motivated asked me why so and so has been climbing for less time than them but is better them at it, and you have to say to them 'well they have been here five days last week and you were here 2. Some of them don't realise that they just expect to develop at the same rate for less work put in, and I think those that do put in the work and find it does work in getting them stronger are then more keen to more work in order to keep on gaining their gains

R- so it's almost cumulative, the more they put in the bigger the reward

S-yeah they find a reward and they put more work in and get a bigger reward and so on

R- so do you think it's purely down to the more time you put in the better you get

S- no there is an element of practicing what you need to practice in order to get stronger. You can't just turn up and climb jug runs for an hour and expect to get better. It's those that push themselves in their weaknesses and use that to make them better climbers. You can come down and play around for an hour or two which is good for the social aspect and it keeps them motivated to climb. But if they want to really excel they need to put in intended practice to develop their weaknesses in order to progress their climbing

R- do you think everyone is capable of reaching the same level, or do you think people are naturally different, why doesn't every kid end up in squad

S- I think everyone can excel at climbing but obviously there is elements to people that can't be changed. Their height, their arm span, as well as their motivation sometimes. Some kids just aren't motivated to try hard, which is a very difficult thing to change. So, if you can't change that they aren't going to train so they won't get stronger. So, to go back to the other the physical attributes, you can't make someone's arm span longer and flexibility you can improve it, but it takes a long time. So those that are naturally more flexible are going fare well on more technical routes, and those that have longer arms get on better on reachy routes, but you can get around both those things by finding routes that are best for you. But obviously that is limited so if you are actually better at one thing you may always be better at that one thing because you are suited to it by your physicality.

0802

R-do you find that some kids seem to naturally progress quicker than others when they come to the clubs or is it linear

S-it comes down to what they put in, as I mentioned earlier, those that progress faster come more times a week, it's the same kids that during the session we have with them you can see them putting in more work and trying harder they'll be more on task. Some kids will be more half arsed, and then leave and don't come back for four days till the next session. The keen kids

are the ones that do better, and that's during the sessions when we are coaching them and in their own climbing time

R- do you think there's any link to other parts of their lives. Is there anything that feeds into that that helps to give them that drive to keep going that maybe other kids don't have that drive

S- I don't pry into students live too much because it's a bit weird sometimes, I only know what they tell me so it's a hard thing to gauge. One or two people I coach that doesn't necessarily climb as well as their peers for the motivation reasons don't do as well at school. I think if you are keen about one aspect [of life] and your outlook is positive that motivation tends to transfer across to other things. Whereas if you are demotivated to one thing it can be a general demotivation it's just a general demotivation. Which means they don't really excel at anything, and you do see kids go ' oh I'm rubbish at everything' and then they don't try because of that

R- is motivation something you can give them here or is it always a sort of internal thing

S-I think it's mostly internal, but it can be shared. The word psyched gets thrown around a lot it's like them wanting to climb and train. I feel it when I climb or train with my friends, some of them really psych me up and you train with them and do some hard stuff, whereas others are a bit more tame and are 'ah not really feeling it today'. So, if you get a group where the majority are psyched to climb, that motivation will spread to those that aren't as much . on the other hand, if you have a group with one or two keen climbers but everyone else just wants to chat then as a group they won't do as much climbing as the other group. It's almost group mechanics, where everyone just does what the majority does. With a few exceptions, if there is a really keen kid in a group of unkeen kids they will just ignore the group and do their own thing and I am more than happy to let them, rather than say no we have to do this thing as a group, it's easier to get one kid climbing than it is to get a whole group. Generally, if one starts doing something then another one joins them and another one, but that works both ways if one sits on the sofa they all might sit on the sofa.

1133

R-is it important as a coach to treat them all as individuals

S-I think so because everyone is an individual, I know I don't like being talked to as a group, you know, if I said none of you are climbing, and I was climbing, I'd feel that was unfair and that might affect my motivation and my want to be there climbing. If you treat them all as individuals and treat each issue of their motivation individually I think that can have much more success. But it's also harder to do because you have to put in a lot of extra effort to tend to each person's needs, but I think it's worth doing if you can.

R- if you have a group of 8 kids [its difficult] trying to give every kid the attention they need ….

S- especially in an hour and a half session, if we had all day you could go for it

R-is it something that gets better the more times you have the kids

S-yeah, so we have two climbing squads which are designed to get kids to climb as hard as they can. The kids are scouted out from the junior climbing club (JCC) as being those who want to

climb and are motivated to develop their climbing. The JCCs are more of a social club where we will try to teach them climbing skills, but it is mostly there to act as a after school thing almost. So, with the squads we only have qualified coaches to coach them whereas the JCCs can have any person that can supervise the kid's bouldering. Anyone who coaches the squad knows all the squad kids. The JCCs kind of get divided up each week, so you have seven weeks and every week they will have a different instructor. Recently we have started trying to have the same for at least three or four sessions and then change to a different instructor, by doing that you can see they get used to having the same instructor and they kind of know what to expect, and I find that gets them more keen to climb because there's less new stuff almost. It's like cool we've got Bill we know what Bills like, we'll just do it. Whereas if they have a new instructor they have to get used to the new instructor before they are then happy to do their own thing. I'm not very good at teaching kids that don't want to climb so, I'm not very good at if a kid doesn't have motivation giving them motivation, I will try to but if my efforts are ignored I will quickly give up and give my attention to those that want to climb which is probably a personal I fault that I shouldn't have but it's how my brain works, if you don't want to do it you don't have to do it I'll deal with the kids that do. Going back to the original point. The more we have the kids over the course of the weeks the more I can see they are getting on the wall climbing and doing the task at hand with more enthusiasm almost. I don't know why that is I thinks that they are getting used to the instructor whereas previously every week is completely different because every instructor coaches differently and structures session differently

1459

R-I can imagine actually every week if there's different instructor

S-if you're in a class and every week you have a different teacher it's hard to have continuity throughout the lessons

R- I suppose the upside to it would be that if you didn't get on with one instructors' style that's ok because next week will be someone different, like everything its swings and round abouts

R-what do you think the biggest motivator for the kids are when they come climbing

S- the biggest motivator, I want to say success, but I don't think that's correct. But I'm saying success because I predominantly coach the squad kids so we want them to compete in competitions, and they should want to compete in competitions. Those that want to compete train harder to get better at climbing because of them , and therefore succeed at the competitions which then spurs on the motivation to do better next time. Whereas if you don't care that much about competitions, you don't train for them as hard so don't do as well. There's two circles basically, and you're in one or the other. Then again I was never into competitions as a child as now, I just like climbing for climbing sake, but I have a good intrinsic motivation. If I want to do something I want to excel at it and I will work until I'm good at, but a lot of people don't work that way. Everyone is always taught to compare themselves to others, and if you're always doing that and you're not doing as well compare to your peers. I think it depends child to child is what I think I am trying to say, but generally the two motivators are either competing against others or competing against yourself

R-do you think climbing is a good place for developing motivation compared to other sports

S- yeah, climbing is an individual sport where you are competing against yourself and the wall or rock. Even in competitions you still are competing against yourself, the others are competing against themselves as well at the same time. If you do bad it doesn't mean the other person will do well. In football if you do bad you're opening the opportunity for the other footballer to score a goal. In climbing if you fall off it doesn't mean the other persons going to not fall off, so you are competing against yourself against other people which is a really weird thing to think about.

R-what do you determine success as for a kid

S- it's what ever gets them going really, if you have a kid that's really competitive and likes competing you'll use future competitions to get them motivated. So, you'll say well done at lasts weeks comp you came third let's see if you come second next time. If it's a kid that doesn't care for comps you then use the grade system and the fact that climbing routes are graded kind of spurs itself well to motivate you to always do the next one. Because you complete a route and then there is always a harder route to go onto. So, you can say this week you've competed your first V5 now aim for V6, you are always trying to improve along those two things almost. Sometimes at the same time, but you can't really motivate yourself without either of them, because there's nothing to measure your progress against. So, you can't be trying to develop your climbing if you can't see how you've developed it so you can't say…..

