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Overseas Expeditions:

Self-Esteem and Transformational Leadership

Samantha J McElligott

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Acknowledgements

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Thesis Summary

The thesis is written as four chapters detailing five studies through which the impact of overseas expeditions was investigated. Study 1 (Chapter 2) examined the effects of expeditions on the multidimensional self-esteem domains of youth participants. Results demonstrated significant and positive differences in post-test self-esteem domain scores for expedition participants compared with a control group. One of the multi-source data collections (i.e., the leader team) corroborated the significant effect for general self-esteem at post-test. However, only one significant maintenance effect was found for the self-esteem domain of honesty/trustworthiness at six months follow-up. In Study 2 (Chapter 3) an existing differentiated measure of transformational leadership was amended to provide a contextually relevant measure for use in the expedition setting, that is, the Expedition-DTLI (E-DTLI). The study was divided into three phases. Phase 1 explored the factorial validity of the new measure; following confirmatory factor analysis procedures and item deletion an acceptable model fit was provided, supporting a 7-factor structure. Phase 2 confirmed the factor structure, and phase 3 explored and confirmed the predictive validity of the E-DTLI. Taken together these results provide initial evidence that the E-DTLI is a valid measure for use in the expedition context. Using the E-DTLI, Study 3 (Chapter 4) examined the impact of transformational leadership (TL) on the multidimensional self-esteem domains of youth expedition participants. Regression analyses revealed that the hypothesised TL behaviours (intellectual stimulation, individual consideration) were significant predictors of certain self-esteem domains (e.g., general self-esteem, honesty/trustworthiness). Other predictive relationships that were not

hypothesised were also evident (e.g., high performance expectations predicting general self-esteem). These results were used to inform Study 4 (Chapter 5) where a pilot TL training intervention was implemented. Results from the pilot indicated no significant difference in the experimental (intervention) group's TL behaviours at post-test in comparison to the control group's TL behaviours. However, the experimental group's TL behaviours significantly increased pre to post test. Subsequent review of Study 4 led to amendments in content and design of the intervention, resulting in the development of a full-scale intervention (Study 5). Results for Study 5 (Chapter 5) demonstrated that the TL intervention had a significant and positive impact on experimental expedition leaders' TL behaviours compared to the control group. When examining the self-esteem domains of the youth participants being led by the leaders, only the honesty/trustworthiness domain was significantly higher for the experimental leader group in comparison to the control group.

General Introduction

Evolution of expeditions

Expeditions are a unique opportunity to experience physical, mental, environmental and emotional challenges that are not common within the work, school or home domain (Hattie, Marsh, Neill, & Richards, 1997; Beames, 2005). The concept of young people learning through challenge in an expedition form, guided by adult leaders, was first evident in the Scout movement. Specifically, Robert Baden-Powell, who founded the Scouts in 1908, believed that the challenges experienced in outdoor education were the central tenet for developing physical and moral facets in young people, with expeditions as a vehicle for delivering those challenges. The Scouting organisation, therefore, has the core aim of helping young people 'reach their potential' via new experiences that stretch the mind and body (Scouts, 2014). Today, the Scouts organisation is a massive international body, annually sending thousands of young people on expeditions into unfamiliar country to engage in new experiences.

In 1932, the British Exploring Society (BES), formerly the British Schools Exploration Society, was founded on much the same principles as the Scouts, but extended the boundaries of challenging experiences and expeditions by sending expedition groups overseas. Commander Murray Levick started BES in order to take young men on 'character building' expeditions to remote parts of the world, similar to his experiences and observations during his time in the Navy. Now, BES is a youth development charity, organising hundreds of overseas expeditions for young people in the UK, with the main aim of providing 'adventure with purpose' via challenging, scientific expeditions (BES, 2014).

Following the premise of the Scouts and BES, Kurt Hahn, a German educator, opened Gordonstoun School in Scotland in 1934, based on seven key principles (e.g., giving young people the opportunity for self-discovery, allowing them to experience success and defeat, transcending one's own needs for a common goal, providing periods of silent reflection, exciting the imagination, encouraging games in moderation, and removing the immobilising influence of privilege by giving service to others) known as the 'laws of Salem'. These laws are essentially a code of ethics that aim to promote the best in young people. Hahn believed that the principles would allow young people to retain the 'decency and moral sense' he believed to be innate in all adolescents. Hahn's thinking further extended the Scout's central principle of developing potential in young people, by creating opportunities for them to gain new experiences through expeditions that focused on volunteering in local communities. Although Gordonstoun was the first school to adopt the Salem learning principles, with the focus on expeditions as the means to promote these values, in 1966 Hahn established a worldwide organisation, Round Square International, whose aim is to spread the Salem principles via participation in community work, to schools across the globe.

Concurrently, in 1941, Hahn also began the Outward Bound Trust. Primarily, the Trust focused on training merchant seamen to provide them with the necessary skills to cope with the harshness of life at sea. The educational programme that was originally developed still runs today, promoting the principles of independence and self-awareness through outdoor learning experiences, typically retaining the format of an expedition. The Trust is now also an international organisation, and much of the extant outdoor research literature is based on the examination of the Trust's

expedition programmes (cf. Beames, 2004, 2005; Marsh, Richards, & Barnes, 1986, 1986a), and the beneficial effects found in the outcomes of expedition participants.

Today there are several hundred commercial and private expedition providers in the UK, the majority of whom promote the original concept of participants 'reaching their potential' through an overseas expedition. These organisations are typically focused on recruiting secondary school age students from UK and European schools as expedition participants. One such expedition provider is Outlook Expeditions, based in North Wales; this is the company partner for the present PhD.

Outlook Expedition's ethos is to allow young people to develop transferable life skills, and offer participants the opportunity to explore unique environments, undergo diverse challenges and experience the lives of others through voluntary community work. Since its inception in 2001, Outlook has sent over 10,000 young people away overseas, each accompanied by their schoolteachers and an expedition leader employed by Outlook (collectively known as the expedition 'team'). Outlook's expeditions typically range from 10 to 31 days and teams can choose a destination from a selection of 30 countries on 5 continents. The majority of expeditions occur during the school summer vacation periods between June and August, although expeditions also run during school Easter and October half term holidays. Generally, Outlook's expeditions have a 12-18 month build-up process where teams fundraise, as well as undertake training in the use of expedition-specific equipment (e.g., tents, stoves). Student participants also take part in team building activities with their expedition leader, and have to work together to create a suitable itinerary for their team's expedition, for example; inclusion of a community project, trekking, horse riding, visits to places of historical and cultural interest, and other outdoor activities (e.g., sea kayaking, glacier walking).

The selection of the expedition leader by Outlook is essential to the success of the expeditions, as the leader is the focal point for the students and teachers while overseas, and has overall legal responsibility for the team. Consequently, Outlook uses a five-step assessment process to select suitable expedition leaders from a pool of freelance applicants. Leaders are required to hold the UK Mountain Leader (ML) Award and a 16-hour First Aid certificate as the minimum standards of qualification (the ML is a UK National Governing Body Award examining the skills required to lead hill-walking groups in mountainous environments in the UK). Leaders are matched to teams depending on their overall qualifications, professional experience, and general character.

Company Partner and KESS PhD

The current research programme originated from Outlook Expedition's CEO expressing a desire to understand the impact of expeditions on youth participants, and to find ways of enhancing the leadership of the expedition leaders, informed by high quality research. Consequently, Outlook Expeditions and Bangor University have been involved in the PhD partnership, supported by a Knowledge Economy Skills Scholarship (KESS), since 2010. KESS is a major European Convergence programme led by Bangor University on behalf of the higher education sector in Wales and benefits from European Social Funds (ESF). The KESS collaborations engage with external partners based in the Convergence area of Wales (West Wales and the Valleys). KESS has successfully run research programmes between 2009 and 2014, providing over 400 PhD and Masters places.

Outlook Expeditions, as the company partner, have demonstrated their commitment to developing a research culture by engaging in the KESS PhD. Outlook

has a vast amount of experience in the expedition field, and via the KESS partnership, the University have applied that knowledge to help Outlook improve their current training of leaders and underpin their marketing. Outlook and the University use the research to better inform their leaders and participant school about the advantages of taking part in an expedition. Moreover, the KESS partnership further promotes the culture of evidence-based research within the outdoors. Involvement with the KESS partnership has provided a research opportunity for Outlook to develop themselves as a market leader and an authority on overseas expeditions. KESS research partnerships emphasise the collaborative nature of the relationship, ensuring that the needs and operational parameters are taken into account at each stage of research planning.

Company partner requirements and study design

Collaboration with Outlook Expeditions resulted in specific aims that would fulfil the needs of the company. The main focus of this lay within the choices made for each of the study designs. In essence, there are four main approaches to research methodology: qualitative methods, laboratory experiments, quantitative/experimental studies, and field studies. Qualitative methods seek to explore ideas, usually by interview or discussion. This method accounts for how humans interpret the world, and considers ‘thoughts, values, attitudes and perceptions’ (Palys, 1997:14), and emphasises the process by which humans make sense of their experiences. Alternatively, quantitative methods begin with theory, with hypotheses constructed to examine and test cause and effect relationships. Quantitative means also allow for precise statistical analysis and significance testing of hypotheses. Laboratory experiments typically utilise small numbers of participants, but are often preferred for their scientific rigour (i.e., the environment can be heavily controlled by the

researcher, thus negating other potential variables that may affect the test). By comparison, field studies, such as those carried out in the present thesis, are subject to many uncontrollable variables. For example, the expedition environment is replete with examples of uncontrollable variables, that can manifest daily, such as influences of other people; the changing and challenging environment; extreme weather; language barriers; variety of activity; longevity of exposure to the host environment (i.e., fatigue), and health issues.

Outlook were specific in their request for examination and measurement of self-esteem within the context of the participants on expedition, and also of providing a training intervention to the maximum number of leaders as possible. This meant that qualitative methods and laboratory based examinations of self-esteem, or indeed transformational leadership, would not have been sufficient for their needs. As such, despite the complex logistics and potential for limitations in the designs, larger scale field studies were carried out. It is of note that the decision to select such designs was not taken lightly, and that the partnership had to remain a key consideration in the research.

Expedition research

Research demonstrates that expeditions have a beneficial effect on a wide range of participants' outcomes. For example, in a meta-analysis of 96 studies exploring Outward Bound expeditions, Hattie et al. (1997) identified 40 beneficial outcomes of the Outward Bound expeditions. These were divided into six categories: academic (e.g., maths and reading capability), leadership (e.g., conscientiousness and decision making), self-concept (e.g., peer relations, confidence and self-efficacy, including self-control), personality (e.g., achievement motivation, emotional stability

and locus of control), interpersonal (e.g., cooperation, recidivism and social competence), and 'adventuresomeness' (e.g., response to challenge and physical fitness). Further, they found that expeditions had a greater impact on self-esteem (*B* = .26) than other educational programmes, that is to say, those delivered in a classroom (*B* = .19). They also found that expeditions that were longer in duration (20 days or more) had the greatest effects (*B* = .51), while shorter programmes still demonstrated noteworthy effects (*B* = .26). Walsh and Golins (In Raynolds, Lodato, Gordon, Blair-Smith, Welsh & Gerzon, 2007) deconstructed the Outward Bound process into key principles to explore how beneficial effects of expeditions and outdoor experiences may be underpinned. To expand, they found that the key facets were: having a unique physical and social environment; providing problem-solving tasks and challenges; stimulating coping strategies (or not) from stress caused by the challenges; and encouraging competency from repeated exposure to challenge, all while being facilitated by an adult. Walsh and Golins stated that these tenets lead to the participant "expanding capacity and developing character" (Raynolds et al., 2007: p. 27). Based on this research, the key elements discovered are the standard today for how the Outward Bound process is structured. Overall, the expedition literature repeatedly demonstrates the positive effects of expeditions on participants, on a wide range of outcomes. The founding principles of the Scout movement, and individuals such as Hahn and Levick would appear to be well founded in that expeditions can help young people to 'reach their potential'.

Limitations to the expedition research

Although the expedition literature base is extensive, and generally appears to corroborate the underpinning premise that expeditions and outdoor education in

general can benefit participants, the research has received some criticism. This is mostly owing to the lack of evidence-based research, and weaknesses in study design, such as having few studies examining longitudinal effects, or the lack of a control group, or not using multi source reports. The present thesis, therefore, aims to address some of these limitations, extending the literature base with a quantitative examination of the effects of expeditions.

In addition to study design issues, there have been only a limited number of studies examining specific outcomes of expeditions: for example, self-esteem (Marsh et al., 1986, 1986a), locus of control (Hans, 2000), recidivism (Wilson & Lipsey, 2000), and self-control (Bartunek, 2004). While the qualitative and anecdotal expedition literature abounds, there are still only a limited number of theoretically underpinned peer-reviewed empirical studies. This, however, offers potential for future researchers to explore important outcomes that may be affected by expeditions. Indeed, it is apparent that self-esteem and transferable life skills such as leadership and teamwork are among the most frequently cited outcomes that may be enhanced by expeditions; so any one of these variables could be a prudent avenue of research in this context. Not only is self-esteem important in an expedition setting, it has huge implications in terms of the construction of the self (Lox, 2003; Marsh, 1990; Rosenberg, Schooler, Schoenberg, & Rosenberg, 1995). In order to raise self-esteem levels, it is typical that some type of experience of an intervention is necessary, for example, in Marsh et al. (1986) the expedition was the significant and intervening factor in elevating self-esteem domain levels. While Marsh et al. did indeed examine the expedition effects of a multidimensional conceptualisation of self-esteem; their study raises questions about how their results at different time points were interpreted (i.e., the follow-up data was described as having ‘no decline’ from pre-test scores,

although it was not a significant result), thus warranting further investigation. Owing to the nature of expeditions as an ideal environment for potential change in participants (which is mostly due to overcoming challenges and processing these achievements) it would seem that a quantitative exploration of self-esteem domains in the expedition context would be an extension to the literature base.

