The Impact of Adventure-Based Training on Team Cohesion and Psychological Skills Development in Elite Sporting Teams

by
Ian T. Boyle

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and Psychological Skills Development in Elite Sporting Teams*

THE IMPACT OF ADVENTURE-BASED TRAINING ON TEAM COHESION AND PSYCHOLOGICAL SKILLS DEVELOPMENT IN ELITE SPORTING TEAMS

A thesis submitted in partial fulfillment of the
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Ian T Boyle

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BED Sydney

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DECLARATION

I, Ian Thomas Boyle, declare that this thesis, submitted in partial fulfillment of the requirements for the award of Doctor of Education, in the Faculty of Education, University of Wollongong, is wholly my own work unless otherwise referenced or acknowledged. The document has not been submitted for qualifications at any other academic institution.

Signed

Date

Ian T Boyle

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This doctoral journey has been undoubtedly one of the toughest challenges I have had to face in my life to date. Along the way there have been many obstacles that have tested ones' resilience, however, I have been fortunate to be blessed with many people that have helped me along the way.

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To my mum and dad, thank you for supporting my dreams, you were always there offering encouragement and support every step of the way. There were also many others who contributed to this thesis process as well.

A soon to be famous Australian philosopher M. J. Searl must be thanked for imparting with what has to be one of the most necessary pieces of advice for anyone undertaking tertiary studies. Mike's advice for finishing a thesis is called "the three nail principle": You nail your chair to the floor, your bottom to the chair and your books to the table, and simply sit there until it is completed, easy! During many frustrating times, these words of guidance have helped. The second piece of philosophical advice came from Michael Gass, who instructed me in the 99% principle, which included the following words of wisdom. "99% done, is 1% incomplete, it is often that final 1% that people stumble on. This helped me maintain my focus right until the end, thanks to both of you for your philosophising.

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PREFACE

The genesis of this thesis had its beginnings back in January 1988 in a frozen ice gully know as the Junkyards in Canmore, Alberta, Canada. I was on a weekend ice-climbing instructional course, led by Bill March, the then coordinator of the outdoor pursuits program at the University of Calgary. Throughout the weekend I had progressed quickly, top roping most of the climbs that had been set up. Bill soon thought I was ready to lead my first ice-climb. I began confidently, but halfway up the ice face the distraction of the height and the sudden fear of falling had me hanging on to my ice axes for dear life. Sensing my predicament, Bill coolly and calmly solo climbed up next to me, looked across and gave his customary cheeky grin, and said, "looks like you are in a spot of bother, here let me put an ice screw in for you". He then clipped my rope into this safety device, and I was off to finish the climb.

Upon reaching the ground, we spent some time talking about how good climbers develop a confidence within themselves in order to block out the distractions of the environment; and just focus on themselves and the climbing around them.

A short time after this ice-climbing course, Bill unexpectedly passed away. He however left a legacy that has stayed with me ever since that day, that legacy was:

One's mind, if used to its full potential has the power to overcome enormous challenges and obstacles.

I have used the lessons of the 'Canmore Junkyard' continuously throughout my life since. It helped me as a high school drop out to obtain a degree in physical education, a Masters Degree, and then this Doctoral degree. During every step of this tertiary journey, I have stopped part way through and questioned whether I had what it took to finish. Through the lows that one has during these times, Bill always would find his way into my thoughts, "Come on Ian, believe in yourself, block out the doubts and focus on the job you are here to do".

The lessons from that cold February day have also helped me in my sporting career. It has taught me how important mental focus is during the heat of competition. I have used these skills to win national championships in sailing, marathon kayaking, and rogaining. It is clear to me that when all else is equal, my mind has given me the edge over opponents.

Now as a teacher, outdoor educator, sporting coach and father, Bill's legacy is being passed on to another generation through the work I do. It was a marriage of these loves; the power of the outdoor environment, sport, and a willingness to teach others as Bill had taught me, that led to this doctorate study.

Knowing personally the power of psychology in the sporting process, I was originally disheartened when I observed young athletes coming back dejected and bored after sport psychology sessions that were supposed to put fire in their bellies, and develop skills for dealing with the pressures of sport. Remedying this problem, like overcoming my own fears of ice climbing, became a passion. This thesis is the culmination of searching for ways to put this fire back in the bellies of our young athletes.