R- so what should be comparing yourself against in order to get better

S-well you compare against how you were in the past, so three months ago I was climbing V4 now I'm climbing V5, in two months I'll see if I can be climbing V6, that's a really fast development scale there

R- it's all these great coaches obviously

S-yeah 100%, so you need a scale to measure yourself against or you won't be able to see your development, you won't be able to see where you need to develop because you can't see that

2014

R-do you think in here that you judge all your students by the same bench mark or is it a case that if one person can only get a metre off the floor that's success for them, if another person gets to the top of wall that's an equal success for them

S- yeah 100%, so all our groups are individualistic, so we set goals for that. In our squads and junior clubs, the age range is like 11 to 18 in some of them so you can't expect the 11-year olds to be doing the same as the 18-year olds. When we set the training sessions we split them up depending on their ability and their age usually, you know, so the younger ones will do an easier version of what the older ones are doing. So, we have system boards which are 45° hanging, 30° hanging and 15°, and obviously the stronger ones go on the 45 because its steeper and harder, the less strong ones, usually the younger ones, go on the 15. Because they can see that they are 5 years younger than say Jimmy I can see why I am on this thing. Whereas if you were to split them up in ages, so I'm the same age as John but I'm on an easier thing that would just feel a bit shit basically. So, it is trying to split them up and task them and you know motivate

them on their ability but not demotivate them because they are not with their peers. That's not what you asked but.

R-no no that's fine, the question was about those individual determinant of success, and maybe interesting why do you think there are those differences between the kids, is climbing particularly good at those. Like you were saying about track and field, you know you run and there's a line of five of you and you run down there, and success is the one that gets over the line first. Do you think that climbing's particularly different from that?

S-its similar in some aspects, cos it's an individual sport where you are competing, if you are doing a 100-metre race I can run it as fast as I can, and if I'm climbing I can climb as hard as I can. Obviously I can do really well for myself and get a personal best grade in my competition which is good for me, but whether I win or lose is down to whether the person next to me has done their personal best or their hardest route as well. So, in both of them you are competing against yourself rather than the other people, but you are doing it at the same time as the other people, which I think was why I was drawn to individual sports rather than team sports, because I get very stressed out with people that can't do things. So, when you are playing a game of rugby and there's one person or a group of people that aren't as good it's frustrating because they are letting the team down almost, and it's frustrating for the person because they are letting the team down. Whereas in climbing you don't have that stress about people, but if you're the person letting yourself, well not yourself down, but you're not as good a climber as the ones you're competing against, then it's almost less stress on yourself to do well for the other people. Whereas football you are competing for yourself and for your whole team. So, if you're not as good as everyone else it can alienate you a bit. Whereas in climbing if you come 7th in a comp some kids just say, 'sweet I didn't lose'. Because they know they are not as strong as the people next to them, so its finding where they are in the rankings

R-what about those that just come to your clubs but aren't competing

S- they do it as a fun thing, so it is a social thing for them. A lot of the time if they are in the club they aren't competitive people, or at least not competitive in climbing which is why they're are not in the squad, if they were competitive in climbing they would have moved up to the squad. So, we usually don't do necessarily a training thing with the junior club because they don't engage well with them, they are supposed to be fun social gamey things with them , cos that's what they want to do. You can still find motivation in competition with them, you just don't aim it who is the best climber. I find stupid games work with them. Like I have a thing where I try and get a sport and make it climb related, so we play like netball on the wall, and that kind of thing. They are not competing who's the best climber, but they are still climbing whilst doing it if that makes sense. Because they are here to climb and have fun if you then make the climbing aspect thing the defining feature of success or failure if they are not a strong climber then they are like 'oh well that's dumb I don't want to do that'. Whereas if you make the competition aspect something really stupid like for example can you throw the bean bag through the hoop on the other side of the wall it's no longer about the climbing it's about something else, which means they can still have fun and compete against each other but they are not stressed out about failing at the climbing. So, like you can do some really stupid stuff like speed climbing, like

everyone loves doing it but if you are crap at it everyone's like 'its only speed climbing, it's not real climbing who cares'

R- that's really good, ok if we move on. The next theme is confidence and physical competence. How important do you think confidence is for them, especially when they come into this environment

2658

S- personal confidence or confidence operating at height or both

R- well height I think the being at height is one of the big differences with climbing over a lot of other sports. This perception of fear or danger whether its real or not. I suppose there could be more than one aspect of confidence

S-I'd say you have to be confident in your abilities to climb hard. If you aren't confident in your ability you don't want to push yourself to try as hard as you can. If I'm even a metre off the floor and am trying to move at the max of my abilities, if I don't have the confidence in myself that I might do it I'm not going to commit fully to doing that move and because I'm not fully committing I've fallen off before I've even tried. So those with naturally higher confidence in themselves generally do better at climbing and it's that success cycle we talked about harder, I did the thing I'm going to try harder, I did another thing I'm going try harder, whereas those that aren't confident and don't commit to the moves that they can do just because they are, I don't know whether they are scared of height of unsure of the move, you have to really break that cycle of them not wanting to do it because they think they are not equal to it. So, if it's a hard move at the top and it's a height issue, get them to find a move that's similar but lower to the floor and do it lower to the floor and you can say look it's the same move pretty much but 2 metres higher. If its confidence that they won't be able to do it the only way I've found of dealing with that is to get them trying loads of hard things at the max of their ability. That's where the boards come in useful where there isn't a specific route you can just say start at these two and go to that one and just make individual hard moves, and so you can almost teach them to commit to commit and try hard on individual moves so when they are on a wall climbing an actual route they know to do that

R- as their physical competence and confidence is increasing how does that manifest itself to you, when you are watching them and working with them

S-so I see generally, most people start climbing with a level of physical ability that they can't fully utilise it till their confidence has reached up to that. If you think of it as two dials so this is where your ability is, but your confidence is over here, so you are not able to do as hard as you physically can because you are not willing to push yourself. As soon as your confidence matches your physical ability that's when you can start really developing as a climber, until that point its just finding the confidence to do the things that you can already do. That's why you have beginner climbers that when they have climbed for the first few times and they say 'I can't do that' and you say, 'yes you can' and they go ' no I can't', and then it's an argument about whether they can or can't do it. Then they end up doing it and they are like 'oh I can do that' and it like 'yeah I know you can'

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R- is that quite a common thing

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S-yep , yes its very pretty much almost every climber, until they make that brink of actually I can do this then they will start doing it more if that makes sense

R- do you think climbing's particularly good at that aspect of things, really giving them that belief in their ability

S-yes, the only way to excel at it is by believing in what you can do, and from what I've seen almost every person realises that within a few sessions. If not they will probably get it if they carry on climbing, and obviously those that don't carry on I don't know about because they don't carry on

R-do you find that as they become more confident you can see them because they are climbing better, are there other aspects of the time when they are here that as they get more confident that you notice as well

S- what do you mean by that

R-so them as a person, does it change them as a person, as they get more confident

S-yeah like, as I said I don't know much about their lives outside climbing, yeah I think that those that don't have a naturally sporty background, which is quite a lot of climbers for a very physical sport is quite surprising. They'll find that they will have this confidence that influences other parts of their lives

R- is it transferable

S-I think so I have kind of always had it cause I have been doing stuff for ever, and that helped my climbing when I started. But if you don't have that already climbing's a really good way to get confidence. If your confident in one thing it transfers to everything.