While the expedition literature has recurrently expounded the benefits of participating in an expedition, there has been little empirical examination of the underpinning mechanisms of these benefits (McKenzie, 2000). Walsh and Golins' (in Raynolds et al., 2007) state that effective leadership and facilitation from a trained adult leader underpin the five key principles of the Outward Bound process. Kayes (2004) proposed that it was leadership, or rather, the lack of effective leadership, that led to the tragic events of the 1996 Everest expeditions. It is reasonable to suggest, then, that effective leadership would be one of the underpinning mechanisms of the positive elements of expeditions. Moreover, leadership is often cited within the outdoor literature as a key determinant of expedition success (Behrendt, 1998; Palinkas, Gunderson, Holland, Miller, & Johnson, 2000; Palinkas & Suedfeld, 2008; Schmidt, Wood, & Lugg, 2004). Indeed, the expedition context may lend itself to be more affected by leadership than other settings because the leader is in close proximity of the followers for extended periods of time. For these youth groups, the expedition leader not only has higher duty of care to be responsible for their safety and well-being, but also a further purpose of facilitating the personal development of the participants while overseas. Further, it is part of the leader's role to review experiences with the followers, in order to maximise opportunities for personal growth and enhanced understanding of those experiences.

Leadership: conceptualisation and measurement

The present thesis focuses on examining leadership as one of the key mechanisms underpinning the beneficial effects of expeditions, however, the expedition literature does not appear to explicitly demonstrate application of any leadership theories. Indeed, although some of the extant expedition literature proposes leadership as an important principle of the expedition process (Martin, Cashel, Wagstaff, & Breunig, 2006; Raynolds et al., 2000), and, as stated above, key to the overall success of an expedition (Behrendt, 1998; Palinkas, Gunderson, Holland, Miller, & Johnson, 2000; Palinkas & Suedfeld, 2008; Schmidt, Wood, & Lugg, 2004), the literature does not examine the application of leadership that is underpinned by theory. Arguably, for the purposes of examining the effectiveness of a specific model, or indeed to develop a training intervention, it is first necessary to have a leadership framework in place; otherwise there would be no theoretical underpinning to the measured variable. In fact, the aforementioned literature either examines leadership as a set of functions (i.e., in Martin et al., 2006 and Raynolds et al., 2000, they do not stipulate a specific model, but explain that a variety of models exist from which the leader uses situational cues/experience to select an appropriate style), or leadership is examined as a case study (e.g., the specific behaviours and actions/inactions of a single leader, as per Kayes, 2004).

Although it may be inferred that there are no theoretical frameworks of leadership used in the outdoors, there is some evidence of researchers beginning to examine the components of effective leadership in earlier literature, which was later built on to explore preliminary theoretical frameworks for the outdoor context. Priest (1987, as cited in Priest & Gass, 1997) conducted a meta-analysis, with evidence gathered using a deductive approach, on six published studies examining specific

components of effective outdoor leadership. While Priest's meta-analysis elicited twelve core competencies of an effective outdoor leader, the competencies did not come from theory, and were not conceptualised as a definitive and measurable model of leadership. To date, no measure for these competencies has been generated. This meta-analysis was the basis of many leadership programmes in the outdoor and expedition context, even though it was not evidenced as a theoretically sound model in itself (Brymer, 2006). Brymer further stated that although the twelve competencies may well represent effective leadership, the lack of testing of the competencies as a distinct leadership model gives no definitive statement as to their most successful combination. Further, the competencies themselves do not address the issue of context for leaders. That is to say, that depending on the situation, the leader may have to adopt a different style of leadership to most effectively deal with a given scenario (Priest & Gass, 1997), for example, opting for a more autocratic approach in cases where safety may be an issue. To this end, Priest and Chase (1989) designed the Conditional Outdoor Leadership Theory (COLT), which pays heed to the contextual nuances that a leader must face, and gives guidelines for selecting the most appropriate style of leadership (autocratic, democratic or abdicratic) in any given situation. The theory itself is reliant on incorporating Priest's (1987) twelve competencies, and demonstrated a move towards using theory to underpin leadership development in the outdoors. While this use of a theoretically based model was a progression in the literature, and offered a useful framework for applying situational guidance, COLT does not test a conceptualisation of effective leadership behaviours or competencies, and thus, cannot be used as a basis for measuring leader effectiveness. Brymer (2006) proposed that transformational leadership might be a pertinent model for examining leadership effectiveness in the outdoor context, given

the need in this setting to focus on more than just a leader's skills (as per the twelve competencies), or the selection of style of leadership in a given situation. In point of fact, the relevance of transformational leadership may be attributable to its focusing on eliciting higher performance levels from followers, using emotional appeals (Bass, 1985), over and above completion of tasks and contextual influences.

It may be argued, however, that there are many other leadership theories that might also be pertinent to outdoor and expedition leadership, for example; trait based approaches that explore which characteristics may be shared by effective leaders (e.g., Kouzes & Posner, 1987), contingency based models examining the changing role of the leader's and follower's responsibilities (e.g., Tannenbaum & Schmidt, 1958), functional theories that look at the relationship between group, leader and task, and the inherent behaviours that result in group success and cohesion (e.g., Adair, 1973), and behavioural based concepts that balance the leader's concern for followers, and the leader's concern for the task (e.g., Blake, Mouton, & Alvin 1962). For the present thesis, it was deemed possible to focus on only one theory, if a thorough examination was to be carried out. Traditionally, the basis of expedition leadership has focused on the teaching of core (hard) skills (e.g., camp craft, or navigation) and facilitation of experiences for the participants, which encourages the participants to learn experientially (Martin et al., 2006). A relevant leadership theory for the expedition context, then, may be Tannenbaum and Schmidts' (1958) leadership continuum. The continuum explains the relationship of authority between the leader (they used the term 'manager') and followers. At the outset, the leader has complete responsibility for everything, but over time, as competencies and learning opportunities arise, the leader can give the followers greater freedom, and gradually handover authority until the followers have full responsibility. While this is inarguably typical of how an

expedition (ideally) evolves, it does not explain the behaviours intrinsic to allowing this continuum to take place. As part of the KESS partnership, the company partner requested that a leader training intervention be developed, which would focus on modifying expedition leaders' specific behaviours, and thus, it was necessary to examine a model of leadership that would allow for focus on behaviours that were relevant to effective expedition leadership, and not a more general 'approach' to leadership. Further, for the purpose of the present thesis a more detailed conceptualisation of facilitative and supportive leadership behaviours, which would underpin such theories as the leadership continuum, was required. For this, transformational leadership theory (Bass, 1985), as first suggested by Brymer (2006), was considered for use, particularly considering its extensive evidence base demonstrating the positive effects on performance outcomes across cultures and contexts (Avolio, Reichard, Hannah, Walumbwa, & Chan, 2009). Transformational leadership is one of the most widely examined theories in leadership research, and has a very strong evidence base underpinning its key principles, and Brymer (2006) stated that it was surprising that such a model had not previously been considered for use in outdoor/expedition research. Further, transformational leadership emphasises inspiring followers to achieve beyond their expectations, and to develop a relationship that is based on the leader engendering a deeper rapport with followers. The emotional elements of a leader's behaviours (e.g., accounting for the followers' individual needs, or encouraging them to solve their own problems) are unique to transformational leadership (Bass, 1990). Consequently, transformational leadership was deemed to be the best possible model of leadership to use in the expedition context owing to its principles of using emotional appeals, fostering a solid rapport with followers, and encouraging followers to perform beyond expectations. Moreover,

following the propositions of Brymer (2006), Brymer and Gray (2010) used the MLQ (Avolio & Bass, 1995) to examine whether the transactional-transformational leadership model (Barling, Weber & Kelloway, 1996) may reflect the behaviours used by leaders in the outdoor and expedition setting. They found that the model was indeed reflective of the type of behaviours inherent in outdoor leadership, particularly when compared to a sample from 'the general population', and in terms of exhibiting behaviours demonstrating both a desire to develop others and the ability to inspire and motivate. The study, however, did not test the significance of the population differences, nor did it train leaders in the behaviours implicit in the model. The focus of the research was simply to identify if the transactional-transformational model was a sound theory when considering outdoor and expedition leadership. It is apparent, however, that no research has since been carried out to look at the modification of leaders' behaviours, or indeed to use more recent evolutions of transformational leadership, which focus less on the transactional components, and also incorporate a differentiated structure, allowing training of specific behaviours to occur (e.g., Hardy et al., 2010; Podaskoff, MacKenzie, Moorman & Fetter, 1990). Despite the strong support for the effectiveness of transformational leadership, there is no agreement as to how it should be conceptualised and measured. Indeed, the research literature divides into those researchers who utilise a global model (or indeed a reduced set of factors), or a differentiated model. For example, the MLQ-5X (Bass & Avolio, 1990, 1995, 2000) measure collapses the separate transformational leader behaviours into a single global construct. Therefore, if researchers are concerned with analysing the differential effects of the transformational leadership behaviours, then the MLQ-5X is not sufficient for this aim, and a differentiated model, such as the Transformational Leadership Inventory (TLI: Podaskoff et al., 1990) would be more suitable. It may be

seen then, that the argument for using either a global or a differentiated conceptualisation depends largely on the intention of the researcher. For example, Podsakoff et al. (1990) argued that exploration of the sub-domains of transformational leadership using a differentiated model was necessary to examine the effect of each of the behaviours on the follower, not simply an overall perception of the leader. To this end, understanding which behaviours have the strongest relationships with a selected variable can allow for the targeting and modification of those specific behaviours. For example, Hardy et al. (2010) used their adaptation of the TLI (with conceptual inclusions from the MLQ-5X), known as the Differentiated Transformational Leadership Inventory (DTLI), to inform the selection of specific behaviours for a transformational leadership training intervention given to military recruits. A global model would not target specific behaviours, and would simply aim to elevate leadership levels in general. While any attempt to make improvements in transformational leadership behaviours whether global or specific, is praiseworthy, examining the differential effects of the behaviours creates the opportunity for only the most important predictive behaviours, or those with lower mean scores, to be selected for an intervention. To date, only seven published studies (Antonakis et al., 2011; Arthur & Hardy, 2014; Barling et al., 1996; Beauchamp, Barling, & Morton, 2011; Dvir et al., 2002; Hardy et al., 2010; Vella, Oades, & Crowe, 2013) have used a field-based experimental design, with Hardy and Arthur (2014) being a quasi-experimental study. These studies offer initial evidence for the effectiveness of transformational leadership intervention training programmes, but further research is required to provide more detailed evidence of the impact of transformational leadership on a wider range of variables across different contexts. As part of the KESS partnership with Outlook Expeditions, therefore, one aim of the research

programme was to design a training intervention for expedition leaders. In this regard, it was a pre-requisite that the transformational leadership model selected should allow for examination of the separate behaviours so that relationships and predictive ability could be assessed, and used to inform the intervention. The present thesis, therefore, adopts a differentiated model of transformational leadership, adapted from extant research.

Conceptual underpinnings to observed relationships

The nature of relationships between psychological variables is often complex and can be challenging to isolate. For example, social cognitive theory postulates that a complex set of personal, environmental, and behavioural factors interact as part of a reciprocal casual network to determine attitudinal and behavioural consequences (Bandura, 1986). Therefore, the environment in which the relationships are being examined in (e.g., expedition context) and current levels of the psychological variables of interest (e.g., current levels of self-esteem) may play a role in determining the nature of specific relationships. The precise role that these other factors might play can be conceptualised to fall under either mediational paradigms or moderational paradigms. An example of a moderational paradigm is that supportive leader behaviours may have a greater impact on self-esteem in an expedition context than say in a sport context because the expedition environment maybe more challenging and thus requires more support from the leader. In other words, the expedition environment would be said to moderate the relationship between supportive leadership and self-esteem. Alternatively, a mediational paradigm might be that transformational leadership positively impacts self-esteem because it makes followers feel valued. In this case feeling valued would be an underlying mechanism by which

transformational leadership impacts self-esteem. Being cognoscente of the environment and potential underlying mechanisms would seem prudent within the current research. However, the basic relationships have yet to be examined in an expedition context; therefore the main focus of the current research programme is to establish basic relationship. This will serve as the foundation for future research whereby the more complex moderation and mediation type questions can be explored.

Further, the manifestation of transformational leadership behaviours during an expedition may depend on the needs of the group and their varying tasks, that is to say that the expedition leader may exhibit each of the behaviours unequally, depending on the needs of his/her team at any given time. For example, if the team is struggling to work together on a specific task, the leader may need to demonstrate more of the group-focused behaviours (fostering acceptance of group goals, and inspirational motivation) as opposed to an occasion when the leader is giving a one-to-one review with an individual member, when they may be more inclined to demonstrate individual consideration and contingent reward, as these focus on the individual, and offer praise for actions taken. It may be seen then, that the relationships examined with the current research program are complex, and may change depending on levels and or presence of other potential moderating factors.

Summary and thesis structure

The current thesis, therefore, aims to do the following 1) review the limitations in the outdoor literature 2) address some of these research shortcomings to extend the literature 3) develop a contextually relevant measure of transformational leadership for the expedition setting 4) examine the effect of a differentiated model of transformational leadership on outcomes; and 5) design, implement, and assess a

leadership training intervention. In order to meet these objectives, the thesis will first quantitatively explore the longitudinal effects of overseas expeditions on participants' self-esteem. This study will advance the extant expedition literature by including a non-expedition control group and self-report and other-report data. Second, the thesis will develop a contextually relevant differentiated measure of transformational leadership, testing its factorial and predictive validity over three different samples. Third, the relationship between leadership behaviours and the expedition participants' self-esteem domains will be examined. Finally, the thesis will report on the effectiveness of a pilot transformational leadership training intervention, leading to a full-scale intervention designed to modify expedition leaders' transformational behaviours, for use as a future training programme by Outlook Expeditions.