It is my hope that this work is the beginning of something special. It is my dream that all athletes and children have the opportunity to develop their mental skills so that they may get the most out of their sport and their lives. I trust that the ideas in this thesis are listened to and addressed by the wider sport psychology and adventure training movements, and that the powerful synergy between the outdoor adventure environment and sport psychology is one that is utilised by future practitioners that want to make a real difference to the lives of those they are working with.

ABSTRACT

Adventure-based training has become an effective medium for delivering experiential training programs within a variety of disciplines such as; school outdoor education, corporate teamwork development, youth at risk and psychological counseling. In addition, Meyer & Wenger (1998) and Meyer (2000) were instrumental in pioneering research in to the efficacy of adventure-based training with sporting teams. This investigation adds to the growing body of knowledge in this area by demonstrating the positive effects an adventure training intervention has on athletes ability to learn new team and psychological skills. In addition, results indicated that individual and team performance might have been enhanced because of skills learnt during the intervention.

This study examined the impact of an adventure-based training intervention on the group cohesion and psychological skills development of elite netball players. Data was gathered using both quantitative and qualitative methodologies. Many researchers are of the belief that the two methodologies compliment one another and thereby strengthen the total research model (Henderson, 1993).

Thirty-six members of state age netball teams in NSW, Australia provided informed consent to participate in the study. Participants were either members of one of two treatment groups; the NSW under 17 (n=12) or the NSW under 19 (n=12) state netball teams. A control group from a rival interstate team made up the control group (n=12).

Quantitative data measuring group cohesion was assessed by means of the group environment questionnaire (GEQ) (Carron, Brawley & Widmeyer, 1985). The GEQ was derived from a conceptual model that considers cohesion to be a multidimensional construct that includes task and social aspects, each of which reflects both an individual and a group orientation. Four subscales of cohesion are contained in the GEQ, these include: Individual attractions to the group-task (ATG-T), individual attractions to the group-social (ATG-S) group integration-task and (GI-T) group integration-social (GI-S). Using a quasi-experimental design, students were administered two pre-tests and tracked at regular intervals throughout the intervention and sporting season with two post-tests, in order to ascertain longitudinal changes in group cohesion.

In order to quantify the impact of the intervention on group cohesion, a series of 3 (group) X 4 (time) repeated-measures analyses were conducted, with treatment group and time as the independent variables. Further testing was conducted using a series of analysis of variance tests to assess differences in groups at each time-period within each sub-scale. Post hoc Bonferroni tests were used to identify where these differences occurred. Finally, the longitudinal effects of the intervention were examined using "effect size" calculations. These were calculated for each group to determine the degree and significance of any change between each testing time. In three of the four sub-scales ATG-T, ATG-S, and GI-T highly significant differences were noted between the treatment and control groups. These significant results were supported by the athletes' qualitative accounts of the intervention.

In qualitative terms, focus group and one on one phenomenological interviews were triangulated against observational and statistical data to help build a picture of the athletes' experience. In the phenomenological tradition, obtaining the athletes' perspective of the intervention was most important. With this in mind, both the outcomes and the process that led to the outcomes were documented.

A phenomenological approach to qualitative data collection was followed based on the work by Dale (1996). Knowing how the intervention impacted on the participants from their perspective, is a critical question often overlooked by researchers. Results clearly indicated how athletes' changed and developed during and after the intervention. Improved cohesion around task issues was especially evident, along with enhanced mental skills to handle the pressures of major competition. Lewin's change theory was examined to explain the learning process; modifications to this theory were suggested. Recommendations were outlined for improving sport psychology teaching practice, along with improved facilitation of adventure programming.

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INTRODUCTION

BACKGROUND AND NEED FOR THIS STUDY

Throughout the history of sporting competition, athletes have been searching for ways to gain the edge over their opponents (Orlick, 1986). With an increased amount of funding and resources being channeled into coach development, sport science and athlete preparation, success is contingent upon how well the pressures are handled on the day. Having a mental disposition to work as a cohesive unit and the ability to block out the distractions that can inhibit performance, is often the difference between opponents in the heat of competition (Williams, 1986).