R-do you find that you have kids that come in and when they start are painfully shy and really nervous, kind of wouldn't say boo to a goose type of things. Then three of four weeks down the line they are finding that they can climb and suddenly they are chatting to you and telling you about their day and that kind of thing

S-100% definitely, but it's hard to say whether that's the climbing that's doing it or the fact that they are used to the new environment. Because if you introduce a naturally quiet person to a new environment they are naturally quieter. As soon as they get used to it they come out their shell but it's hard to say whether they come out of that because of that or whether it's the climbing

R- are you all conscious of trying to create an atmosphere where it does help to bring them out of themselves, or is that kind of, may be not just a happy coincidence but something that naturally happens

S-I think it just naturally happens, we try our best to bring it out, so we do have kids that are quiet and I know I'll make an effort to try and get them to engage because I know people that

are quiet, I talk to them about the stuff that they do in their lives, especially when I was younger, and I would find that if they felt they were quiet because they didn't feel they could it almost. So, if you have a kid that's a quiet person, they're probably quiet because they are a bit nervous whether they will be able to match their peers in terms of their climbing and in terms of their social interaction. So, if you try to bring out the climber in terms of their climbing that might give them an elevated sense of confidence. In terms of the social thing they will come up socially

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R-I was just going to say do you think there is a link between confidence and physical competence, so the better you are at climbing the more confident you are in the environment

S- I think so, it's like every aspect, you've got less to prove to yourself socially if you can demonstrate on a wall. So, if I go into a group of Chris Sharma, Adam Ondra, I'm probably not going to say much, well I might say much but I am going to be pretty nervous about climbing with them. Whereas if I am with people that I can climb at an equal level to or better than, I would naturally feel quite good about myself, 'oh I'm the best climber in the room'

R-so it's knowing where you are in the sort of pecking order

S-the social hierarchy of the climbing wall

R-I suppose Alex Honnold is a good example of that, he was so shy he would rather solo than ask someone to hold his rope for him, which is pretty extreme

S-I don't think I would want to go that extreme

R-just moving on now to my next theme, and we've covered this naturally as we go. Interacting with the environment, do you think that that interacting with the environment aspect that the kids get when they come in is that as important as the climbing itself or is it something that happens while they are climbing. So, they are coming in and as we were saying after a few week they get to know people and start chatting and they get to know you, is that part of the purpose of them coming to climbing wall do you think

S- yeah, so it depends why they are coming so you have the kids that want to excel at climbing, you have the kids that want to do something fun, not saying that competing in climbing isn't fun, but something they don't necessarily take too seriously. Say you spend all day at school, and you are always working hard at something, its quite nice for some kids to come and mess around on the wall for a bit. Cause climbing is fun, it's a fun thing to do. But if they then have to start taking that seriously as well, that's another serious thing on a lifetime of serious stuff. Some kids like that, some kids don't. so, I think it comes down to the individual as to how important that is. You're not going to enjoy climbing if it's always been a stressful thing, so the progression for people developing as climbers is it's a fun thing to do with their mates, realising actually this is quite fun and I'm getting alright at it. Then slowly they get into the more success they are having the more fun it is. Then just messing around on the jug runs isn't fun anymore because its easy and they then want to get that accomplishment in but the climbing itself is fun providing its challenging to them.

R- does there always need to be that challenge and achievement

S- I think so, to me anyway. Like because the achievement doesn't always need to be climbing the hardest route, like I said the kids in the JCC that can't climb really hard stuff the achievement can be something stupid as we said. But if that's not there they quickly lose focus on the actual climbing because they are there for the social aspect. Whereas with the squad if you take away the competitive nature of it between themselves, so say we're not in comp season any more they'll still keep climbing hard for the grade this time. So, over the summer they will push the grade, and try and climb the hardest stuff they can. Over the winter they will try and win the competitions. It's how I see it anyway

R- what do you think is the most transferable skill they learn here

S- if you try hard you generally succeed, if you put in the work the work comes out you know, that's what I got from climbing, I think I got it from climbing (laughs). If I do something I like to go the hardest at it, regardless of whether its climbing or school stuff, I was always a nerd at school so.

R- we are nearly there now. So, for you as a coach is it purely about getting people climbing or getting people active, one of the things with Physical literacy is, as a add on to that is trying to encourage lifelong participation in sport and physical activity

S-that's a great question

R- if you have a kid that comes to you and says I've really enjoyed this, but I can't get over the height side of it so I'm going to go and do some weightlifting cause I've found out I'm quite strong. Is that still success for you as a coach

4040

S- if they found that out through climbing then yeah, like, I like climbing but I know it's not everything, for some people it is, but to me it's not so I view climbing as just a sport. So, if they realise they like sport because I taught them climbing great, if they are really psyched for climbing because I taught them climbing even better. But I don't think that because they have stopped climbing I've failed as an instructor, unless it's because they say, 'it's because you're a shit instructor' (laughs). I just like people climbing but if they find something else through climbing that's fantastic as well. I have taken a bit of lull in my climbing few months or year or so because it's all I really did for the last four years really hard, and I got a bit bored with it, so I've gone back to track and field and that kind of stuff. But I still climb with my friends as a fun thing and I climb enough to keep me a decent climber. But I'm not the strongest in the group anymore but I really don't care anymore because I don't climb for that anymore, I just climb because it's fun. You know, and if a kid has the same situation as me and they go and do something else and then come back when you want to climb again

R- just interested have you found that track and field has improved your climbing at all

S- a little bit, my legs are stronger, when I started climbing I stopped track and field, and I started training for competitions, when I was 15 I think I stopped track and field. I started again a few months ago and started training my legs which climbers never do and I've found I am able to use my legs a lot more. I was climbing a route the other day and got a massive high right foot and

==just pushed down and just stood up on my leg, pistol squatted up which I would not have been able to do a few months ago==. Also, I've tried to start climbing outdoors more than just indoor bouldering and sport climbing. So, I went ice climbing last winter, I could have done with more fitness when I was walking cos there's a lot of walking involved and hauling your stuff.

END

Interview 5

R-ok the way we will do this is that I will start by asking a couple of questions about you climbing wise and then there's a couple of themes, so we will see if I can pick your brain apart a little bit if that's alright.

S-absolutely

R-so how long have you been climbing

S-I have been climbing for I think six years

R-and how long have you been teaching climbing

S-teaching climbing maybe about three, I managed to avoid it for a while

R-so what does climbing mean to you as a climber and as a coach

S-hmmm

R-straight in with the deep and meaningful

S-I wasn't really very sporty when I was at school, umm I liked things like badminton and basketball but other than that I didn't really do sports I was into music. Then when I was at uni I would do bits and pieces like I would swim and just go on my own or go to some of the fitness classes and I picked up kettle bells, but they have been very much individual sports rather than team sports. Then it was just by accident that I discovered climbing with some computing students from the German society, and they said to me and a couple of friends 'oh we go climbing every week do you want to join us. So I went down and we did a session there and then went down stairs into the bouldering area and at the bottom of the stairs this guy turned round and it was someone I'd been to school with, and he was like what are you doing here and I was like 'I've been for my first climb' and I was like 'what are you doing here' and he said 'I work here', so we rebonded over that and he taught me how to climb and we've been really good friends ever since as well. Even though it's not a team sport I really like the way it brings people together

R-a social sport

S-yeah definitely, definitely, and I really like the way it appeals to people that don't fit into that traditional err, like football team, rugby, and in Scotland things are different as well, in school we don't play rugby or cricket, we're like football or hockey or shinti is a regional game. So, the traditional things like the team games that don't fit everybody, even though you think Scotland lots of climbing in our hometown not so much. We did have a wall in the leisure centre, but it got taken down and there's a small climbing cube but there's no facilities for schools or groups to use. That what I like about here it does seem to attract people that just don't fit into traditional

R- yes same for me

S-it can be competitive, but it doesn't need to be and that's something else I like

0403

R-right if we whizz into our first theme, how important do you think motivation is in terms of getting the kids and keeping the kids climbing

S-it's really important. We've been debating this recently about what their motivation is for coming to the clubs, and we have noticed there are kids that come because they want to learn how to climb, they want to get better at something, they really relish the challenge, but there are some kids that come because, or, even if they started like thinking oh climbing's quite fun, they now more come for the social, so we are debating putting on sessions for kids that want to come and just have a bit of fun, and then the ones that want to work up through the levels and maybe get different levels of awards, progress through , learn all the different techniques, and

maybe end up competing. We'd like to be able to offer something for all the different reasons they come here cause some of them do just come to muck around with their friends. Which is …..as a coach it can be quite difficult you have to come back away from…. Well our two duties are to keep them safe and make sure they have fun, and if part of them having fun is hanging around and chatting we don't need to force them up the wall. But yeah, their motivation is different for everybody and being able to cater for that is quite important

R- how do you motivate people, can you motivate the kids

S- yeas well we've been talking about this as well in terms of how to motivate different kinds of people as well, we talked about the difference between motivating girls and boys, as well cause we have found that quite different. That was the topic I brought up in our coaching catch up what's the difference between coaching girls and coaching boys, um so we always… it's difficult to motivate mixed groups sometimes because everybody reacts to things in different ways some people really enjoy the competitive side of things so we will set them little challenges and they will either go for it or it'll switch them off and they will want to do their own thing. So some time that can be quite difficult to cater for, like mixed motivation groups, but yeah in terms of getting them onto the wall its making things into a game, especially for the younger kids, umm so you are trying to teach them techniques but disguising it almost (laughs), so making little challenges, sometimes throwing in points systems so you get points for doing certain climbs or colours, or certain number or getting to certain holds. Yeah, and then the whole time you've got to analyse how well they are kind of settling in with the group, we've had a couple recently who their friend didn't get back onto the club because they didn't book in time and its really affected them, they've dropped out because, although they want to come having someone there with them is really important to them. So yeah, but then you get the kids who come on their own they don't know anyone else, they get going and they make friends, umm there's such a wide variety

0830

R-do you try and treat the kids as individuals

S-yes so we try as much as possible to keep the same coach for each group, so that that coach can learn how they work and what motivates them, so if this kid responds particularly well to competition-based session…… that can vary between participants in a particular group. So, like it can't be something you can do every week because some of them would switch off. Even on one off sessions its just really important to learn every one's names and emm, when we do the warmup we tend to watch everyone and see how they move. Some new people will shoot up the wall and some will be timid about it. Some of them like to keep to themselves, so its making sure you know the group, what you can trust them to do as well. Whether you can trust them to move around on their own, or whether you need to stick with them the whole time. Set them challenges they are going to respond to.