It is the intention of the present thesis, therefore, to conduct evidence-based, quantitative research to examine the expedition context with a view to its effects on a specific outcome: self-esteem. The company partner was consulted, along with a request for information from six other expedition providers (World Challenge, Adventure Lifesigns, True Adventure, Wilderness Expertise, Outward Bound, and Schools Worldwide) to explore what they perceived to be the five main outcomes of an expedition. Outlook Expeditions, Adventure Lifesigns, True Adventure, and Wilderness Expertise responded with their 'top five'; of which, self-esteem was always given pole position. Further, during Outlook's recruitment process, expedition leaders and teachers going on expedition were asked to give their 'top five' outcomes of an expedition. Six groups were involved in the process, and each returned self-esteem as one of their five outcomes. Preliminary literature reviews of nineteen expedition-related publications were used to judge the frequency of self-esteem as an examined variable. Self-esteem was chosen as either the sole focus of the

examination, or indeed one of a number of variables impacted by expeditions a total of ten times (Grocott & Hunter, 2009; Hans, 2000; Hattie et al., 1997; Paxton & McAvoy, 2000; Propst & Koesler, 1998; Watts, Webster, Morley & Cohen, 1992; Watts, Apps & East, 1993; Watts, Cohen & Toplis, 1994; Wilson & Lipsey, 2000), only superseded by leadership (thirteen). It is of note, however, that the focus group and expedition providers' data consistently rated self-esteem above leadership, and two of the focus groups did not note leadership in their 'top five'. Moreover, self-esteem was deemed to be a sufficiently important enough psychological construct to justify further investigation in the expedition context, given the close relationship of self-esteem to psychological well-being (Hagger, Biddle & Wang, 2005; Marsh, 1989), and its relationship with other important variables, such as academic ability (Marsh, 1990) and life satisfaction (Wu, Tsai and Chen, 2008). Self-esteem has received relatively little specific examination in the literature (the notable exceptions being Marsh et al., 1986, 1986a, and Grocott & Hunter, 2009), and although Hattie et al.'s (1997) meta-analysis refers to the repeated appearance in the expedition literature of self-esteem, it has been simply explored as one of a number variables in the studies reported, and this has not provided full and satisfactory examination of such a complex and multidimensional construct. Given the relationship of self-esteem to life satisfaction (among other critical variables), which is arguably fundamental to a person's well-being, it is surprising that the expedition literature has not investigated the construct further. In addition, the partner company theorised that expeditions were an ideal environment for observing a positive impact on participants' self-esteem, and thus, stated that they wished to examine self-esteem as the dependent variable in the research.

The highlighted limitations in outdoor and expedition studies allow researchers sufficient opportunities to address potential weaknesses and lack of more detailed examination of self-esteem in their future studies and thus extend the current literature base. As a potential mechanism underpinning change in participants' outcomes, leadership will be the focus for examination in the present thesis. Specific attention will be paid to transformational leadership, which is a pertinent model of leadership for the expedition context, owing to its follower-centred nature.

The current thesis, therefore, summarises the effects of expeditions on participants' self-esteem domains, and examines the impact of transformational leadership in the expedition setting. Further, the thesis also details the findings of two training interventions to identify if transformational leadership behaviours may be modified. The thesis is divided into 4 chapters as follows:

Chapter 2 reviews the extant outdoor literature, and examines areas of weakness that need to be addressed so as to extend the current research base. The chapter explores the effect of expeditions on youth participants' self-esteem domains using quantitative methods, including analysis of a follow-up data collection, and employment a control group and other source reports for comparative data and triangulation of results.

Chapter 3 details the history of the conceptualisation and measurement of transformational leadership, including a summary of the model of transformational leadership on which the new expedition measure is based. The chapter explains the development of a contextually relevant, differentiated measure of transformational leadership for expeditions over three data collections, examining factorial and predictive validity.

Chapter 4 reviews the current literature on the predictive ability of the transformational leadership behaviours in other contexts, and investigates which behaviours may be most relevant for targeting in a transformational leadership training intervention. The chapter specifies the expedition context, and examines the relationships between transformational leadership and participants' self-esteem domains, and the impact of the differentiated behaviours on each of these domains.

Chapter 5 reviews interventions from the transformational leadership literature and other contexts. The chapter details recommendations of best practice for interventions from a broad selection of literature, paying attention to guidance on robust intervention design and development, for example creating a pilot study, and employing a control group for comparisons with the experimental group. The chapter investigates the effectiveness of a pilot, and full-scale transformational leadership training intervention to modify the leader behaviours.

In addition to the research chapters, the thesis will also present a general discussion, reviewing the four study chapters in turn, considering the main findings of each study, and providing discussion of their theoretical and conceptual points of interest, and their relevance to the overarching research question and the aims and requisites of the KESS partnership. The general discussion will also explore the role of the current research within the expedition and transformational leadership literature base, including any strengths and limitations to the studies. Further, the general discussion will examine relevant questions for future research directions in the subject area.

Data collection and participants

Given the nature of a KESS research programme, the research institution is obliged to give due consideration for the company partner's requirements and also their routine operations when carrying out the research. To this end, it was necessary to organise the data collections for the current research programme around the scheduling of Outlook's expeditions and the associated 12-18th month expedition build-up process. This resulted in an annual data collection over three consecutive years, during the summer months of 2011, 2012 and 2013. Thus, three data collections occurred, with a total of 2573 young people, 341 expedition leaders, and 54 parents providing data for the studies.

The data was then utilised in the chapters to represent the respective themes of the research (the effects of expeditions on self-esteem domains, the development of a measure, the impact of transformational leadership on self-esteem, and transformational leadership training interventions) rather than the year the data was collected. For example, some of the participant data on self-esteem domain scores and transformational leadership scores from 2011 (used primarily in chapter 2) is also used in other chapters. To expand, in chapter 3, many of the 496 young people who provided self-esteem pre-test data also completed the E-DTLI mid-test (as well as young people who did not complete the pre-test, thus giving a total of 654 subjects), and their data was used as part of the factorial validation of the leadership measure. In chapter 4, the same young people from 2011 had pre- (n = 496) and post-test (n = 403) self-esteem domains data, and mid-test E-DTLI data (n = 654) used as part of the regression analyses. In chapter 5, 91 of these young people from 2011 also had their E-DTLI data used as a pre-test score for the 11 expedition leaders participating in the pilot training intervention.

The thesis is not intended to appear as though using unique data sets for each study. The table below represents how the data and participants have been used within the thesis.

Table of Participants' data across all studies

Year of data collection	**Participants**	**Measures collected (and time point)**	**Sample used in**
2011	Student participants	Self-esteem pre-test	Chapter 2
		Self-esteem post-test	
		Self-esteem 6 month follow up	
		Transformational leadership scores of their expedition leaders (collected mid-test)	Chapter 3 - for measurement development. Chapter 4 - impact of transformational leadership. Chapter 5 - for the comparison of leader scores during pilot intervention.
	Parents	Online pre-test	Chapter 2
		Online post-test	
	Leader teams (Teachers and expedition leaders combined)	1 x Self-esteem item pre-test	
		1 x Self-esteem item post-test	
2012	Student participants	Teamwork pre-test	Chapter 3
		Teamwork post-test	
		Transformational leadership scores of their expedition leaders (collected mid-test)	Chapter 3 - for measurement development. Chapter 5 - for the comparison of leader scores in the 2nd intervention.
2013	Student participants	Self-esteem pre-test	Chapter 5
		Self-esteem post-test	
		Transformational leadership scores of their expedition leaders (collected mid-test)	Chapter 3 - for measurement development. Chapter 5 - for the comparison of leader scores in the 2nd intervention.
	Control school students	Self-esteem pre-test	Chapter 2
		Self-esteem post-test	

Key
Chapter 2: The effects of expeditions; Chapter 3: Transformational leadership measurement development; Chapter 4: The impact of transformational leadership; Chapter 5: Interventions

Chapter 2

The impact of expeditions on the multidimensional self-esteem domains of youth participants

Abstract

The present study examined the effects of expeditions on the multidimensional self-esteem domains of young people, using the Self-Description Questionnaire III (Marsh & O'Neill, 1984). A quasi-experiment was conducted whereby an expedition group and non-expedition control group were identified. Results demonstrated that (i) there were significant increases at post-test for six of the eight selected self-esteem domains for the experimental group (n = 304); (ii) there was only one domain that demonstrated a significant maintenance effects at 6 months post-expedition (n = 85); (iii) the expedition group had significantly higher post-test self-esteem domain mean scores than the control group (control group n = 59, thus a random selection of 59 of the 304 expedition participants was used as the control group sample) for three of the eight tested self-esteem domains (general self-esteem, parental relations and same sex peer relations), while the control group had significantly higher post-test mean scores for the domain of emotional stability; and (iv) other source data from the leader teams (expedition leaders and teachers: n = 287) revealed a significant difference between pre and post-test general self-esteem scores, while other source data from parents (n = 54) were not significant. In conclusion, there is evidence to support the concept that expeditions have a positive impact on self-esteem domains of expedition participants, over and above non-participants, which is corroborated by other source data from expedition leaders and teachers.

Introduction

The outdoor research literature highlights that expeditions can be valuable for young people. Indeed, in a meta-analysis of 96 studies exploring Outward Bound expeditions, Hattie et al. (1997) identified 40 beneficial outcomes including; positive effects on leadership, time management, independence, emotional stability and social competence. More recently, meta-analyses on specific outcomes have demonstrated positive effects of expeditions on locus of control (Hans, 2000), recidivism (Wilson & Lipsey, 2000), and self-control (Bartunek, 2004).

Despite this wealth of literature, the research has been criticised for a variety of reasons. First, relatively few longitudinal studies have been conducted (with the notable exceptions of Grocott & Hunter, 2009; Marsh, Richards, & Barnes, 1986, 1986a; Stott, Allison, Felter, & Beames, 2013; Wright, 1996). Longitudinal examination of the effects of expeditions on participants' outcomes is required to investigate whether there are long-term sustained effects of expeditions. Second, control groups are rarely employed in the literature, which makes it difficult to determine the actual impact of an expedition, as opposed to the impact of other factors, such as maturation or seasonal effects, as there are no comparisons to non-expedition participants. In one of the few extant longitudinal studies, Wright (1996) found sustained effects of global self-concept thirteen years after a nine-week mountaineering expedition. The study, however, did not employ a control group; consequently the observed results may need cautious interpretation, as they may have been due simply to maturation effects.

Third, the majority of expedition studies have relied on single-source self-report measures. The issue of single-source data generates considerable debate in the personality and applied psychology literature regarding its validity (e.g., Mount,

Barrick, & Strauss, 1994; Oh & Berry, 2009; Oh, Wang, & Mount, 2011; Vazire, 2006). Specifically, Vazire (2006) states that while self-report measures offer an internal view of the person, other source reports allow external observation, and can be aggregated across observers to obtain a more reliable assessment of constructs such as personality. Indeed, Oh and Berry (2009) found that the validity of the Five Factor Model of Personality increased by 50-74% when including other source ratings. The problems associated with self-report measures have been highlighted in the expedition context. For example, Stott and Hall (2003) state there is potential for "erroneous interpretations of changes" (p.165) to each item depending on an individual's mood, their personal interpretation (or potential 'misinterpretation') of the meaning of an item and their experience (e.g., as their experience grows during an expedition, they may rate themselves lower in some attributes/variables than at the beginning, given their growth in knowledge in a particular area, for example, pitching a tent). Many outdoor related qualitative studies do employ other source reports in terms of interviews or feedback given by instructors or leaders. The extant quantitative studies, however, tend to rely on using single source measures, typically in the format of self-report.

Fourth, while there are strengths to both qualitative and quantitative designs, there are limitations, too. For example, the expedition quantitative research may tend towards using only single report data collection, but these empirical designs also typically involve much larger sample sizes than qualitative studies can achieve, and this allows for a greater representation of results from a particular population. Similarly, although qualitative studies tend to have fewer participants, the data collected can offer comprehensive commentary about a particular subject from the participants.

Although researchers such as Marsh et al. (1986, 1986a), Wright (1996), and Grocott and Hunter (2009) have gone some way to address issues such as using control groups or measuring longitudinal effects, there are still limitations to their studies. For example, Marsh and his colleagues (1986a) collected data at four time points, two prior to the expedition, one immediately afterwards, and one eighteen months after the expedition. They used the first two time points as an interrupted time-series design to provide a temporal pattern of self-esteem prior to the expedition commencing. Thus if there was no movement between time 1 (a month prior to the expedition) and time 2 (the day of the expedition) but there was a change between time 2 and time 3 (during the expedition) then this would be a fair indicator that the expedition was the reason for the change. The observed results, however, demonstrated that on at least four of the self-esteem domains of interest there was a significant decrease between time 1 and time 2. Further, even though there was a significant increase between time 2 and time 3 (in other words, immediately pre and post expedition) no comparison was reported between time 1 and time 3, or time 1 and time 4. Thus the study provides no evidence of whether the expedition enhanced self-esteem from base line to time 3 (at the end of the expedition), and only limited evidence of a short-term effect. Marsh et al. (1986a) stated, however, that the purpose for collecting the data 18 months after post-test was not to observe maintenance effects of the programme's impact, but to explore stability of the SDQ III responses over time.