While many coaches are preparing their athletes physically for competition, in some cases it has become apparent that they have neglected the importance of training athletes for the mental aspects of competition. Goldsmith (1996, p.6) states, "Sport psychology is an integral part of the sport sciences network, yet is often the most neglected of the sport sciences". As a coach working with sporting teams, I have often been alarmed at the lack of psychological preparation of our elite athletes. Worth (1995), coach of the Australian Junior Kayak Team for the 1995 World Championships observed that his team had no formal psychological skills training upon their selection for their first overseas international competition. Further to this, with Andrew Trimm and Danny Collins (Personal communication, 2000), (Australia's Sydney 2000 Silver K2 Kayak Medallists), confirmed a belief, that mental skills training is not a priority. To this end, Trim and Collins stated that, "most Australian elite paddlers don't have the skills to handle the pressures of big competition, and is one reason for our poor performances come the Olympics".

The same inadequacies have been mirrored in the junior New South Wales (NSW) Netball ranks, with whom I have conducted consulting work. Observations have identified three main weaknesses in the psychological skills training that they have received.

1. It is very elementary or introductory.

2. It is a "one-off" event.

3. The training is often just a lecture with no opportunities for athlete involvement in the learning process.

I began to question whether my successful experiences as an outdoor education teacher in helping students learn about themselves in an experiential adventure setting, would lend itself to the sport psychology teaching process. After interviewing junior elite athletes upon their return from a training camp where they participated in sport psychology lectures, a common reoccurring theme emerged; athletes were not engaged in the learning process. Comments such as: " It was so boring, it put us to sleep", "We just sat there and listened; it was just like being at school" were common.

While these responses are typical of teenagers in any learning environment when they are not actually involved in their learning, my experience as an outdoor educator had shown that learning could be challenging and exciting. Students appeared to respond better to learning opportunities when they were placed in a new and novel environment that created uncertainty and stress. Engagement was enhanced when the activities mirrored issues that were real and relevant in their lives. In an attempt to provide new challenging modes of program delivery for young athletes the impetus for this study emerged.

At this time, I was formulating views on psychological skills training based on my own experience as a competitive marathon kayaker and a keen outdoor enthusiast. Through my own personal experience in whitewater kayaking, caving, rogaining, rock climbing and mountaineering, I have found myself in many challenging situations that had taken me to the edge of my perceived ability and my self imposed comfort zone. However, when you are halfway up a mountain, or running a big river, there is no place for self-doubt. Therefore, I had to learn to focus on the task and block out the natural fears with which one is confronted when at the extreme edge of your abilities.

Many of the individual psychological skills contained in sports psychology text books, such as goal setting, positive self talk, anxiety control, imagery, activation levels, relaxation, attention control (Williams, 1996) along with all aspects of team work, are being practiced intuitively when participating in a wilderness adventure activity. It was through my involvement in adventure pursuits, (which resulted in my own personal growth and valuable lessons in mental control) that I began to formulate ideas for a possible experiential teaching method for teaching sport psychology skills to athletes.

I first put my ideas into practice, with several pilot sport psychology training programs with Australian Canoeing, and NSW Netball teams. Qualitative data collected from these teams suggested that not only did the training lead to an increased knowledge of sport psychology concepts, but that these concepts were directly transferable to the sporting arena. Interestingly, athletes claimed that the marriage of adventure-based training and sport psychology had helped their sporting performances.

In my excitement about the success of these initial programs, I sought expert opinion from the sport psychology department at The University of Wollongong, and the Sport Psychology Internet listserv, out of Temple University in the USA. Comments from several leading experts in the field were critical of my approach. They were skeptical of the concept of taking athletes into the wilderness, to teach them psychological skills for sport. Comments such as, "Athletes would never be able to transfer the learning back to their sporting situation", "Why bother taking them away from their sporting environment, it's a waste of time", were common responses. My preliminary investigations into this field were not met with the same enthusiasm that I had for my own ideas.

My initial reaction to this feedback was that I was too far off in left field and that I should perhaps attempt a more conservative research project. The work of one research team (Meyer & Wenger 1998) however, demonstrated that my ideas were not too far fetched. I felt I could add to this initial attempt to build a body of knowledge in this area of study.

This then brings me to the motivation for this study. I believe that adventure-based training (an experiential based teaching methodology), which utilises adventure-based activities, is a valid, viable and potentially powerful method for teaching sport psychology concepts to athletes. I therefore wanted to set about conducting a research project that could question this assumption and gather evidence to support or refute my beliefs. It was hoped that future athletes might benefit from their involvement in this kind of intervention.

In order to understand the theoretical framework of this study the following section gives an overview of key elements that have underpinned the adventure based training field of study.