0950

R- does that potential independence happen with time

S-yeah, umm

R- does it depend on building a relationship with them

S- yeah very much, that happens a lot quicker the older they are. Some younger kids you can trust a lot sooner than others but generally it won't be until they are a little bit older, you know you've worked with them long enough that you can trust them to work on something. We also have to split groups up in different ways sometimes, so they go and work in partners or

go….sometimes if we have two coaches on a session we'll divide it up into who works well together in terms they are going to get as much done as possible, or some of the ones that are more there for the social side of things, they can be a bit more of a distraction for the kids that do want to get going a bit more.

R- why do you think you get that difference between kids at climbing, can they all get to the same level, or is it a nature, nurture kind of thing

S-sometimes you think it can be because of the differences in ability. So, some of them who end up being the more distracted or distracting ones, it'll be because maybe they are not maybe as able. Maybe that's because of their age or their background in other sports or how fit they are. Or just their experience, some may be slightly newer. You can tell if they feel like they are struggling, they do tend to… if they are struggling compared to their peers and other people in their group they do tend to shy away a little bit from challenges like 'oh I wouldn't be able to do that as good as so and so'. Or … the girls especially can be like that, or they just go for the distraction tactic

R- do you think there is a link between that physical competence and motivation

S-yeah I think there probably is. I think when they see other people do things they can't do that affects their motivation, and I think I find that sometimes with my own climbing. It's quite difficult not to compare yourself with other people, and I find that in my own life, like I've just joined a concert band and haven't played for ten years and I'm straight into music I've never played sitting there listening to everybody else, thinking I should not be here, and wasn't until the guy that I was sharing a stand with said we've been playing this for 5 years, and I was like oh right ok. So that is something to think about. Like we do try to divide the kids into similar abilities and when we get through to our award scheme that will be even easier for us. You have ability and age, but you've also got who gets on well together, so there's lots of things you have to think about when you put them in certain groups. You don't want them to feel like…some people get on better being the boss of the session and they are being the most experienced. Say they are the oldest but are now too old for the group, to put them in the next group up because of their age might make them then less motivated because they are then the least experienced

R- kind of where they see themselves in the hierarchy of the group

S- yes you can see that in some of them as well…. So many things to think about

R- it would easy if it was just motivate them like this

S- yeah but that's the idea of the award scheme, it'll be easier having similar abilities and hopefully have more similar levels of motivation

R- it'll give those partitions almost

1450

R-confidence and physical competence is the next bit, how important do you think confidence with climbing

S-interesting because you do definitely develop as you go, but do you need it to start with

R- do you think climbing is good at building confidence

S-yeah definitely, we'll have people come in, even adults on inductions who you can see are visibly nervous at the start and by the end of the session they are, well at the start of the session they just making a few steps up and they are really struggling, even some times to even get over the top of the top out boulder, and as soon as they've cracked it that's them and they will be up and down and up and down, and then coming back to you and saying what's the next most

difficult or what's the next level of difficulty I could try. So, you can see it even in the space of an hour's session with some one that's brand new.

R- what do you think it is about climbing that allows that confidence to grow

S-because its instant, I mean you get to the top and its maybe been quite physical and you've maybe been scared out of your wits, but as soon as you get to the top its instant gratification, and also because you've done it yourself, obviously if you've won a football game it feels really good but you've done it as a team, it's not just you. But I think with climbing it's like 'I've done this all on my own and I've got to the top'. Even if you are working with someone else it's like you've still got your own head to contend with I think and your own physical strength, so even if someone helps you work out the moves, maybe it would be more satisfying if just did it on your own (laughs)

R-it's very true isn't it no one else can climb the route for you, if you are top roping maybe they can try and pull

S-yeah but you would just get to the top and feel cheated

1705

R- do you think the kids can become more confident when they are with you even when they are not progressing physical competence wise

S-yeah I think so, especially that social aspect as well, we've had a couple of kids who are petrified of heights, but they still come and they still get involved with all of the warm ups, and they'll try bits and pieces on the wall, and sometimes they'll stick to the traverse wall and they'll slowly slowly get there, but they do come out their shell in terms of social confidence as well. But yeah, that's one of the things with the warm ups it's kind of not just injury prevention but its doing something different and its working on things like agility and coordination and balance and things that do apply to climbing but do apply to many other things as well, so even if they are taking it quite slow in terms of how far up the wall they're getting or how difficult a climb they can do, they're still always moving at some point

R- and do you think that these things that they develop are transferable to other aspects of life

S- yes I think so, yeah I've found quite a few times where I've found 'I'm not sure I would be strong enough to do this without climbing' and its quite a good feeling. So hopefully if you can transfer that to the kids as well, when they are at that stage, especially like the 10 to 14 they're at that stage where if they keep that up its going to set them up really well. That's the age that if you don't keep doing something physical it makes it a lot harder to get back into

R- yeah huge dropout rates when you get to that 14 plus and 16 plus age

R- do you think what you're doing with the kids and the clubs, do you think you are setting them up in some way to be active for the whole of their lives, kind of lessons that they would take all the way through

S- I would hope so.

R- would it be less the specific climbing techniques, and more may be the soft skills they're learning

S-I'm just trying to think. We do get people who go through our clubs and they've turned 14 and they can come on their own, but they don't. Or some of them do come back on a regular basis, and a few have gone and come back eventually. That kind of age from 14 seems to be that I'm independent now I can do what I want'. But we do see them again later on. Hopefully its been something they've chosen to do as well because we're not a school activity

R-it's a happy place for them

S- yeah and kind of shown them that like physical activity can be fun

R-and, the kids you are teaching, as their confidence grows how do you recognise that confidence in them

S-they get a bit more bubbly with the rest of the group, they start to help others out as well. They will come up to you and tell you what they've done, they'll come up to and ask for the next challenge, so yeah you can tell when some one's kind of picking it up and really enjoying it

R- so it's really not just that confidence to climb a route, it's that confidence in the environment, confidence to come up to you and talk to other people

S-yeah exactly, yeah with the other kids they are on the course with, full interaction with it

R-I suppose that's quite a transferable skill, being able to talk to people, and going into different environments and be confident, especially as you go through life and go to university and get jobs

S- being able to come down and go 'I did this and I'm proud of it'

R-in terms of success with the kids, what do you define success is for each child, you know they've achieved their gold star standard

S- it's really different for everyone, one of the kids we had that was really scared of heights it would be can you get to that next hold, and then some of them respond really well to doing projects and spending weeks, two or three weeks every week they come back and work on that particular climb. There's less kind of technique, its much less about learning particular techniques and being like 'wow you really learnt how to do'. It is about getting to the top or getting further and them really feeling that they've achieved something which is really different for everyone

R- do you think climbing is quite good at that, you know each individual, being able to work with each individual and their motivations and all the things they need

S- yeah I think so because it is individual, like you can have a session where you can have one kid that doesn't want to go more than two steps up but they are still making on their own terms, as much as the other kid that just wants to be able to climb the black on a really steep overhang. It can be difficult to teach a session like that, but it is possible, and um you get them supporting each other through it which is really nice to see

R-the last theme is Interacting with the environment, but we have chatted quite a lot about that. For you as a climbing coach is it purely about getting kids enthused about climbing or is it about getting kids enthused about being physically active, so if you had a kid that came for a couple of months and then went 'it's not really for but actually I really like parkour or it's given me the confidence to start doing gymnastics again or whatever, is that success

S- well actually when we've had kids drop out that parents have spoken to us and said 'oh so and so doesn't want to come back climbing its usually because they are doing another sport which is great. So they are going up to parkour, or we had getting one getting really involved in basketball, or one that used to come a long time ago, I met his mum recently and he stopped coming because he really got into swimming, and we've got a kid in the development squad, he mainly comes in the winter and in the summer he mainly does windsurfing. So, it's good to compliment their other sports, um

R- do you think the things they learn here help with other sports

S-I suppose in some ways

R- as an example I used to do a lot of taekwondo and windsurfing, and the flexibility from taekwondo was brilliant for windsurfing, so getting your feet on the board when you were in the water was a lot easier. The one sport really helped with another one.