Marsh and his colleagues forwarded a potential explanation for the observed decline between time 1 and time 2, in that time 2 (immediately prior to the expedition) was likely to be a stressful time and thus negatively impact the variables of interest. This is problematic because the base line comparison is now a lower than *normal*

score and no longer serves as an accurate baseline. Thus a plausible alternative explanation for the results might simply be that the stress was removed at time 3, hence the observed decrease. That is, the expedition may not have had an impact; rather it was the removal of the stress that impacted the results. Whilst the rationale provided by Marsh and colleagues for not using the time 1 data (because the time 1 data was collected in a different context) is reasonable, it is not ideal. Whilst it may be agreed with Marsh et al. (1986a) that the most parsimonious explanation of the results remains that the expedition positively impacted the outcomes examined, caution must be used when interpreting these results. Without adding multi source reports, or a control group to serve as comparison, it is difficult for the reader to fully interpret the significance of Marsh et al.'s (1986a) findings from the self-report data. The present research highlights the importance of needing to have the most robust study design possible, with due attention to the components of collecting longitudinal data, using multi source reports, and using a control group.

Campbell and Stanley (1963) outlined factors to be considered when designing an experimental study. The preferred design is the fully randomised pre-test/post-test control group design, as this allows for the measurement of potential change in an experimental group of subjects over time, compared to a like sample. Thus, the lack of control sample in the Marsh et al. study infers that the positive results observed may have been at least partially due to maturation effects. That is, a peer control group may highlight whether maturation or biological effects could cause any changes in the variables during this period of adolescence. While the Marsh et al. study does indeed address some of the general design issues (primarily the aspect of longitudinal data collection) there is still no control group for comparison with the expedition participants.

Consequently, in terms of having a robust design, the current study will employ a matched control group (which represent an independent sample of participants) for purposes of comparing results with the expedition participants at both pre-test and post-test, as well as collect data at a follow-up time point, and include multi source reports. It is intended that such a combination of methods will lead to reliable, triangulated results that empirically examine the impact of expeditions on young people.

One social psychological construct that has been much researched across many diverse contexts, and may be of particular interest to the field of expeditions is that of self-esteem. Self-esteem reflects a person's overall emotional evaluation of his or her own self-concept (Lox et al., 2003; Marsh, 1990; Rosenberg, Schooler, Schoenberg, & Rosenberg, 1995), and is an influential predictor of relevant outcomes in young people, such as academic achievement (Marsh 1990) and exercise behaviour (Hagger, Ashford, & Stambulova, 1998). In addition, self-esteem is closely related to psychological well-being (Hagger, Biddle, & Wang, 2005; Marsh, 1989). For example, self-esteem is partly determined by a person's positive or negative affective state (Pelham & Swann, 1989) and, in a study of Taiwanese University Undergraduates, Wu, Tsai, and Chen (2008) found that self-esteem mediates the relationship between positive views and life satisfaction. Indeed, it is apparent then, that self-esteem is a very important construct, given that it is so closely related to a person's sense of worth, and their level of life satisfaction. It may be argued that examination of self-esteem is particularly relevant during adolescence, as this is a period of much personal exploration and a formative stage of evaluating ones' self-esteem (Harter, 1999; Rosenberg, 1986). Adolescents focus on their 'psychological interior' (Rosenberg, 1979), creating a broader construct of themselves than is evident

during pre-adolescence and early childhood (Harter, 1999). This emphasis on introspection and the formative defining of one's 'self' means that the adolescent may be particularly vulnerable to outside influences, such as significant others (i.e., parents) and significant events (Coopersmith, 1967). In this respect, exploring self-esteem in the expedition context, which is, arguably, a significant event for the participating adolescents, is an area worthy of examination.

Self-esteem can be conceptualised as either a global, or multidimensional construct, thus self-esteem may be measured as an overall concept, or separated into different domains, for example academic self-esteem, religion/spirituality, parent relationships, and verbal self-esteem (Marsh & O'Neill, 1984; Rosenberg, Schooler, Schoenbach, & Rosenberg, 1995). Examining self-esteem as a global construct gives an overall picture of the individual, and allows for simplicity of data collection (Rosenberg, 1965). It may be argued, however, that measuring only global self-esteem does not adequately represent the multidimensional nature of the self (Grocott & Hunter, 2009; Marsh et al., 1986, 1986a), and thus, much of the self-esteem literature that adopts a global perspective does not differentiate between the aspects of the self that may be impacted either over time, or owing to an intervention.

In the expedition context, using a multidimensional measure of self-esteem with 193 young people participating in ten-day sailing expeditions, Grocott and Hunter (2009) found significant increases in global (general) self-esteem, and four other domains of esteem, with maintenance for all but one of the five esteem domains (mathematics) at three-months follow-up. During an expedition, it is typical that a participant will have to work alongside peers to complete tasks; consequently it is reasonable to expect that the domains of opposite, and same sex peer relations may well be impacted on expedition. Equally, it is often the case that participants express

homesickness, and a newfound respect for how much they usually rely on their parents, thus it is likely that the parental relations domain will be impacted by the expedition. Conversely, as there is no specific attention paid to academic subjects, nor indeed religion, except by chance in conversation on an expedition, it is unlikely that these domains would be impacted by the expedition. In this regard, the current research will adopt a multidimensional approach to the examination of which self-esteem domains may be affected by the expedition experience, using only those domains of self-esteem that may be reasonably expected to be impacted by an expedition. Consequently, in an effort to address the aforementioned need for rigorous study design in the expedition setting, and to fully explore the impact that expeditions may have on many of the self-esteem domains, the current research will offer an empirical examination of the impact of expeditions on the multidimensional domains of self-esteem of expedition youth participants over time, while using a control group, and multi-source reports.

Having established a preferred study design for the examination of the effects of expeditions on self-esteem domains, the present study also aims to explore *how* self-esteem may actually be impacted by expeditions, in other words, to investigate the underpinning mechanisms that may bring about changes in self-esteem on an expedition. Examples of the mechanisms by which the expeditions are proposed to influence self-esteem are the opportunity to overcome challenges, reflection on the process of overcoming these challenges in such a way as to maximise positive outcomes, and the effects of social interaction from working in a close-proximity team (Hattie et al., 1997; McKenzie, 2000; McKenzie, 2003; Paxton & McAvoy, 2000).

Indeed, increased self-esteem may be realised because participants successfully engage in three distinct 'activities': i) problem solving activities; ii) reflection; and iii) social interactions. To expand, i) self-esteem may be increased because the participants are involved, on a daily basis, with problem-solving activities, working together, and developing strategies to help them overcome the challenges often faced during an expedition (Hattie et al., 1997; McKenzie, 2003; Paxton & McAvoy, 2000). Generally, expeditions incorporate a variety of challenges for the participants that rely on the use of mental effort, as well as physical exertion (Hattie et al., 1997), for example, working as a team, planning logistics, being self-sufficient, completing a strenuous trek, or coping with environmental challenges, such as extreme weather or altitude. ii) Stott et al. (2013) discuss that opportunities for reflection are widespread and often occur both during, and after the expedition. Typically, it is the experienced expedition leader and/or the accompanying teacher(s) who facilitate the participants' reflection process of facing a challenge, and overcoming it (Stott et al., 2013). Further, the participants are also encouraged to review their experiences with a view to applying any learning from their reflections to help them overcome future challenges (McKenzie, 2000). The process of reflection, whereby the positives and the magnitude of overcoming the various challenges are explicitly highlighted, may also engender greater gains to self-esteem. To this end, a key role of the expedition leader is to ask questions of the participants to help them explore their experiences and examine how they have achieved success, or overcome obstacles. This is an ongoing process as the group moves through a variety of experiences and situations. It is hoped, therefore, that the leader will encourage the individuals to verbalise the good and bad in their experiences, but put the focus on their successes, and emphasise the learning from situations that went wrong, to ensure

the individuals recognise how their successes and learning may enable them to overcome other, similar trials (Martin et al., 2006). iii) Finally, the expedition context also offers opportunities to experience the intricacies of working in groups, thus providing opportunities to learn about the complex world of social interactions in a safe, developmental environment. This experience of close co-habitation and resultant cooperation gives participants the opportunity to forge new social bonds, and to reinforce existing ones, and also to learn how to manage relationships (Stott et al., 2013). The notion of social approval and validation from significant others has been shown to be a strong predictor of self-esteem (Pelham & Swann, 1989). Indeed, Gailliot and Baumeister (2007), using predominantly female undergraduates, found that individuals with stronger social ties had higher self-esteem, and that 'belongingness' influenced self-esteem. It is suggested the co-habitation and social interactions that are inherent to the expedition environment will provide opportunities to strengthen social bonds, thus increasing perceptions of belongingness and 'being liked'. The close social network of an expedition team, underpinned with the premise of offering support and inclusion appears to be another mechanism by which self-esteem is impacted during an expedition (Gailliot & Baumeister, 2007).

Related to the notion of social interactions above, it may be found that as adolescents develop a growing sense of self-awareness over the teenage years, much of their appraisal of self-worth is attributed to how they believe others perceive them (Harter, Waters, & Whitesell, 1998). Further, their level of self-esteem can be determined by both affective experiences (Stevens, Kagan, Yamada, Epstein, Beamer, Bilodeau, & Baruchel, 2004), and significant others (Pelham, & Swann, 1989; van Knippenberg, van Knippenberg, De Cremer, & Hogg, 2004). With this in mind, an expedition is an ideal context to allow participants to develop their self-esteem, given

the proximity and therefore, arguably, the influence of their peers and leader team, as 'significant others' for the duration of the trip. Stevens et al. (2004) reported that adolescents identified 'togetherness' and working as a team as a major theme throughout their expedition, and that their notion of self-esteem was increased owing to realisations that each was a valuable member of the team, as each had an important role to play in making the expedition successful. Further, an expedition allows the participants to attempt, and hopefully, succeed in everyday tasks in front of peers, the leader team and others (such as in-country hosts). If participants achieve tasks such as handling the team budget, organising transport, or completing a day's trekking, their perceived validation for these successes from expedition peers and adults can boost their general self-esteem at the very least, as approval from significant others is a strong predictor of adolescent general self-esteem (Harter et al., 1998). It is reasonable to suggest that other domains may be impacted in the same way, such as honesty/trustworthiness; as, arguably, small communities (i.e., an expedition team) foster, and thrive on, truth and reliability between team members. The problem solving self-esteem domain may also be positively impacted as individuals successfully navigate their way through the many expedition challenges and tasks using their initiative, prior learning and peer support (Martin et al., 2007). It may also be expected that peer relation domains would be positively impacted, however although there is certainly argument for the increase of peer closeness and dependability, equally, the expedition may bring into focus the weaker parts of participants' characters, causing friction among the team. Further, the expedition may give them a different perspective of how they interact with each other, and peers at home, which they may not have duly considered prior to being in the close situation of an expedition. Both of these factors may have a negative effect on these domains.

It is apparent that expeditions are an ideal forum for the investigation of self-esteem domains in participants. To expand, the findings of Hattie et al. (1997), McKenzie (2000), McKenzie (2003), and Paxton and McAvoy (2000) support the concept that the prevalence of challenging expedition experiences allows participants ample opportunity to overcome those challenges, using the support of peers, and then reflect on the processes involved in those successes. Arguably, this would then lead to increases in self-esteem domains. Given the plentiful opportunities on an expedition for participants to develop relevant self-esteem domains, above and beyond non-expedition peers, it is hypothesised that:

H1 – The expedition experience will have a positive effect on the general self-esteem of the participants, above and beyond the general self-esteem of a control group, and will be maintained over time.

H2 –The expedition experience will positively impact the domains of honesty/trustworthiness, parent relations, same sex peer relations, opposite sex peer relations, problem solving, physical appearance, and emotional stability, given the particular relevance of these domains to the expedition context. These effects will be above and beyond the same self-esteem domains of a control group, and will be maintained over time.

H3 - Other source reports from participants' parents, and their leader teams will corroborate the above hypotheses.

Method

Study Design

The research involved expedition teams departing the UK for a number of worldwide destinations. It was considered that the most obvious methodology for

measuring the impact of expeditions on self-esteem domains was in situ in the teams' relevant expedition destinations. While testing of the dependent variable could, arguably, be measured under different circumstances (i.e., not in a field study, but an experimental format), this would not have met the company partner's aims of measuring as many of their population in-country as possible, and would not give a 'real enough' experience of the expedition environment. For example, the changes in environment, culture, climate, and language, all found in developing countries, as well as prolonged absence from home and parents/siblings. Although field studies may not allow for the scrutiny of the researcher for the period of the testing (i.e., as is typically the case in an experimental setting), the requirements of the company partner, the large sample in the current study, and the need for participants to experience a genuine expedition environment led to the decision to measure the participants during the expedition.

Participants

The participants were students recruited from UK schools and colleges engaging in an Outlook expedition during the summer of 2011. A total of 80 schools/colleges were contacted via email to participate in the study. In total, 62 schools elected to participate, from which, a total of 1356 students were approached with 496 (266 males, 230 females, M_{age}=16.77, *SD*= .77 years) students giving informed consent and completing the pre-test measure. In total, 304 students (males = 168, females = 136) between the ages of 16 and 19 years (mean = 16.75; *SD* = .74) were matched at pre and post-test, of which, 85 (43 male, 42 female, M = 16.71years, *SD* = .70) participated in a six-month follow-up.