EXPERIENTIAL EDUCATION

Adventure-based training has been built upon a solid theoretical base, with its roots traceable to the field of experiential education. Greenberg, (1978, cited in Quinsland and Van Ginkel, 1984, p. 9), suggests that, "it is critical for anyone in the position of facilitating experiential

education, to have a conceptual foundation or theory upon which to test one's ideas and to base the planning or learning activities/contexts/events/situations". This begs the question, what is experiential education?

There have been many attempts in the literature to define experiential education, Itin (2000, p.1), states that experiential education is:

> A holistic educational philosophy that recognizes the transactive process between teacher, student, subject, environment, placing equal importance on both the content to be taught and the process by which it is taught; recognising and incorporating the experiential learning process of both the teacher and student.

In laymen terms Priest (2000, p.2), affirms that all learning is experience based: "Whether we hear a lecture, watch a video, or read a book, our learning is "based" on those experiences. Unfortunately, we remember 20% of what we hear, 50% of what we see, but 80% of what we do."

Experiential learning is founded more on the "active" doing, rather than the "passive" being taught to, the latter unfortunately being the norm in modern education. In this way, people practice the very skills they are learning and are more likely to maintain their change back in life outside the experiential training program. Experience-based learning becomes "experiential" when elements of reflection, support and transfer are added to the base experience. These will be discussed in the literature review contained in chapter two.

There have been several individuals in the field of education who have been instrumental in defining and furthering experiential education philosophy. William James in the late 1800's furthered a pragmatic approach to philosophy (Donalson & Vinson, 1979). Pragmatism is based on the belief that the value of any learning experience is determined by the degree of learning that occurs from the actions and consequences of such learning experiences. The motto of the pragmatic approach states that theories, experiences and any learning only possess value if they are practical, that is, if they help an individual learn and apply new learning to everyday life (Priest and Gass, 1997).

Due to James's, place in history during the late 1800's, and a lack of profile in the educational community, it was left up to John Dewey to spell out most of the educational implications of their jointly held philosophy. This was because Dewey came on the scene later and because he was associated with one of Americas best known centres for education. (Donalson &

Vinson, 1979). Dewey is widely regarded as the father of the experiential education movement and it is his theories that form the basis for many of today's experiential programs. He believed that "experience plus reflection equals education" (Dewey, 1938, cited in Greenaway, 1991, p.16).

Dewey based his philosophy on the educational belief that when we experience something we act upon it, we do something with it, then we suffer or undergo the consequences. Dewey thought that the degree to which we connect our actions with the following, is a measure of the value of the experience. This experience had to be more than mere activity without thought. "His aim was to use experiences to change individuals by helping them reflect and become consciously aware of how actions are connected to the resulting consequences". (Knapp, 1992, p29). This emphasis on experience also led Dewey to advocate the use of a wide variety of educational settings, a thought much in keeping with experiential educators of all persuasions (Kraft, 1981).

Dewey's philosophies have been built upon since forming the foundation of today's experiential programs. Proudman (1992, p.20) outlined the essential elements of good experiential learning which include:

> The combination of direct experience that is meaningful to the student with guided reflection and analysis. It is a challenging, active, student-centred process that impels students toward opportunities for taking initiative, responsibility and decision making…….Experiential education engages the learner emotionally. Students are so immersed in the learning that they are often uninterested in separating themselves from the learning experience. It is real and they are part of it.

Simply put, participants in experiential programs learn by doing, and from direct involvement in the experience, and the consequences of this involvement. Kolb (cited in Stice, 1987) developed a model to explain how learning occurs during an experiential adventure setting (See Figure 1). He suggests adventure training can be conceived as a four-stage process.

1. *Do:* An activity is constructed to meet certain specific outcomes.
2. *Review:* The participants performance is analysed either through reflection or with the assistance of a facilitator.
3. *Learn:* The participant attempts to see where the learning fits into their lives.
4. *Apply:* The learning is applied to new situations in their lives where behaviours are changed or improved.