S-I imagine the forearms as well for windsurfing transfer quite well to climbing

R- how do think climbing compares to other sports

S-I think it's quite unique in that it appeals to all sorts of people, so it can appeal to people like me that like to things at their own pace, and umm do it for fun and the social side of things. But then you've got those in the academy who are there to compete and get really good, um and I think it's quite, I don't know the community as well. So, you're probably more likely to meet someone on a competitive level. So like we have some the team GB come and climb here that anyone can meet and anyone can learn from and any one can sit and watch and look up to, and like there's such a broad spectrum of people who do it and their motivations for doing are so different, I think that's quite unique about climbing

R- ok we are done unless there is anything else you want to say

S-no that's great

END

CODING

1st CODE	2ND CODE
Climbing challenging different, overcome fears	Different /alternative sport
Introverted sport, not particularly social	Introverted against PL ideas of becoming at home in environment
PL familiar with the idea just not the name (is this PL	Is there a proper understanding of PL
MOTIVATION	
Linked to experience	Takes time-is that because of dangerous environment
Motivation is internal process; we get them on the wall build confidence in their ability	Link to key attributes of PL
Make it fun and balanced to make it an experience, then they will want to do it more	If it's fun then does everything happen automatically
Less motivated when new fear of unknown	Dangerous environment
Any sport with risk can have similar effect to climbing, non-safe environment	Dangerous environment
Its individual because their individuals	
Can't tailor make it for each kid, but the more you get to know them the more tailored the sessions can be	Doesn't happen quickly, needs time
Not motivated won't come	Affects other key attributes
What's their motivation, where does it come from	Influence of others?
Motivation can be linked to their background, whether they are sporty	Parental influence
Motivation breeds engagement	
CONFIDENCE, PHYSICAL COMPETENCE	
Confidence in their own movement or ability is important because its linked to achievement	Determinant of what success is defined as
Confidence through experience	Takes time
Success is very individual and personal	Subjective not objective
Feeling at home at climbing wall	
Mix of feeling welcome, happy, knowing what you're doing & accepting you can do it	Familiarity with environment
Allowing them to process what they're doing to gain confidence	Takes time
When they suddenly become confident can be surprising for coach	Reinforces the idea that it's a personal journey and we are different
Those with higher levels of self-confidence and competence tend to be active anyway	Transferability of skills

Coaches need to be reactive to individual levels of competence and confidence	Individual approach
All kids are different	Individual approach
It's not about the climbing really. Confidence from knowing what you're doing, understanding it and being able to repeat it	Confidence in ability maybe the environment in terms of coach
INTERACTING WITH ENVIRONMENT	
New route setting allows them to focus and reengage brain to process. If everything's the same you have higher level of physical competence but maybe lower engagement	Need to keep challenging students at whatever level to ensure progression and engagement.
Feeling they fit into an environment, through ability or acceptance	Taking time to fit in
Pushing comfort zone to develop confidence and challenge them	Developing the individual
If we can have a positive impact on their lives that all you can ask for	Transferable skills- both hard and soft
Helping people understand what they are capable of doing	Developing both soft and hard skills
People are naturally pessimistic about their ability, if you can change this outlook it opens up their mind to other possibilities	People are insecure about their own abilities- why
I don't want to make them climbers I just want to make them more rounded people	

INTERVIEW 2

1st CODE	2nd CODE
Challenging, didn't like it before, started when working at outdoor centre	Part of outdoor lifestyle
Takes people outside of comfort zone	Pushing boundaries
Encourages independence and self-belief	Personal development
Simulating fear and danger	Comfort zone (personal attitudes?)
Constant challenge of wall	Familiarity of environment
MOTIVATION	
Essential to progress/develop in life	Finding your place in society
Motivation gives them a reason	A reason to climb
Builds perseverance	Life skills
Motivation is internal	Individual reasons to participate
Motivation is contagious	Influenced by peers
Drawn to people that think the same as us	Being with likeminded people, acceptance
Motivation 'the flame' needs to be stoked by others	Reliance on social interaction for participation

If they are by themselves they are unlikely to be motivated enough to keep climbing	Intrinsic vs extrinsic motivators
Proving they can do it or improve	Proving to themselves or parents/ peers?
Students choose what to climb	Encouraging decision making, reasoning skills
Stepping outside of comfort zone.. fear of falling	Overcoming fear to succeed
Encouragement to go higher	Developing ability to expand comfort zone and ability 'window'
Success has nothing to do with climbing	Overcoming fears and preconceptions. Transferable to other parts of life
Success can be one metre or the top of the climb	Defining success is individual. Are kids really happy when they get halfway up the wall the wall and their partner reaches the top
Important to recognise an individual's ability	We are all different
It's like asking a goldfish to climb a tree	We should not be judged by the same criteria we are all different
Climbing gives them the opportunity to achieve if the put their minds to it	Coaches are in a unique position to influence students
CONFIDENCE & PHYSICAL COMPETENCE	
Confidence is transferable	Gives people the drive to pursue their dreams
Climbing can build confidence over time	As they become more at home in the environment and trusting of the coach their confidence increases
Confidence is cross platforming	Confidence positively enhance every aspect of life
Climbing routes give confidence a structure that can be seen by others and appreciated by student	Grading progression gives a quantifiable reason for increased confidence
Confidence exhibited by better movement capabilities	Confidence allows better movement (success breeds success)
Confidence increases social interaction	Once they feel confident they feel they are accepted in the environment, seen as an equal?
It's a social sport	Roped climbs need two people, trust reliance companionship
Climbers need a degree of physical ability and fitness	Not totally inclusive for overweight, disabled (can they not do it at their own level?)
Confidence comes from developing friendships with other climbers	Social acceptance within the environment
Climbers should be judged on how they climb not what they climb	The grade of climb should not be a determinant of success or ability
INTERACTING WITH THE ENVIRONMENT	
Students are reliant on other group members to be accepted within the environment	Importance of group dynamics, dependence on others
Group acceptance also importance to having the confidence to perform	Peers and environment influence the confidence to perform well
Positive group ethic	Coaches need to create right atmosphere

Unique environment in climbing	Different to other sports
Climbing can develop confidence and the ability to step outside their comfort zone	Development of social and transferable skills

INTERVIEW 3

1st CODE	2nd CODE
Diverse sport that participants are able to do at their own pace and to their own standard	More about individual than conforming to stereo types , welcoming and non-judgemental
MOTIVATION	
Not teaching as purely a means of earning money necessarily	Deeper meaning for coach, imparting their enthusiasm for climbing, connection with students
Motivation from group biggest factor	Motivation is extrinsic and dependent on others? More about social acceptance and inclusion?
Healthy competition fosters motivation & a lack of it is likely to adversely affect their active participation	Wanting to be accepted as part of the group by doing what others can do, or the norms of the group. Finding their place in the hierarchy of the group through performance
Students bring their own skills to climbing, whether strength, flexibility or technique	There isn't one skill that determines a student's ability to climb
For many kids the social aspect overshadows the climbing	Making friends, becoming at home in the environment and being accepted or popular
Success is linear, not one standardised goal for everyone, for one person it may be getting to the top, for another it may be reaching the second hold	Success is subjective and individual
Success is dependent of partner	Although you climb the wall by yourself success is influenced by partner
Height and associated fear are biggest hurdle students have to get over to realise their potential	Expansion of comfort zone opens students up to competence development
The multiple holds on a climbing wall allow coaches to break down targets into smaller manageable chunks	Very micro and macro sport in terms of progression, from one move to a complete route being deemed as success
CONFIDENCE & PHYSICAL COMPETENCE	