In total, 82 male students (M_{age} = 16.85, SD = .43 years, 3 did not specify age), from one school, who were not going on expedition in 2013[1], were approached to represent the control group. We shall call this group sample 'A'. Data screening was based on selecting only those individuals in the control participants who had never been on an overseas expedition, and completed both the pre-test and post-test self-esteem measure, in order to be entered into the analysis. Subsequently, 22 participants (all male, M_{age} = 16.73, SD = .55 years) from sample A were not included because they had previously been on an expedition. One further participant was not included in the analysis because they had not entered data for the item 'have you been on a previous expedition?'. The remaining 59 students (M_{age} = 16.89, SD = .37 years, 3 did not specify age) were used as the control group sample A, and were matched by sex and age to a randomised sample of 59 of the 2013 expedition participants, representing 23 schools (all males, M_{age} = 16.91, SD = .78 years); namely sample 'B'. Expeditions in the present study ranged from 12 to 30 days (M = 24.03) and teams visited 16 different countries on 5 continents throughout June to August 2011.

Independent samples t-tests for general self-esteem, all the separate sub-domains of self-esteem, and age revealed that there were no significant differences between the expedition and control group samples at pre-test. Thus, there did not appear to be any difference between the two groups on the key variables examined.

Measures

As part of a larger data collection, the participants completed a total of seven measures, and other source participants (parents and leaders/teachers) completed one measure each. The present study used self-report self-esteem and informant report

[1] Despite attempts to recruit a control group, this did not occur until 2013.

self-esteem measures (parent and leader). Please see Appendices 1, 2 and 3 for all items in the relevant measures.

Self-Esteem The Self Description Questionnaire III (SDQ III: Marsh & O'Neill, 1984) measures thirteen domains of esteem. For the purposes of this study eight relevant domains were selected for measurement: general self-esteem, honesty/trustworthiness, emotional stability, parent relations, opposite sex peer relations, same sex peer relations, physical appearance and problem solving. Twelve items represent general esteem and honesty/trustworthiness; all other domains have ten items. Half of all items are negatively worded. Responses to each item are made along an 8-point Likert response scale that ranges from 1 (*definitely false*) to 8 (*definitely true*).

The SDQ III is reported to have generally good psychometric properties based on analyses of the normative archive of responses by 2,436 respondents that are described in the test manual (Marsh, 1990). More recently, the scale reliability (Cronbach's alpha) obtained from Hardy and Moriarty's (2006) sample of 506 participants ranged from .72 for same sex peer relations to .90 for general self-esteem.

Parent Survey on Child's Self-Esteem Parents were asked to complete an online survey with reference to their child/children using an adapted version of the SDQ III. Specifically, the survey used the items from Marsh and O'Neills' (1984) 'general self-esteem' domain from the SDQ III, for example, *'Overall, my child/dependent has a lot of respect for him/herself'*. The stem was changed from '*I*' to '*my child/dependent*'. The Likert scale of 1 (*definitely false*) to 8 (*definitely true*) was used. The SDQ III has not previously been adapted for use by informants;

however, it is not uncommon practice for researchers to use the same measure (sometimes with minor adaptations) for other source ratings (e.g., Becker, Hagenberg, Roessner, Woerner, & Rothenberger, 2004; Mount, Barrick, & Strauss, 1994; Oh, & Berry, 2009).

Leader Team Question Sheet The expedition leader teams were asked to answer the following item about each of their students on the expedition; *'Overall, the student has high self-esteem'*. This item was extracted from Marsh and O'Neills' (1984) SDQ III, but with the amendment that it was posited from a third party perspective, not the participant (i.e., the stem 'I' was changed to 'the student'), so as to indicate the correct level of assessment (Schriesheim, Wu and Scandura (2009). A 9-point Likert scale that was anchored by 1 (*strongly disagree)* to 9 (*strongly agree)* was used. Owing to time constraints of the leader team, given their considerable responsibilities to their expedition teams, a single item scale rather than multiple items were used because each leader team had to answer questions for several participants (typically, an expedition team has between 9-17 youth participants).

Procedure

Following the research institution's school ethics board approval, all students and parents of students were approached via an Outlook Expeditions email address to gain permission for each student to participate in the study. The general purpose and nature of the study was explained in this same email. Confidentiality of individual responses was maintained in all cases. Written consent was gained from all participants, and parents also gave their consent for those participants under 16 years of age. During the administration of the questionnaires the teams were supervised

either by the first author, or a trained member of Outlook staff, who also gave detailed information about the study (e.g., they outlined the purpose of the study, clarified confidentiality, and explained the response scales).

The SDQ III was administered to the expedition participants using a pencil and paper technique. The SDQ III was issued at three time points; 1) within 24 hours prior to departure from the UK (pre-test), so as to measure baseline scores for participant self-esteem domains, 2) within the last three days of the expedition (post-test), so that any changes occurring during the expedition could be compared to the baseline scores, and 3) sent via post six months post-expedition (follow-up) to monitor the longitudinal effects on self-esteem domains. In addition to the self-report measures obtained from the participants, informant reports from parents and expedition leader teams were also collected. The parent reports were collected via online survey (Bristol Online Survey) and these data were collected at two time points; within a month before their child went on expedition, and approximately 8 weeks post expedition. The expedition leader teams were asked to complete the leader team question sheet within the first three days of the expedition, and again within the last three days of expedition. The leader team question sheets were returned to the research team in sealed envelopes along with the expedition participant questionnaires.

As the research team could not accompany each expedition team, the data collection was largely reliant on the leader teams ensuring that the questionnaires were administered and completed. Typically, informal feedback from the leader teams reported that the lack of completing the post-test was either owing to unforeseen issues at the end of respective expeditions, or the participants forgetting or not wanting to complete the post-test immediately prior to returning home.

For the control group, the first author arranged for an overview of the study to be given to the students by their teacher, and then visited the school to administer the SDQ III at pre-test. Informed consent was received from the participants at this time (all were over 16 years of age). At post-test, the teacher administered the measure on behalf of the research team.

Data Analysis

One of the challenges for longitudinal data collection in the field can be the prevalence of drop-out of participants over time, although the propensity not to complete an experiment is most typically found in clinical trials where participants may deem the treatment too intense, and subsequently withdraw (Hogan, Roy, & Korkontzelou, 2004). Hogan et al. report two case studies in particular, one of smoking cessation with drop-out rates of between 31-35% by week 12 of the experiment, and a study of HIV epidemiology with 133 of the original 871 sample dropping out by week 12. In the current research, arguably, the drop-out rate of participants may be less to do with the expedition itself (as the participants have all willingly paid to go on the trip), as the informal feedback from expedition leaders indicated that either unplanned events took precedence over the administration of the measures, or the measures were forgotten about, or there was a lack of desire to complete what students may have perceived to be 'school-like' work.

In the present study 304 participants were matched at pre-test and post-test but of those 304 only 85 were successfully matched at all three time points of pre-test, post-test, and the six-month follow-up. Consequently, given the large drop-out, the data analysis strategy involved analysing the pre-test and post-test data separately to the pre-test, post-test, and six-month follow-up data.

The data were analysed using separate repeated measures ANOVAs (group x time), with repeated measures on the second factor. Conducting multiple ANOVAs increases the chances of making a type I error, which, it could be argued, should be controlled for by either Bonferroni correcting the significance level, or running a MANOVA on the variables (Tabachnik & Fidell, 2007). However, neither of these options was selected, for the following three reasons: (i) a clear directional a priori hypothesis was given for the self-esteem domains, and if such effect patterns were repeatedly demonstrated for the hypothesised behaviours then they clearly could not have been demonstrated by chance, as chance effects would be random in direction; (ii) MANOVA is only appropriate if there are genuinely multidimensional hypotheses, in other words, hypotheses about the combined linear effects of self-esteem domains in the present study. The main purpose of using a multidimensional (as opposed to global) model of self-esteem is that there is little theoretical meaning in considering linear combinations of the behaviours. Huberty and Morris (1989) suggest a further reason for taking a multiple univariate approach: (iii) When some or all of the current variables being examined have been previously studied in a univariate way. To this end, the data analysis strategy of the present study is in line with Marsh et al. (1986a).

Results

ANOVA implies four main assumptions: (i) that the population is evenly distributed; (ii) that there is homogeneity of variance; (iii) that there is independence of scores; and (iv) that the data are parametric. In each of these cases, the assumptions were not violated for any of the ANOVAs reported below.

Hypothesis 1

General esteem

CFA using Lisrel 8.72 was used to determine the factor structure of the SDQ III, however, the model did not converge, as the program would not run. It may be prudent, therefore, to interpret the results with some caution. Issues with convergence are typically related to starting values, or syntax errors, and although one option is to change the starting values, this may lead to inaccuracies, as essentially the model has been changed, so this method is not ideal. The files were thoroughly checked for imputation errors, but none were found. It is most likely that the sample size was too small for the model. The lack of convergence is unlikely to be a problem in this instance, however, as the SDQ III is a very widely used measure, and has repeatedly demonstrated reliability and sound psychometric properties (e.g., Hardy & Moriarty, 2006; Marsh, 1990). See p. 86 of the present thesis for a more detailed discussion of using CFA to interpret model fit. A one-way ANOVA with repeated measures on time (pre/post) revealed a significant main effect for time ($F(1, 387) = 22.43$, $p < .01$), with the mean data indicating an increase in general self-esteem from pre-test (M = 5.77, SD = 1.18) to post-test (M = 5.99, SD = 1.15). (Table 1 for results).

Table 1

Means, *SD*s and *t* values for Repeated Measures ANOVAs for participants' self-esteem domains (self-report).

	Means (SDs) for:						*t-tests of Significance for Selected Pair-Wise Comparisons*		
	T1-T2		*T2 –T3*		*T1-T3*		*T1-T2*	*T2 –T3*	*T1-T3*
SDQ Scales									
	(*n* = 304)		(*n* = 85)		(*n* = 98)				
General Esteem	5.77	5.99	6.19	5.99	5.76	5.90	-4.74**	2.13*	-1.37
	(1.18)	(1.15)	(1.03)	(1.05)	(.99)	(1.15)			
Honesty/	5.74	5.81	5.93	5.94	5.78	5.95	-2.04*	-.13	-2.04*
Trustworthiness	(.85)	(.89)	(.93)	(.92)	(.98)	(1.03)			
Opposite Sex	5.58	5.63	5.61	5.55	5.37	5.50	-1.32	.80	-1.52
Peer Relations	(1.15)	(1.18)	(1.25)	(1.16)	(1.14)	(1.19)			
Emotional	5.59	5.72	5.87	5.69	5.71	5.66	-2.88**	1.86	.63
Stability	(1.14)	(1.15)	(1.02)	(1.03)	(1.04)	(1.08)			
Parental	6.07	6.25	6.58	6.23	6.18	6.18	-4.22**	3.80**	-.06
Relations	(1.18)	(1.25)	(1.07)	(1.18)	(1.04)	(1.22)			
Problem Solving	5.35	5.57	5.71	5.43	5.46	5.45	-5.59**	3.02**	.17
	(.92)	(1.06)	(1.19)	(1.07)	(.95)	(1.08)			
Physical	4.78	5.06	5.29	5.07	4.86	4.95	-6.61**	2.32*	-.74
Appearance	(1.33)	(1.26)	(1.14)	(1.20)	(1.15)	(1.27)			
Same Sex Peer	5.81	5.83	5.89	5.90	5.83	5.91	-.62	-.16	-.95
Relations	(.88)	(.97)	(.91)	(.98)	(.80)	(1.04)			

*$p < .05$; **$p < .01$

N.B. T1 – pre-test; T2 – post-test; T3 – 6-month follow-up

Six-month follow-up

A second one-way ANOVA with repeated measures on time (pre/post/six-month follow-up) also revealed a significant main effect for time ($F(2, 83) = 12.59$, $p < .01$). Follow-up t-tests demonstrated a significant difference between pre-test (M = 5.77, SD = 1.18) and post-test (M = 5.99, SD = 1.15, $t(387) = -4.74$, $p < .01$), and between post-test (M = 6.19, SD = 1.03) and the six-month follow-up (M= 5.99, SD = 1.05, $t(84) = 2.13$, $p < .05$). There was no significant difference between pre-test and the six-month follow-up. Consequently, the results reveal that whilst there was an increase from pre-test and post-test, by the six-month follow-up, post-test levels had returned to base line. Thus, there is no evidence of a maintenance effect for general esteem. See Table 1 for results.

Table 2
Means, *SD*s, effect sizes, power and *t* values for Mixed Model ANOVAs for control and expedition groups' self-esteem domains.