5

1. DO

4. APPLY

Experiential Learning Model
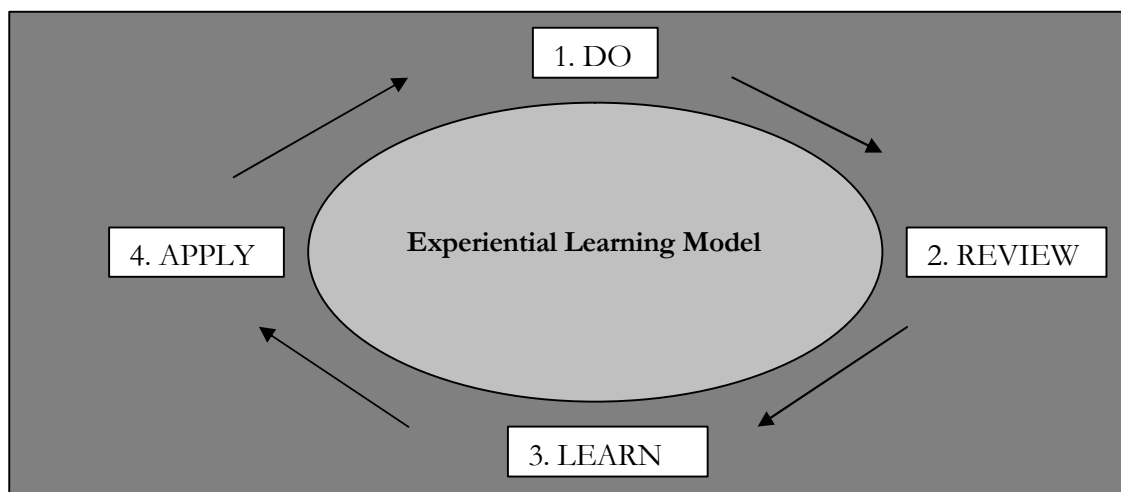
2. REVIEW

3. LEARN

Figure 1: Experiential Learning Model

This model lends itself to the active process of athletic team development, which is supported by a psychological rationale for learning. Piaget (cited in Sakofs, 1989, p.159) gave an overview of the stages of cognitive development children and adolescents progress through as they develop. These stages are:

1. Sensory Motor (Ages 0-2)

2. Pre-operationalisation (Ages 2 – 7)

3. Concrete Operationalisation (Ages 7 – 11)

4. Formal operationalisation (Ages 11 – 14)

He acknowledges that these ages may vary from culture to culture or as a function of experience.

The common thread linking the first three stages is that the learner is dependent upon concrete interactions with their environment in order to grow and learn. It is not until the later stage of formal operations, that children are capable of mentally manipulating abstract concepts in an effective manner. According to Piaget, most people attain the level of formal operations between the ages of 11 and 14 years, therefore it seems reasonable for educators to develop lessons and training based on an abstract teaching method, as this is more efficient in terms of time, money, and energy, than structuring an experiential lesson.

From my observations of sport psychology training with junior athletes, a similar approach to teaching psychological skills has followed traditional education methods. Training is often one dimensional, and thus devoid of stimulation beyond the abstract manipulations of the

mind, they require the athlete to possess the cognitive capabilities to effectively process this information. That is they must have the cognitive constructs, which Piaget defined as formal operations.

It would seem that the majority of psychological skills training presented to junior athletes is done so at the abstract level, past research however has shown that many adolescents operate below this level of functioning. Maynard (1975) indicated that nearly 85% of all middle school and 69% of senior high school students are still functioning within Piaget's stage of concrete operations. Thus, this research indicated that our methods of teaching require students to use cognitive skills, which they do not possess. The consequence of such action is that students or junior athletes are turned off and become frustrated and dissatisfied with what they are learning. This outcome would mirror my own observations of many junior athletes when they are taught sport psychology concepts in a formal lecture style presentation.

In contrast with traditional educational programs utilising formal operations, experiential programs focus on concrete experiences to foster learning. These programs are more in tune with the cognitive capabilities of the majority of students attending these classes or workshops. One form of experiential learning that focuses on concrete experience is adventure-based training. Its teaching methodology engages students fully in the learning process. The following section gives a brief overview of the adventure-based training field.

ADVENTURE BASED TRAINING

Adventure-based training has evolved utilising the philosophies of experiential education. Priest and Gass (1997, p.17) identify two main areas of focus in adventure-based training, these involve interpersonal and intrapersonal relationships. They then define the key elements in these areas:

> The process of adventure-based training involves the use of adventurous activities that provide a group or an individual with compelling tasks to accomplish. These tasks often involve group problem solving, often requiring judgment, cooperation, communication, and trust, as well as personal challenge testing competence against mental, social, or physical risks.

Itin, (2000, p.1) adds to the definition of adventure-based training where he describes how programs are designed to, "Effect a change in behaviors (both increasing function and