Competitive element (especially boys) can initially put up barriers if one is exhibiting more confidence than other	Climbing can be a leveller in new students, those with bravado may not be able to perform in line with their claims
Climbing can be a leveller, initial confidence can be misplaced	Climbing can see through those that are showing confidence to hide potential insecurities-fear
When students over come initial fear and find they can climb their confidence increases exponentially	Feeling at home in the environment and with the norms of climbing can give large confidence boosts to students
Perception of climbing, height and fear can be detrimental to initial performance	Perception of risk and consequence affect performance and social inclusion
Confidence in their ability helps them feel at home in the environment	Social inclusion aids performance
Encouraging and use of positive reinforcement helps students feel at home and perform better	Building relationships between coach and student aids performance and their feelings of belonging
Everybody starts at the same level, individual's differences work as a leveller	Everybody brings something different to their climbing experience
Being a good climber isn't just climbing hard routes, its about the outside bits as well, respect encouraging others	Being a good climber is about how you fit in and conduct yourself within the environment
Students work together to overcome personal barriers	Support from peers
INTERACTION WITH ENVIRONMENT	
Relationship building can be important to allow kids to become at home and confident in environment	Interaction with others and environment foster confidence and feelings of belonging
Can become overly reliant on a particular coach, and performance and motivation may suffer if not with that coach	May not develop independence but reliance on coach, building trusting relationship with coach and others
Younger students especially tend to become attached to a particular coach	Independence and a students relationship with the environment may be affected by age
Communication, agility and other skills from climbing are transferable. Personal success is supported by others in group	Transferable skills are both hard and soft in nature
Interaction is biggest skill they learn	Interaction with others is biggest skill, so called soft skills
Climbing's not a race allows progression at an individual pace	Subjective outcomes
It a sport that can be easily manipulated to suit the individual	Individual chooses their own level
Its about teaching children to be active	Influence their attitude towards PA

INTERVIEW 4

1ˢᵗ CODE	2ⁿᵈ CODE
Sport that includes a physical mental and technical aspect	Compound challenges
MOTIVATION	
Regular practice and participation leads to increased performance	Skills development linked to time spent practicing
Those that are committed and put more effort in reap the rewards	Commitment to sport will result in better performance
Some expect to not put the work in but still get better	Work ethic of students varies
Those that put the work in get better which motivates them to do more	Becomes almost self perpetuating more you do-better you get so more you want to do
Practice needs to have a purpose and be directed, physical to increase strength and not so for social development	Purposeful practice
Some aspects can be changed some can't in a students ability to climb	Mix of natural attributes and development attributes make a good climber
Lack of motivation can be a barrier	Lack of motivation may be linked to external factors
Different people are good at different types of climbs	Climbing allows people to pick different types of route to suit their style
Keen kids do better	Motivated by success and desire to succeed
Less motivated to climb end to be less motivated generally , not performing as well in sport or school	Motivation throughout their life, sport and school
Kids can adopt a attitude of feeling they are not good at anything	Demotivation can affect self worth of kids
Motivation is internal but can be shard and is infectious	Motivation can be about feeling a part of something
Group dynamics, everyone does what the majority does	Peer group pressure
Treating students as individuals is harder	Takes more from coach to treat students individually
Group number and length of session can impact on motivation, when coach is working with them	Practical aspects including time constraints can affect effectiveness of coach
Developing relationships with kids strengthens bond with them	Relationships contribute to motivation and feelings of belonging and confidence
If they don't want to climb I'm not very good with them	Coaches attitude impacts on students
Kids benefit from the same instructor	Feelings of belonging and familiarity
Success is biggest motivator if coaching squad	Aims of club contribute to determinants of success

Coaches personal views may influence their coaching style	Personal attitudes and experiences may flavour coaches' attitude
Even in competition you are competing against yourself	Personal challenge
Success varies depending on the child	Success is individual
Motivation is linked to feelings of progressing/developing comparing against self	Purposeful practice and improvement linked to previous successes
You don't let anyone down in climbing if you cant climb as hard as them	success is not down to comparing yourself against others, because you can only do what you can do
Climbing can be competitive or social	Each person can get out of climbing what they want, at their own terms
Different approaches for different levels	Outcome determines approach
CONFIDENCE & PHYSICAL COMPETENCE	
Confidence is key to moving well	Confidence has positive influence on performance
Confidence can be influenced through purposeful practice	Purposeful practice
Ability is restricted by lack of confidence or fear	Becoming at home in the environment is key
Confidence and physical ability match results in potential unleashed	Potential can be uncapped through confidence
Students are naturally pessimistic about their performance initially	Fear of the unknown and not knowing their own ability
Confidence from climbing is transferable to other aspects of life	Transferable skills
Would kids become more confident what ever the environment was	Is it the becoming familiar or the activity
Coaches are aware of quiet kids and work to increase their confidence	Self efficacy of coaches can influence development of students
Confidence can be about where you perceive yourself within a group	Perception of self compared to others
Making climbing fun is key to development	Fun
INTERACTION WITH THE ENVIRONMENT	
Social aspect can be as important as the increase in physical competence	More than just getting better at climbing
Its about climbing as a tool to get them active and enjoying PA	Climbing can be the seed to PA
If you try hard you generally succeed	To be successful in climbing you have to work hard, takes focus determination. transferable skill
Climbing's not for everyone, heights particular issue	Not every sport is for everyone but may provide gateway to other opportunities

INTERVIEW 5

1st CODE	2ND CODE
coach was into individual sports rather than team sports at school and uni	Climbing attracts those that do not want to be involved with traditional sports
Climbing appeals to lots of different people, those that want to compete or have fun	Inclusive
MOTIVATION	
Some come because of the challenge, to get better, have fun, some come to muck around	Mixed motivators/reasons for attending, sessions need to reflect this
Difficult to motivate mixed groups	Trying to make sessions inclusive ref: motivation
Games make it easier to get them active, especially the younger ones, also points for challenges	Make it fun
Knowing the group helps to deal with different characters	Tailored individual motivators key to unlocking potential in kids
Seeing others affects their motivation	Peers can have positive and negative affect on motivation
No one can get to the top for you	Individual achievement
They may not be motivated to attend outside of club sessions but may return to climbing later	Teaching a love of PA may not be instant but they also may come back to it later (sowing the seed)
CONFIDENCE & PHYSICAL COMPETENCE	
Can be competitive or not	You can make of it what you want to
Relationships build quicker with older children	Different age groups need different approach
Distracting students may be due to a lack of confidence in their own ability	Finding ways to build confidence in distracted students may bring them into line with others
Lots of students are visibly nervous on first session but confidence builds as soon as they experience success	Achieving links to confidence
Instant gratification with climbing	When you succeed the gratification is instant
No one can get to the top for you	Individual achievement
Transferable skills may help them stay engaged in climbing	Transferable skills
Some kids do well if they can get half way up a climb others just want to work on projects	Success is personal and individual
Drop out normally due to other sporting commitments	Even if they stop climbing its normally because they are being active in other ways
INTERACTION WITH THE ENVIRONMENT	
Connected with old school friend	Social interactions building relationships
Some come to muck around, what affect does this have on group	Social interactions can be positive and negative

If friends didn't sign up for next course it meant their friends dropped out	Peers continued attendance had a impact on the attitudes of other members of the group
Keeping the same coach for weeks	Continuity of instructional staff helps students feel at home in environment
How soon you can trust student depends on factors such as age and individual character	Individual approach needed trust is developed.
Those that attend for social side can be distracting for others	Social interaction can be constructive and destructive
Social aspect helps build confidence, and working at your level	Working at personal level towards personal goals
Confidence is exhibited in their interactions with coaches and peers	Becoming at home in the environment contribute to confidence and social interactions

INTERVIEW 1 CODE 3	
General	Quite a introverted anti social sport
Motivation	Motivation can be affected by dangerous environment and associated fear. Fun can be a motivator. Motivation is subjective to the individual. Motivation increases with confidence. Takes time because of fear. If they aren't motivated unlikely to attend. Parents influence attendance and motivation. When they are motivated they want to do more.
Confidence & competence	When they become confident in what they are doing they are more likely to achieve. Experience builds confidence. Success should be very subjective to the individual. Confidence and competence flourish when they feel at home in the environment. Takes time. Needs a individual approach from coach. Confidence is not necessarily about the climbing, but about knowing what you are doing in the environment and be able to repeat it.
Interaction with environment	Important to keep challenging students to engage them. They become at home in the environment through ability and acceptance from peers etc.