	Means (SDs) (Expedition) (n =59):		*t-value (Expedition)*	*Means (SDs) (Control) (n =59):*		*Effect size (Cohen's d)*	*Power (β)*	*t-value (Control)*	*t-value(Expedition & Control)*
	pre-test	*post-test*		*pre-test*	*post-test*				
General Esteem	6.11 (1.24)	6.16	-3.93	5.80 (1.24)	5.52 (.87)	.62	.90	1.74	3.38**
Honesty/ Trustworthiness	5.51	5.63 (.87)	-1.48	5.19 (1.31)	5.41 (1.06)	.23	.47	-1.37	1.24
Opposite Sex Peer Relations	5.77 (1.22)	5.73	-.32	5.74 (.89)	5.54 (.82)	.17	.29	1.83	.94

Emotional Stability	5.93 (1.18)	5.95	-.15	5.24 (.79)	6.00 (1.13)	-.04	.99	-6.59**	-.21
Parental Relations	6.38 (.88)	6.56 (.91)	-2.05*	7.00 (.85)	5.64 (1.00)	.96	1.00	6.87**	4.78**
Problem Solving	5.64 (.91)	5.87	-2.09*	5.36 (.67)	5.23 (.83)	.67	.09	.82	3.19**
Physical Appearance	5.03	5.22	-1.40	5.26 (1.02)	5.21 (1.05)	.01	.10	.29	.06
Same Sex Peer Relations	6.02 (.82)	6.04 (.81)	-.11	5.41 (.95)	5.27 (.87)	.92	.09	.76	4.48**

*p < .05; **p< .01

Control group comparisons – general self-esteem Only one school was identified as a quasi-control group during the 2013 data collection. Thus, the sample size for the control group was 59 (sample A). Consequently, a random sample of 59 participants was drawn from the 2013 expedition group sample in order to conduct the analyses (sample B). A mixed model 2(group) x 2(time) ANOVA revealed a significant main effect for group ($F(1, 116) = 10.49$, $p < .01$) no main effect for time, and a significant group by time interaction ($F(1, 116) = 4.13$, $p < .05$). The significant interaction was followed-up using a Bonferroni corrected t-test. The t-test revealed that whilst the expedition groups' (sample B) means increased between pre-test (M = 6.11, SD = 1.24) and post-test (M = 6.16, SD = 1.17) this was not significant. The t-test also revealed that the control groups' (sample A) means decreased between pre-test (M = 5.80, SD = 1.24) and post-test (M = 5.52, SD = .87), but again this was not significant. Two independent samples t-tests were used to explore the nature of the interaction. The independent samples t-test was conducted on pre-test and post-test means. The t-tests revealed that whilst there were no significant differences at pre-test between the groups, there were significant differences at post-test ($t(105) = 4.22$, $p < .01$). Thus the interaction term was likely caused by a combination of the experimental groups' (sample B) mean increasing from pre-test to post-test, while the control groups' (sample A) mean decreased between pre-test and post-test, resulting in the significant differences between the groups at post-test. The effect size for the analysis was $d = .62$, and $\beta = .90$. Reporting Cohen's *d* (Cohen, 1988) is considered a robust measure of effect size (Rosnow, Rosenthal, & Rubin, 2000). The cut-off values for Cohen's *d* are .2 indicating a small effect, .5 indicating a medium effect, and .8 indicating a large effect. The result for general esteem demonstrates that the

expedition had a medium strength impact on the expedition group, above and beyond the control group.

Hypothesis 2

Self-esteem sub-domains To examine the self-esteem sub-domains, seven one-way ANOVAs with repeated measures on time (pre/post) were conducted: For honesty/trustworthiness, the ANOVA revealed a significant main effect for time ($F(1, 388) = 4.15$, $p < .05$), with a significant increase in scores from pre-test (M = 5.74, SD = .85) to post-test (M = 5.81, SD = .85, $t(388) = -2.04$, $p < .05$). For emotional stability, the ANOVA revealed a significant main effect for time ($F(1, 388) = 8.26$, $p < .01$), with a significant increase in scores from pre-test (M = 5.59, SD = 1.14) to post-test (M = 5.72, SD = 1.15, $t(388) = -2.88$, $p < .01$). For parental relations, the ANOVA revealed a significant main effect for time ($F(1, 388) = 17.78$, $p < .01$), with a significant increase in scores from pre-test (M = 6.07, SD = 1.18) to post-test (M = 6.24, SD = 1.25, $t(388) = -4.22$, $p < .01$). For problem solving, the ANOVA revealed a significant main effect for time ($F(1, 388) = 31.20$, $p < .01$), revealing a significant increase in scores from pre-test (M = 5.35, SD = .91) to post-test (M = 5.57, SD = 1.06, $t(388) = -5.59$, $p < .01$). For physical appearance, the ANOVA revealed a significant main effect for time ($F(1, 387) = 43.70$, $p < .01$), with a significant increase from pre-test (M = 4.78, SD = 1.33) to post-test (M = 5.06, SD = 1.26, $t(388) = -6.61$, $p < .01$). Opposite sex peer relations and same sex peer relations did not reveal a significant main effect for time. (See Table 1).

Six-month follow-up for self-esteem sub-domains To examine the six-month follow-up data, seven further repeated measures (pre/post/6-month follow-up) ANOVAs were conducted:

For honesty/trustworthiness, the ANOVA revealed a significant main effect for time ($F(2, 83) = 4.60$, $p < .05$), with the mean data indicating an increase in scores from pre-test (M = 5.74, SD = .96) to post-test (M = 5.93, SD = .93), and an increase from post-test to the six month follow-up (M = 5.94, SD = .92). Follow-up t-tests revealed that for honesty/trustworthiness there was a significant difference between pre-test (M = 5.78, SD = .98) and the six-month follow-up (M = 5.95, SD = 1.03, $t(97) = -2.06$, $p < .05$) but no significant difference between post-test and the six-month follow-up. There were no significant main effects for emotional stability, and t-tests revealed that there was no significant difference between pre-test and the six-month follow-up, or post-test and the six-month follow-up. For opposite sex peer relations, the ANOVA revealed a significant main effect for time ($F(2, 83) = 8.57$, $p < .01$), with the mean data indicating an increase in scores from pre-test (M = 5.33, SD = 1.19) to post-test (M = 5.61, SD = 1.25), but a decrease from post-test to the six-month follow-up (M = 5.55, SD = 1.16). T-tests revealed that there were no significant differences between any time points for opposite sex peer relations. For parental relations, the ANOVA revealed a significant main effect for time ($F(2, 83) = 12.26$, $p < .01$), with the mean data indicating an increase in scores from pre-test (M = 6.20, SD = 1.06) to post-test (M = 6.58, SD = 1.07), but a decrease from post-test to the six-month follow-up (M = 6.23, SD = 1.18). Follow-up t-tests revealed that for parental relations, there was a significant difference between post-test (M = 6.58, SD = 1.07) and the six-month follow-up (M = 6.23, SD = 1.18, $t(84) = 3.80$, $p < .01$) but no significant difference between pre-test and the six-month follow-up. For problem

solving, the ANOVA revealed a significant main effect for time ($F(2, 83) = 9.98$, $p < .01$), with the mean data indicating an increase in scores from pre-test (M = 5.44, SD = .96) to post-test (M = 5.71, SD = 1.19), but a decrease from post-test to the six-month follow-up (M = 5.44, SD = 1.07). Similar to parental relations, follow-up t-tests revealed that for problem solving, there was a significant difference between post-test (M = 5.71, SD = 1.19) and the six-month follow-up (M = 5.44, SD = 1.07, $t(84) = 3.02$, $p < .01$) but no significant difference between pre-test and the six-month follow-up. For physical appearance, the ANOVA revealed a significant main effect for time ($F(2, 83) = 12.26$, $p < .01$), with the mean data indicating an increase in scores from pre-test (M = 4.89, SD = 1.13) to post-test (M = 5.29, SD = 1.14), but a decrease from post-test to the six-month follow-up (M = 5.07, SD = 1.20). Follow-up t-tests revealed that there was a significant difference between post-test (M = 5.29, SD = 1.14) and the six-month follow-up (M = 5.07, SD = 1.20, $t(84) = 2.32$, $p < .05$) but no significant difference between pre-test and the six-month follow-up. There were no significant main effects for same sex peer relations, and t-tests revealed that there was no significant difference between pre-test and the six-month follow-up, or post-test and the six-month follow-up.

The results from all sub domains except honesty/trustworthiness reveal that whilst there was an increase from pre-test and post-test, by the six-month follow-up, post-test levels had returned to base line. Honesty/trustworthiness is the only domain that had a significantly higher mean score at the six-month follow-up than at post-test. Thus, there is evidence of maintenance effects only for the domain of honesty/trustworthiness. See Table 1 for results.

Control group comparisons – self-esteem sub-domains CFA using Lisrel 8.72 was used to determine the factor structure of the SDQ III, however, as with the SDQ III data for the expedition participants (see p.53), the model did not converge, and thus, the results may need to be interpreted with some caution. As stated previously, the lack of convergence is most likely a sample size issue, and is unlikely to be problematic with regards to interpreting the results as measure has been very widely used, and has repeatedly demonstrated reliability and sound psychometric properties (e.g., Hardy & Moriarty, 2006; Marsh, 1990). In order to explore comparisons with the control group on the seven sub domains of self-esteem, seven 2(group) x 2 (time) mixed model ANOVAs were carried out. Of the seven domains, only emotional stability and parental relations revealed significant interactions.

The ANOVA for emotional stability revealed a significant main effect for time ($F(1, 116) = 17.42$, $p < .01$), and a group by time interaction ($F(1,116) = 15.47$, $p < .01$), but no main effect for group. The significant main effect for time and the significant interaction were followed up using t-tests. The t-tests revealed that there was a significant difference in means between the experimental (M = 5.93, SD = 1.18) and control (M = 5.24, SD = .79) groups at pre-test, but not at post-test. Upon closer inspection, it was revealed that the expedition group means increased from pre-test (M = 5.93, SD = 1.18) to post-test (M = 5.95, SD = 1.33), but this increase was not significant. However, the control group means also increased from pre-test (M = 5.24, SD = .79) to post-test (M = 6.00, SD = 1.13). Moreover, this increase was significant ($t(59) = -6.59$, $p < .01$). Thus, contrary to the hypothesis, the interaction was likely caused by the control groups means increasing significantly, whilst the expedition groups' means were not significant. The ANOVA for parental relations also revealed a significant main effect for time ($F(1, 98) = 36.14$, $p < .01$), and group by time

interactions ($F(1, 98) = 61.83$, $p < .01$). There was no significant main effect for group. The significant main effect for time and the significant interaction were followed up using t-tests. The t-tests revealed that expedition group means significantly increased from pre-test (M = 6.38, SD = .88) to post-test (M = 6.56, SD = .91, $t(58) = -2.05$, $p < .05$). The means for the control group decreased significantly between pre-test (M = 7.00, SD = .85) and post-test (M = 5.64, SD = 1.00, $t(40) = 6.87$, $p < .01$). Thus, in line with the hypothesis, the interaction is likely caused by a combination of the significant increase in scores from the experimental group, and the significant decrease in scores from the control group. Interestingly, although the ANOVA produced no significant interaction for same sex peer relations, an independent samples t-tests for the domain revealed a significant difference in post-test mean scores between the experimental (M = 6.04, SD = .81) and control groups (M = 5.27, SD = .87).

As reported earlier, Cohen's *d* (Cohen, 1988) was used to examine effect sizes. A small effect size is indicated by $d = .2$, a medium effect is $d = .5$, and a large effect is $d = .8$. The effect sizes and observed power statistics for each of the domains in this analysis were as follows: honesty/trustworthiness*:* $d = .23$, and $\beta = .47$, indicating a small impact of the expedition; opposite sex peer relations: $d = .17$, and $\beta = .29$, again demonstrating a small impact of the expedition; emotional stability*:* $d = -.04$, and $\beta = .99$, which indicates a very small impact of the expedition; parental relations: $d = .96$, and $\beta = 1.00$, which demonstrates a very large impact of the expedition; problem solving: $d = .67$, and $\beta = .09$, which indicates a medium impact of the expedition; physical appearance: $d = .01$, and $\beta = .10$, which indicates a very small impact of the expedition; and same sex peer relations: $d = .92$, and $\beta = .09$, which indicates a very large impact of the expedition. The effect sizes demonstrate that

expeditions have a very large impact on parental relations and same sex peer relations, for the expedition group above and beyond the control group. The expedition has a medium impact on problem solving, and only a small impact on opposite sex peer relations, emotional stability, and physical appearance. Similarly, the power for each domain was relatively small, but with stand-out results of .99 for emotional stability and 1.00 for parental relations, which demonstrates that the effect of expeditions on this self-esteem domain is fairly robust. See Table 2 (above) for results.

Hypothesis 3

Other source reports It was found that CFA could not be used to test the factor structure of the parent and leader reports. This was owing to the fact that the leader team measure consisted of only one item, and therefore had no 'model' to be tested. While the parent measure also had only one factor, it contained 12 items, so, in theory, may allow for testing by CFA. Not only did the parent 'model' not run in Lisrel (v. 8.2), the sample size of the group (n = 54) was also considered too small to obtain any reliable results for the measure. A dependent samples t-test on parent report data revealed a non-significant difference between pre-test (M = 7.19, SD = 1.26) and post-test (M = 7.56, SD = 1.08) ($t(53) = -1.72$, $p < .10$). Leader team scores demonstrated a significant increase from pre-test (M = 6.19, SD = 1.87) to post-test (M = 7.05, SD = 1.53), ($t(287) = -9.18$, $p = < .00$). Results for parent and leader team data are displayed in Table 3.

Table 3

Means, *SD*s and *t* values for Repeated Measures ANOVA for other source reports (on participants' general self-esteem).

	Means (SDs) for:		*t-test of Significance for Selected Pair-Wise Comparisons*
	pre-test	post-test	
Leader Team (*n* = 287)	6.19	7.05**	-10.06**
	(1.87)	(1.56)	
Parents (*n* = 54)	7.19	7.56	-1.72
	(1.26)	(1.08)	

*$p < .05$; **$p < .01$

Discussion

The current study aimed to examine the effects of expeditions on self-esteem (both the general component, and seven sub-domains), compared with a control group of non-expedition participants. Data to explore the longitudinal effects of expeditions on these self-esteem domains were also analysed. Other source reports from parents of participants, and their expedition leader team (expedition leader and accompanying school teacher) were also examined. The other source report results, however, should be interpreted with some caution. The two measures were simply reduced scales of the SDQ III, and while it is not unusual to use the same measure with minor adaptations for other source ratings (e.g., Becker, Hagenberg, Roessner, Woerner, & Rothenberger, 2004; Mount, Barrick, & Strauss, 1994; Oh, & Berry, 2009), the two scales used in the current study were not suitable for CFA testing, and have not yet demonstrated re-test reliability in their current format, so may not be reliable measures.