	Developing the individual by pushing comfort zone gives confidence in environment and ability. Coach can help them discover what they are capable of within the environment.
Is it about getting the kids enthused about climbing or PA	I don't want to make them climbers necessarily, I just want to make them more rounded people.

INTERVIEW 2 CODE 3	
General	It's a lifestyle. Way of pushing a person's comfort zone. Wall provides a constant challenge.
Motivation	Motivation important as a life skill. Motivation gives them a reason Internal process with individual reasoning. Intrinsic VS extrinsic motivators. Affected by peers, for good and bad. Motivation linked to social interaction for some. Can be affected when they need to step outside of comfort zone, fear factor. Motivators can be proving they can do it, parental influence or social acceptance. Links to overcoming fears and perceptions, transferable skills. Defining success is individual and subjective to each child. Its like asking a goldfish to climb a tree. Should not be judged be compared to others.
Confidence & competence	Allows people to fully develop. Transferable to other aspects of life. Confidence linked to becoming at home/happy with environment. Can enhance every aspect of life. Climbing grades give a quantifiable reason for confidence increases. Confidence is exhibited in better movement on wall. Confidence can lead to social acceptance within environment. Success should not be about what grade you can climb.
Interaction with the environment	Group dynamics can determine acceptance and social interactions.

	Confidence can be influenced by peers, both negatively and positively. Coaches need to create right atmosphere to develop students. Climbing provides a unique environment partly due to fear/perceived dangers when new.
Is it about getting the kids enthused about climbing or PA	Its about the kids, its about them.

INTERVIEW 3 CODE 3	
General	Individual sport, different non-stereo typical.
Motivation	Motivation for coaching is connection with students and developing relationships. Motivation comes from group more than within, social acceptance, friendship. Motivated by being able to do what others in the group can and fitting into the hierarchy of the group. Motivation isn't dependent on one skill acquisition, there's a variety of skills from competence to social acceptance. Social acceptance can be biggest motivator for children. Success is subjective and individual, but also influenced by partner. Pushing comfort zone, what they can do.
Confidence & competence	Initial confidence may be a smoke screen, climbing can be a leveller. Can expose insecurities. Feeling at home in environment can have big influence on confidence. Fear and perception of risk need to be overcome to perform. When students feel at home in environment performance increases. Building relationships with coach and peers aids feelings of belonging and may increase performance through confidence. Becoming accepted within culture of climbing is about respect and how you conduct yourself. Although it's a individual sport peer support is important.
Interaction with the environment	Becoming accepted assist with feeling at home in the environment and give the confidence to climb well.

	Can develop reliance on coach rather than independence. Build trusting relationships. Independence can be affected by age. Transferable skills are both hard and soft in nature. Ability to interact with others is biggest skill they develop. Climbing allows them to progress and pick their own level.
Is it about getting the kids enthused about climbing or PA	Teaching children to be active.

INTERVIEW 4 CODE 3	
General	Involves mental and physical challenges
Motivation	The more you do the better you get the more motivated you get. Commitment results in performance Reflects work ethic of students. Purposeful practice. Ability to climb can be down to nature and nurture factors. Lack of motivation can be hard to deal with as a coach. Different types of route suit different people meaning everyone can climb. Motivation links to success. Demotivation of kids can transfer from and to other parts of life. Motivation about social inclusion, peer pressure. More effort for coach to take individual approach to students. Realities can become barriers e.g. time constraints. Building relationships has positive affect on social inclusion and motivation. Coaches attitude impacts on students. Personal challenge with personal achievement. Business aims contribute to determinants of success. Coaches personal attitude may influence approach to teaching. Success is individual. Purposeful practice. Success is doing the best that you can do. Climbing can be what ever you want it to be.

Confidence & competence	Link between confidence, performance and being at home in the environment. Confidence can lead to massive potential. Fear of unknown big factor. Confidence transferable skill along with others skills. Is it the environment or activity. Coaches skill can influence student development. Group hierarchy and where kids see themselves within it are important. Should be fun.
Interaction with the environment	Social aspect as important as climbing. Climbing is tool to get them active. Many of climbing skills are transferable to rest of life. Climbing isn't for everyone, height is an issue for many.
Is it about getting the kids enthused about climbing or PA	If they realise they like sport because I taught them climbing then great.

INTERVIEW 5 CODE 3	
General	Climbing attracts those that aren't attracted to traditional sports. Climbing can be what ever you want it to be.
Motivation	Social interactions and relationships can be motivator. Motivation is personal and sessions should reflect this. Social interactions can motivate and de-motivate. Its not easy to motivate mixed groups. Should be fun. Peers support is important to attendance and attitude of group. Continuity of staff helps kids feel at home in environment quicker, as well as helps staff get to know kids and their motivators. Individual approach needed. Approach influenced by age. Social interactions can be good and disruptive. Individual motivators may help bring behaviour issues into line.
Confidence & competence	Achieving links to confidence. Even small success can increase confidence. instant gratification when you get to the top. Individual achievement.

	Working at personal level.
Interaction with the environment	Transferable skills contribute to and from other aspects of life. Teaching a love of PA may lead to them returning to it later, a delayed effect. Becoming at home in the environment links to confidence and social interactions Success is personal and individual. Leaving climbing is normally take up another sport-success!
Is it about getting the kids enthused about climbing or PA	Climbing can compliment other sports which is great.

CODE 4

<u>GENERAL</u>

Different Alternative Anti-social Lifestyle Non stereo typical	Sporting culture
Mental and physical challenge Gives fear from danger Should be fun	Challenges and rewards

<u>MOTIVATION</u>

Motivated by success	Achieving norms of group/culture
Motivated by Fitting in Others	Social acceptance
Subjective Individual Can be infectious	Internal process

Demotivation	Group dynamics
Coaches role Purposeful practice	Coaching efficacy
What is success	Definitions of success
How do coaches know	manifestations

CONFIDENCE & COMPETENCE

Comes from physical achievement Getting to the top Instant gratification	Performance orientated
Belonging in environment Building relationships with staff and peers It's not always about climbing Movement language (on and off wall) Group hierarchy	Social inclusion
Takes time Fear Pushing comfort zone	Facing fears (real & perceived)
Transferable skills	Life skills
Can expose a lack of confidence	Social immaturity
How do you know	manifestations

INTERACTION WITH ENVIRONMENT

Ability Acceptance Desire to fit in	Social acceptance
Coach can help by creating right atmosphere	Coaching efficacy
Can develop reliance on coach rather than independence	Dependency

Climbing is a tool to get them active	PA
Fear of danger	Comfort zone
How do you know when they fit in	Manifestations
Transferable skills	Life skills

CODE 5/THEMES

Sporting culture	Coaching attitudes
Challenges and rewards	Coaching attitudes
Achieving norms	Performance motivators
Social acceptance	Social inclusion/acceptance
Internal process	Coaching attitude
Group dynamics	Social inclusion/acceptance
Coaching efficacy	Coaching attitudes
Definitions of success	Coaching attitudes
Manifestations (how do coaches know students are motivated)	Coaching attitudes
Performance orientated	Performance motivators
Social inclusion	Social inclusion/acceptance
Facing fears	Facing fears
Life skills	Social inclusion/acceptance
Social immaturity	Social inclusion/acceptance
Manifestations (how do you know they are confident & confident)	Coaching attitudes
Social acceptance	Social inclusion/acceptance
Coaching efficacy	Coaching attitudes
Dependency	Social inclusion/acceptance
Physical activity	Coaching attitudes
Comfort zone	Facing fear
Manifestations (fitting in)	Social inclusion/acceptance
Life skills	Social inclusion/acceptance

APPENDIX 5

*PARTICIPANT AGREEMENT FORM GENERAL

*PARTICIPANT AGREEMENT FORM INTERVIEW

*PARTICIPANT INFORMATION SHEET

Participant Agreement Form – General Use

Full title of project: Do Indoor Climbing Walls provide a valid means of developing Physical Literacy in children attending classes there?