The study provides some evidence of the beneficial effects that expeditions can have on self-esteem. Further, the effect sizes for the comparisons between the expedition and the control group actually demonstrated a very large impact of expeditions for the self-esteem domains of parental relations (.96) and same sex peer relations (.92), and a medium sized effect for the general esteem domain (.62) and problem solving domain (.67). Whilst the data for the control group, the six-month follow up and the leader team informant reports were generally supportive of the hypothesis, the results for these were not as strong as the self-report pre-test/post-test results. The self-report results demonstrated that between pre and post-test, expedition participants' general self-esteem means increased significantly. These results suggest that expeditions (or at least one or more variables present during an expedition) have a

positive impact on general self-esteem. As stated in the General Introduction section, measuring self-esteem without inclusion of other potentially mediating, or indeed, moderating variables raises questions of the absolute effect of the expedition on self-esteem. The results simply indicate what occurs during the period of the expedition for each individual's self-esteem domains, and it is likely that there are a myriad of processes and variables within an expedition that may affect self-esteem domains. In this way, the current study does not tackle the definitive question of the extent to which self-esteem is specifically impacted by the expedition, and how much of the change is attributable to other variables. This invariably places a limitation on the findings of this study. The results do, however, support the first hypothesis, and are consistent with findings in the literature (Hattie et al., 1997; Marsh et al., 1986, 1986a). Furthermore, the current study extends the expedition literature by using quantitative analysis, including informant report data, a non-expedition control group, and follow-up data. A maintenance effect, however, was only found for one of the domains (honesty/trustworthiness). For the informant reports, a significant result was found for the leader team data, but no significant result was revealed for the parent data. These data should be interpreted cautiously, however, given the lack of re-test reliability of the informant report measures. In terms of comparisons with the control group, the expedition group data revealed significantly higher mean scores in the domains of general esteem, parental relations and same sex peer relations. An unexpected significant result was found for the control group in the domain of emotional stability, while the expedition sample did not reveal a significant increase in this domain in the comparison. It is reasonable to suggest then, that the comparison of a control group allows for a more definitive interpretation of the results, that it is in fact the expedition that is having the positive effect on the self-esteem domains.

Indeed, it may be stated that expeditions have a significant and positive impact on participants over and above control group participants in the self-esteem domains of general esteem, parental relations and same sex peer relations. Interestingly, the effect sizes report the impact of the expedition on the participants, not just the null hypothesis significance reporting between the two groups. For the domains of parental relations and same sex peer relations in particular, the impact was incredibly large (.96 and .92), and it is apparent within the expedition environment that participants gain a greater appreciation of their parents while they are away, especially as they have to be self-sufficient. The result for same sex peer relations, in comparison to opposite sex peer relations is somewhat conflicting. It may be expected that both of these domains would have a similar result, but perhaps it is indicative of the extent to which participants rely on their closest (arguably, same sex) friends to support them through the expedition, which may not be as evident in non-expedition environments.

The study addresses the significance of the multidimensionality of self-esteem. The results revealed that there were significant increases at post-test for the expedition participants in the domains of honesty/trustworthiness, emotional stability, parent relations, problem solving and physical appearance, whilst opposite sex peer relations and same sex peer relations were not significant. By using a multidimensional measure, the present study has revealed varied results for all of the domains, which would not be demonstrated using a global measure. This is especially apparent when we consider the contrary result of the significant interaction for the domain of emotional stability between the expedition and control groups. Without a multidimensional measure, the results would simply have demonstrated that across the two groups, those participating in an expedition see significant increases in

general self-esteem, while those who do not go on expedition see decreases in general self-esteem. This result alone justifies the importance of an expedition in terms of bolstering self-esteem of participants, given the complex nature of adolescence being a formative period in terms of construction of the self, and evaluation of self-worth. Although using a global measure in the current study would have supported the literature base with respect to the positive effects on self-esteem when participating in an expedition, it would not create a detailed enough picture of what exactly occurs for these two adolescent groups in each of the separate domains of self-esteem.

The study also explores the impact of expeditions over time. The results revealed that for general esteem, there was no maintenance effect (i.e., a significant difference between pre-test and the six-month follow-up). A maintenance effect was only demonstrated for the domain of honesty/trustworthiness. Reasons for this lone result may relate to the time of year that the follow-up test was carried out: The measures were sent to participants to complete during early January 2012. This was deemed a prudent time to fit in with school and university holidays, therefore maximising the opportunity to find older participants who had gone to University back at their home address. The problem with this time of year, however, is that it is typically exam period for university and GCSE/AS & A Level students. Arguably, this may be a period of emotional instability for them, potentially causing depressions in their esteem levels. The domain of honesty/trustworthiness was not affected, however, and this may be owing to the fact that some items representing this domain refer explicitly to exams, for example ‘I would feel OK about cheating on a test as long as I did not get caught’, which would have had particular relevance to the participants at this time, perhaps increasing their awareness of this self-esteem domain, thus increasing scores.

It is not clear why the domain of opposite sex peer relations should decrease (albeit not significantly) between baseline and the six-month follow-up for the expedition group, but preliminary conclusions may rest on the fact that some of the expedition teams are single sex groups, and as such, these groups do not share the experiences gained on expedition with peers of the opposite sex. It may warrant further research to explore whether this may be the factor that explains this decrease for this domain. For the other domains, it was hypothesised that they would all demonstrate a maintenance effect, as they had all been specifically selected for analysis owing to their pertinence to the expedition experience. There is no literature to aid explanation of why only one domain has revealed a maintenance effect, so it would be prudent to explore this area further. An arguably rational explanation of this effect, however, may be that mentioned previously pertaining to exam periods and the relevance of the honesty/trustworthiness domain to the participants at the time of the follow-up data collection.

The mean scores for the six-month follow-up are generally consistent with Marsh, Richard, and Barnes' (1986a) results. Marsh et al. found increases from pre-test in all but one of the self-esteem domains measured in their 18-month follow-up study, however, it is somewhat hard to interpret whether these results are significantly higher than pre-test, as their results do not report pre-test to follow-up comparisons. Should Marsh et al. demonstrate clear significant maintenance effects in the future, it would be an interesting route for further examination to explore at exactly what time point between the current study's six-month follow-up and Marsh et al.'s 18 month follow-up that a maintenance effect does become significant in the expedition setting.

It is clearly a limitation to the current study that relatively small numbers have been involved in the six-month follow-up data collection. Large drop-out rates,

unfortunately, are an inevitable element of field-based experimental studies. Although no significant results were revealed for the six-month follow-up data, the present study has attempted to address this existing limitation in the outdoor literature. Further, the study highlights the complexities of collecting data for field experiments, with regards to drop-out of participants between post-test and the six-month follow-up.

In order to address the notion of expedition participants benefitting from an expedition when compared to non-participants (hypotheses 1 and 2), a control peer group was used to compare mean scores with the expedition participants. Overall, the results tended to support the main hypotheses, however, a notable exception was evidenced, in that the domain of emotional stability scored significantly higher at post-test for the control group than the experimental group. The results of the analyses revealed a consistent pattern of the expedition group being significantly higher than the control group for three of the domains. To expand, the domains of general esteem and parental relations were significantly higher at post-test for the expedition group, than the control group. Further, an independent samples t-test demonstrated that the domain of same sex peer relations was also significantly higher for the expedition group at post-test than the control group.

There is no immediate explanation as to why the emotional stability result should be contrary to the hypothesis, in that it was significantly higher in the control group than the expedition group at post-test. There is no precedent in the literature, or apparent explanation for this marked difference with emotional stability in relation to the other self-esteem domains. It may be argued, however, that expedition participants are encouraged to be reflective and self-analytical during an expedition, and consequently may become more self-aware because of this. This may lead to the

participants raising more questions about themselves and/or their place in the world, which may affect their emotional stability. Stevens et al. (2004) and Beames (2005) report interviews from expedition participants that demonstrate the changes that the participants observe in themselves as a result of participating in the expedition, for example, taking more risks, challenging themselves, and recognising characteristics that they did not realise they had. One student, for example, stated that she thought that she was quite laid back in character, but came to realise via expedition experiences, that actually she was someone who became "irritated quite quickly" (Beames, 2005, p.17). Initially, these realisations may well make the participants less emotionally stable as they are facing difficulties and new experiences that they had not before considered, potentially confusing their previously accepted view of themselves and/or the world. It may be argued that non-expedition students would not encounter these questions and differences at this stage of their adolescence because they do not necessarily undergo such experiences, or facilitated reflection processes, and so their emotional stability is not similarly challenged. It may be reasonable to conclude therefore, that it is the changes in self-awareness/perception experienced by the expedition participants that explain the differences between the two groups in relation to emotional stability. Certainly, more research in this area would serve to define an evidenced explanation for the contrary emotional stability result.

With respect to hypothesis 3, other source reports were used to collect data from the participants' parents and their leader teams. Using these other source data collections allows for the triangulation of results, and thus provides a more robust test of effects (see Mount, Barrick, & Strauss, 1994; Oh & Berry, 2009; Oh, Wang, & Mount, 2011; Vazire, 2006), although, as noted earlier, the level of robustness may be questioned given the lack of re-test reliability of the other source measures used in

this study. It is apparent from the results that the beneficial effect of expeditions on self-esteem (global) is not just observed from the participants, but from the leader teams, too. Leader teams noted a significant increase in general self-esteem at post-test, and while parents did report an increase in the general self-esteem of their child/children at post-test, these scores were not significantly different to their pre-test levels. The differing views from the leader teams and parents in this study demonstrate the need for multi-source reports in study design, particularly with a complex variable such as self-esteem. Collecting data from a number of sources, not just self-report, offers a greater level of scrutiny of the effect of expeditions, and using reliable measures would add to the rigour of the study. It would seem, however, that the objective view of significant others does not always corroborate the individuals' perceptions, as is the case in the current study with regards to the parent reports. Thus, multi source reporting gives a complex representation of the effects of an experimental study, rather than simply an intrinsic perspective of self-esteem. Incidentally, as part of a wider data collection, leader teams and parents were only asked to respond to items pertaining to general (global) self-esteem, so as not to cause them an overload of data collection.

The informant report data, however, does present some limitations aside from questions of reliability. First, it may be argued that there could have been a bias from the leader team in their responses. Knowing that self-esteem increases are a typical outcome of an expedition (arguably, this is widely accepted among expedition leaders, as evidenced from the literature, and the focus groups run for the present study), may have resulted in the leader teams completing the measure with this in mind, therefore biasing their responses. Further, the question sheet aimed only one item at self-esteem (global), and so the responses do not take into consideration the

multidimensional nature of the variable, and do not allow for a spread of responses from the leader teams about each individual's self-esteem.

Finally, a further limitation of the study in general, is that it is restricted to the examination of results solely for self-esteem; so further research may be necessary to quantitatively explore the impact of expeditions on other variables, and indeed their relationship between the expedition and self-esteem (i.e. the magnitude of their impact in that relationship).

Although the present study attends to a number of methodological limitations of the literature, McKenzie (2000) posited that the mechanisms by which expeditions exert their influence are still little explored. In order to understand how an expedition may result in such positive effects, and therefore provide information on how to further develop these effects, it is necessary to look at the contextual influences of the expedition environment. One potential influence within the context of expeditions that has been examined, albeit not extensively, is that of the leader (Kayes, 2004).

As suggested by McKenzie (2000), the notion of effective leadership may be one of the mechanisms that underpin the graduation from self-esteem enhancing opportunities into actual increases in self-esteem. There needs to be, however, a close examination of what actually constitutes 'effective' leadership. For example, van Knippenberg et al. (2004) discuss the importance of specific 'charismatic' leader characteristics such as fairness and consideration to each individual, and using the group's history as a means of motivation, all of which seem to have a positive effect on self-esteem, as they make the individuals feel valued by the leader.

The following chapter will examine the impact of leadership on expedition participants, with transformational leadership as the underpinning theoretical model for discussion.

Chapter 3

Development of a measure of transformational leadership in the expedition context

Abstract

In the present study an existing differentiated measure of transformational leadership was amended to provide a contextually relevant measure for use in the expedition setting: the Expedition Differentiated Transformational Leadership Inventory (E-DTLI). The study was divided into three phases. Phase 1 developed items, explored the factorial validity of the new measure (n = 654), and refined the item pool for the seven leadership factors of intellectual stimulation, individual consideration, inspirational motivation, appropriate role model, fostering acceptance of group goals, high performance expectations and contingent reward. Following confirmatory factor analysis procedures and item deletion, an acceptable model fit was provided ($\chi^2(356) = 969.02$, p =.00, RMSEA =.05, NNFI =.99, and CFI =.99), supporting a 29-item, 7-factor model. Phase 2 confirmed the factor structure (n = 760), and phase 3 (n = 1142) reconfirmed the factor structure, and provided some evidence of the predictive validity of the E-DTLI. Taken together the results offer initial evidence that the E-DTLI is a valid measure for the expedition context, with some support for its predictive validity.

Introduction

Leadership is frequently cited as being a highly influential factor, often a critical determinant, in shaping people's experiences (Antonakis, Ciancilio, & Sternberg, 2004; Leithwood, Harris, & Hopkins, 2008; Northouse, 2013; Thomas, Côté, & Saavedra, 2005). Furthermore, in an expedition context, leadership is stated as a key mechanism for influencing follower outcomes (Kayes, 2004), and is often noted as a key factor in determining the quality of group life and subsequently on the success of expeditions (Behrendt, 1998; Palinkas, Gunderson, Holland, Miller, & Johnson, 2000; Palinkas & Suedfeld, 2008; Schmidt, Wood, & Lugg, 2004). It is thus surprising that there is very limited theoretically-guided empirical research examining expedition leadership.