Name, position and contact details of researcher: John Norman, Post Graduate Researcher normanj@bournemouth.ac.uk

Name, position and contact details of supervisor: Dr Andrew Adams, aadams@bournemouth.ac.uk

Please tick the appropriate boxes	*Yes*	*No*
Taking Part:		
I have read and understood the Project Participant Information Sheet [survey]	☐	☐
I confirm that I have had the opportunity to ask questions.	☐	☐
I understand that my participation is voluntary.	☐	☐
I understand that I am free to withdraw up to the point where the data is processed and becomes anonymous, so my identity cannot be determined.	☐	☐
Should I not wish to answer any particular question(s), I am free to decline	☐	☐
I agree to take part in the project.	☐	☐
Use of the information I provide for this project only:		
I understand my personal details such as name, phone number and address will not be revealed to people outside this project.	☐	☐
I understand that my words may be quoted in publications, reports, web pages and other research outputs. Please choose one of the following two options: I would like my real name used in the above. I would **not** like my real name to be used in the above.	☐ ☐ ☐	☐
Use of the information I provide beyond this project:		
I agree for the anonymised data I provide to be archived at BU's Online Research Data Repository[1] .	☐	☐
I understand that the anonymised data I provide may be used by the research team to support other research projects in the future, including future publications, reports or presentations	☐	☐

_____   _____
_____

Name of Participant   Date   Signature

_____   _____   _____

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[1] Other Archives can be listed (if applicable).   More detail can be provided here so that decisions can be made separately about audio, video and transcripts

Name of Researcher   Date   Signature

This form should be signed and dated by all parties after the participant receives a copy of the participant information sheet and any other written information provided to the participants. A copy of the signed and dated participant agreement form should be kept with the project's main documents which must be kept in a secure location.

BU
Bournemouth
University

Participant Agreement Form - Interviews

Full title of project: Do Indoor Climbing Walls provide a valid means of developing Physical Literacy in children attending classes there?

Name, position and contact details of researcher: John Norman, Post Graduate Researcher normanj@bournemouth.ac.uk

Name, position and contact details of supervisor: Dr Andrew Adams, aadams@bournemouth.ac.uk

Please tick the appropriate boxes	*Yes*	*No*
Taking Part:		
I have read and understood the Project Participant Information Sheet [interview]	☐	☐
I confirm that I have had the opportunity to ask questions.	☐	☐
I understand that my participation is voluntary.	☐	☐
I understand that I am free to withdraw up to the point where the data are processed and become anonymous, so my identity cannot be determined.	☐	☐
Should I not wish to answer any particular question(s), I am free to decline.	☐	☐
I understand that the interview will be digitally recorded (audio) and then transcribed.	☐	☐
I agree to take part in the project.	☐	☐
Use of the information I provide for this project only:		
I understand my personal details such as name, phone number and address will not be revealed to people outside this project.	☐	☐
I understand that my words may be quoted in publications, reports, web pages and other research outputs.	☐	☐
Please choose one of the following two options:		
I would like my real name used in the above.	☐	
I would **not** like my real name to be used in the above.	☐	
Use of the information I provide beyond this project:		
I understand that the anonymised transcript from the interview will be deposited in BU's Online Research Data Repository[2] .	☐	☐
I understand that the anonymised information given in this interview may be used by the research team to support other research projects in the future, including future publications, reports or presentations	☐	☐

_____   _____

_____

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[2] Other Archives can be listed (if applicable).   More detail can be provided here so that decisions can be made separately about audio, video and transcripts

Name of Participant   Date   Signature

_____   _____

_____

Name of Researcher   Date   Signature

This form should be signed and dated by all parties after the participant receives a copy of the participant information sheet and any other written information provided to the participants. A copy of the signed and dated participant agreement form should be kept with the project's main documents which must be kept in a secure location.

Participant Information Sheet

The title of the research project

A study of Indoor climbing walls and Physical Literacy.

Invitation to take part

You are being invited to take part in a research project. Before you decide it is important for you to understand why the research is being done and what it will involve. Please take time to read the following information carefully and discuss it with others if you wish. Ask us if there is anything that is not clear or if you would like more information. Take time to decide whether or not you wish to take part.

Who is organising the research?

This research is being undertaken by John Norman, a student at Bournemouth University (BU) studying for his Masters by Research.

What is the purpose of the project?

The aim of the study is to investigate whether climbing walls are a good way of teaching Physical Literacy to children attending organised sessions at the walls. As a keen climber myself I want to see if climbing is an effective way of developing physical literacy, this is particularly relevant at the moment with the inclusion of climbing in the 2020 Olympics. The project will consist initially of an online survey, from that a number of more in depth interviews will be carried out. The research will conclude in April 2019, although participants involvement will be completed well before this.

If you are asked to be interviewed the interview should not take any longer than an hour.

What is Physical Literacy?

Physical Literacy is an approach to developing physical activity that is focussed on giving the individual the "motivation, confidence, physical competence, knowledge and understanding to value and take responsibility for engagement in physical activities for life." Rather than valuing an individual's ability to excel at one or two traditional sports compared to everyone else, as a sign of overall physical competency it promotes the idea of physical activity for life, and is based on the idea that individuals effectively create themselves as they live and interact with the

Why have I been chosen?

You have been chosen to be part of this research as a professional climbing instructor working with children. I am looking for approximately 10-12 subjects.

Do I have to take part?

It is up to you to decide whether or not to take part. If you do decide to take part, you will be given this information sheet to keep and be asked to sign a participant agreement form. You can withdraw during the survey and interview stages at any time and without giving a reason and we will remove any data collected about you from the study. Once the survey and interviews have finished you can still withdraw your data up to the point where the data has been analysed and has become anonymous, so your identity cannot be determined.

What would taking part involve?

If you decide to take part it will involve firstly an online survey, this will then be followed by an interview in some cases but not all.

What are the advantages and possible disadvantages or risks of taking part?

Whilst there are no immediate benefits for those people participating in the project, it is hoped that this work will serve to increase the profile of climbing and highlight the positive effects it can have on individuals. It will involve giving up some of your time, but it is anticipated no more than an hour and half in total.

What type of information will be sought from me, and why is the collection of this information relevant for achieving the research project's objectives?

All of the information gathered will be focussed on the instructor's opinions of what they observe and how they feel climbing affects the students they come into contact with. As this research is looking at the opinions of instructor's surveys and interviews are a good way of gaining this type of information.

Will I be recorded, and how will the recorded media be used?

The audio recordings of your activities made during this research will be used only for analysis and the transcription of the recording(s) for illustration in conference presentations and lectures. No other use will be made of them without your written permission, and no one outside the project will be allowed access to the original recordings.

How will my information be kept?

All the information we collect about you during the course of the research will be kept strictly in accordance with current Data Protection Regulations. You will not be able to be identified in any reports or publications without your specific consent. Research results will be published.

All personal data relating to this study will be held for 1 year after the award of the degree BU will hold the information we collect about you in hard copy in a secure location and on a BU password protected secure network where held electronically.

Except where it has been anonymised, we will restrict access to your personal data to those individuals who have a legitimate reason to access it for the purpose or purposes for which it is held by us. As well as BU staff and student working on the research project.

The information collected about you may be used in an anonymous form to support other research projects in the future and access to it in this form will not be restricted. It will not be possible for you to be identified from this data. Anonymised data will be added to BU's Data Repository (a central location where data is stored) and which will be publicly available.

Contact for further information

If you have any questions or would like further information, please contact:

John Norman (Post Graduate Researcher Bournemouth University) normanj@bournemouth.ac.uk

Dr Andrew Adams (supervisor) aadams@bournemouth.ac.uk

In case of complaints

Any concerns about the study should be directed to Dr Andrew Adams, if your concerns have not been answered by him you should contact Professor Michael Silk, Bournemouth University by email to researchgovernance@bournemouth.ac.uk.

Finally

If you decide to take part, you will be given a copy of the information sheet and a signed participant agreement form to keep.

Thank you for considering taking part in this research project.