A review of the leadership literature in other contexts such as the military (Chen & Bliese, 2002), health (West & Dawson, 2012), organisational policy (O'Dea & Flin, 2003), the public sector (Harris, Harris, & Eplion, 2007), and business (Rosete & Ciarrochi, 2005), attests to the importance of leadership in predicting outcomes in these settings. The importance of leadership in shaping peoples experiences has contributed to the development of many approaches, theories and models of leadership. For example, relational based approaches (Graen & Uhl-Bien, 1995; Komives, 1991), contingency based approaches (Fiedler, 1971), trait-based approaches (Zaccaro, Kemp, & Bader, 2004), implicit leadership theory (Lord, Foti, & DeVader, 1984), the path-goal theory of leadership (House, 1971), transformational leadership theory (Bass, 1985), and the leader-member exchange theory (formerly known as vertical dyad linkage: Dansereau, Graen, & Haga, 1975). Indeed, in 1971 Fiedler stated, "there are almost as many definitions of leadership as there are theories

of leadership – and there are almost as many theories of leadership as there are psychologists working in the field." (p. 1). This thesis adopts Antonakis et al.'s (2004) definition of leadership that proposes leadership is a process of influence between a leader and follower/s and the situational and personal characteristics that govern that process. Furthermore, whilst there are many approaches to leadership that could be adopted for the current research, a theory that has received much research attention in recent years is transformational leadership theory (Bass, 1985). Further, following a period of very little theoretically based leadership development in the outdoor literature, transformational leadership was proposed by Brymer (2006), and Brymer and Gray (2010) to be a relevant theoretical model for application in the outdoors and expeditions.

Transformational leadership is described as a process that "raises follower's awareness about issues of consequence, influences followers to transcend their own self-interest for the good of the group, and causes followers to work harder than they originally expected to do" (Bass, 1995; p. 469). Further, transformational leadership emphasises inspiring followers to achieve beyond their expectations, and to engender a relationship between the leader and followers that goes beyond simply a transactional process. The emotional component of a leader's behaviours (e.g., meeting the followers' emotional needs, or inspiring them to perform) is distinct to the paradigm of transformational leadership (Bass, 1990). Transformational leadership is one of the most widely examined theories in leadership research, and has a very strong empirical base supporting its general principles. Transformational leadership has been shown to have a positive impact on follower outcomes across a diverse range of contexts including the military (Hardy et al., 2010), sport (Charbonneau, Barling, & Kelloway, 2001), and business (Barling, Weber, &

Kelloway, 1996). Whilst no research has examined transformational leadership in an expedition context there is reason to believe that it will also be effective in this context. Indeed, the positive effects of transformational leadership have been demonstrated in other related fields, such as education and sport (Beauchamp, Barling, Li, Morton, Keith & Zumbo, 2010; Callow, Smith, Hardy, Arthur, & Hardy, 2009). Such literature attests to the positive impact of transformational leadership in settings that are similar to that of expeditions by virtue of their educational/developmental, or physical challenge components. For example, in a sample of 62 Canadian secondary school age students, Beauchamp et al. (2010) reported greater intrinsic motivation towards physical education when their teachers demonstrated transformational behaviours, as well as increased satisfaction with their teacher.

With reference to the impact of transformational leadership on self-esteem, Kark and Shamir (2002) examined transformational leadership in the organisational context and proposed that the more a leader engages with transformational leadership behaviours, the higher a follower's self-esteem would be. Further, Shamir, House and Arthur (1993) posited that transformational leaders (they use the term 'charismatic leaders' interchangeably) increase followers' self-esteem by "expressing high expectations of the followers and confidence in the followers' ability to meet such expectations" (p. 582). Moreover, Kark, Shamir and Chen (2003), using a sample of bank employees, stated that a follower's self-esteem depends on having approval and recognition from their leader. Transformational leadership has also been demonstrated to positively impact a wide range of variables, such as intrinsic motivation (Charbonneau et al., 2001), job roles and satisfaction (Barling et al., 1996), task

cohesion (Smith et al., 2013), team cohesion (Callow et al., 2009), performance (Dvir, Eden, Avolio & Shamir, 2002), and self-esteem (Kark & Shamir, 2002).

Despite transformational leadership being demonstrated to be effective across a wide range of contexts and shown to impact a large range of outcomes it is yet to be examined in an expedition context. The lack of expedition-related leadership literature is somewhat surprising given that the structure of an expedition perhaps lends itself to making leadership at least as important, if not more important, than in other contexts. Indeed, the nature of expeditions arguably creates more opportunities for the leader to influence their followers, than, for example, a business setting. This is because typically in expedition settings the leader spends prolonged periods of time with their followers interacting on a day-to-day basis. Not only are the leaders likely to spend more time with their followers than in a business or organisational setting, the nature of the interactions are likely to be of a more personal and developmental nature than the traditional business context. On an expedition, the leader is with the participants for the entire duration of the trip, and besides ensuring group safety, their key role is to work with the participants to process their experiences, and inherent within that is the need for the leader to build rapport with his/her participants to foster a good relationship. The leader's role is to communicate with the participants, both as a team, and individually, on a frequent basis throughout each day of the expedition, and to facilitate their reflective processing of each experience (Martin et al., 2007). The frequency and often-personal nature of contact are, perhaps, unique in terms of leader-follower interaction. Thus the influence that the leader has on their followers could be greater than in other contexts.

Whilst there is almost universal agreement on the positive effects of transformational leadership in organisational contexts, no such consensus exists about

how transformational leadership should be conceptualised and measured. The MLQ-5X (Bass & Avolio, 1990, 1995, 1997, 2000) is the most widely used measure of transformational leadership and has been demonstrated to be effective across a wide range of contexts. The MLQ-5X consists of five transformational leadership factors, three transactional factors and one non-leadership factor: Idealised influence (attributed), idealised influence (behaviours), inspirational motivation, intellectual stimulation, and individualised consideration and three transactional (contingent reward, management-by-acceptance passive, management-by-exception active), and a non-leadership dimension termed laissez-faire. The subsequent full 9-factor model has been labelled as the full range leadership model (Antonakis & House, 2002). Whilst the MLQ-5X is inarguably very widely used and is a valid and reliable measure of transformational leadership, one of its limitations is that it lacks discriminant validity. That is, the separate transformational leader behaviours are normally collapsed into one overarching global construct. Consequently, if researchers are interested in analysing the differential effects that the separate transformational leader behaviours have on outcomes the MLQ-5X is inadequate.

The limitations of the MLQ-5X have led to authors developing alternative measures that allow for differentiation, for example, the transformational leadership inventory (TLI: Podaskoff, MacKenzie, Moorman, & Fetter, 1990), and the Rafferty and Griffin Scale (2004). The TLI consists of six transformational behaviours: Identifying and articulating a vision; provides appropriate role model; high performance expectations; fostering acceptance of group goals; intellectual stimulation; individualised support; and one transactional behaviour: contingent reward. The TLI has been demonstrated to be a valid and reliable measure (Krüger, Rowold, Borgman, Staufenbiel, & Heinitz, 2011; MacKenzie, Podsakoff, & Rich,

2001). Rafferty and Griffin's (2004) scale adapted subscales and items from both House (1998) and Podsakoff et al.'s (1990) conceptions and measures, focusing on a five-factor model: Articulating a vision, intellectual stimulation, inspirational communication, supportive leadership, and personal recognition. They demonstrated sound psychometric properties for their scale using CFA.

Global and differentiated approaches suit different research and applied needs, for example, a global conceptualisation allows for the examination of the overall impact that transformational leadership may have. Conversely a differentiated model (such as the TLI) allows for examination of the effects of the individual behaviours that form transformational leadership. A differentiated conceptualisation can examine how frequently a leader performs each of the leadership behaviours, and thus explore how the individual behaviours may be related to specific outcomes. Podsakoff et al. (1990) argued that exploration of the sub-domains of transformational leadership was necessary to examine the effect of each of the behaviours on the follower, not simply an overall perception of the leader. To this end, the current research better suits a differentiated approach, as ultimately a training intervention based on the individual behaviours will be designed (Chapter 5). Further, understanding which behaviours have the strongest relationships with selected variables allows for a more focused intervention to be designed (e.g., targeting behaviours with greater predictive ability).

Taking a differentiated approach, Hardy et al. (2010) adapted Podsakoff et al.'s (1990) TLI by developing the Differentiated Transformational Leadership Inventory (DTLI). Their focus was to develop a contextually relevant transformational leadership inventory that measured transformational leadership as a distinct set of behaviours. The DTLI was primarily based on the TLI, with conceptual

additions from the MLQ-5X, resulting in a seven-factor model consisting of six transformational leadership behaviours, and one transactional behaviour.

Further to being classified as either global or differentiated models, transformational leadership measures can also be categorised based on whether they are generic and designed to be used across contexts (e.g., the MLQ), or whether they are designed to operate within in a specific context (e.g., Hardy et al.'s DTLI). In their review of the measurement literature Hardy et al. (2010) discussed the importance of considering the context when developing measures of transformational leadership. This led to their development of the DTLI specifically for a military context, and was subsequently modified to reflect a sport context (Callow et al., 2009) and a higher education setting (Mawn, Hardy, Callow, & Arthur, under review). Other authors have also developed contextually focused measures of transformational leadership, for example, to examine transformational parenting (Morton, Barling, Rhodes, Masse, Zumbo, & Beauchamp, 2011), although this study used a global conceptualisation.

Consequently, the current research sought to develop a contextually relevant, differentiated measure of transformational leadership for the expedition context. The development of this measure was underpinned by Hardy et al.'s (2010) DTLI. The behaviours included in the Expedition DTLI (E-DTLI) are: 1) intellectual stimulation (leadership behaviours that challenge followers to think about problems in new ways), 2) individual consideration (where leaders show respect for their followers and concern for their personal feelings and needs), 3) inspirational motivation (the development and articulation of a positive vision of the future, inspiring followers to achieve that vision, and expressing belief that they can achieve it), 4) appropriate role model (leaders set an example that is consistent with the values they would expect from their followers), 5) fostering acceptance of group goals and teamwork (leader

behaviours that encourage cooperation among followers), 6) high performance expectations (behaviours demonstrating the leader's expectations for excellence in their followers), and 7) contingent reward (the leader giving appropriate praise and positive feedback, signalling achievement to the followers).

The expedition-transformational leadership measure was developed over three phases: phase 1 explored the factorial structure of the E-DTLI, phase 2 confirmed the factor structure and validity of the E-DTLI, and phase 3 reconfirmed the factor structure and validity, and tested the predictive validity of the E-DTLI measure. In order to address phase 3, it was necessary to identify a suitable variable to test predictive validity with transformational leadership. Teamwork is frequently cited in the outdoor literature as an important outcome of outdoor programmes such as expeditions (Graham, 2001; Hattie et al., 1997; Priest & Gass, 1997; Raynolds, Lodato, Gordon, Blair-Smith, Welsh, & Gerzon, 2007). Indeed, as part of the current research, the author sought input from stakeholders within the expedition industry as to what were the important developmental outcomes of expeditions. The concept of 'teamwork' emerged in the overall top five variables (which also included self-esteem, leadership, communication, and responsibility) given by all stakeholders. A team may be defined as a unit of two or more individuals, each assigned to specific roles, performing interdependent tasks, while being adaptable, and sharing a common goal (Salas, Dickinson & Converse, 1992). In order for a team to be effective (i.e. to demonstrate 'teamwork'), Cannon-Bowers, Tannenbaum, Salas and Volpe (1995) stated that the constituent team members must have particular knowledge, skills, and attitudes, for example, knowledge of each member's responsibilities, the skill of evaluating their own and others' performance, and a commitment towards the team goal(s). Based on a review of the literature, however, (Aritzeta, Swailes & Senior,

2007; Brawley, Carron, & Widmeyer, 1987; Carron, Widmeyer, & Brawley, 1985; Eccles & Tenenbaum, 2004; Eys, Carron, Bray, & Brawley, 2007; Riggio, Riggio, Salinas, & Cole, 2003; Short, Sullivan & Feltz, 2005; Sullivan & Callow, 2007; Wageman, Hackman, & Lehman, 2005) no contextually relevant measure of teamwork was identified. Having said that, a proxy could potentially be cohesion, Initially, which was defined by Carron (1982) as "a dynamic process that is reflected in the tendency for a group to stick together and remain united in pursuit of its goals and objectives" (p. 124). Cohesion is therefore distinct to teamwork in that it focuses on the more socially orientated processes relating to the unity and collective goals of the team members, and not the overall effectiveness of members' knowledge, skills and attitudes. Conceptually, however, these two constructs are very different. Further, measurement of cohesion (typically using Carron et al.s' (1985) Group Environment Questionnaire: GEQ) doesn't represent the operationalisation of teamwork that was being measured. For example, the GEQ focuses on the long-term aspect of (predominantly) a sports team, focusing on performance achievements and incorporating their social life outside the sport environment. This is in contrast to the expedition context. For example, it is typical that the team will meet and participate in occasional meetings/training opportunities prior to departure, but the reality of functioning as a team is only apparent once they are in their destination country, and for the duration of the expedition only, and social 'events' are typically limited to cultural activities and shared meals within the destination country. It was apparent, that the GEQ, was not relevant to the conceptualisation of teamwork in the present context, thus, a new ten-item measure for teamwork was generated.

Method

As previously stated, three phases were conducted in order to develop and validate the E-DTLI. Phase 1 developed an item pool which was refined using CFA in an exploratory way. Phase 2 confirmed the factor structure obtained in phase 1. Phase 3 reconfirmed the factor structure of the E-DTLI and also tested the predictive validity of the E-DTLI.

Phase 1: Exploratory refinement of the E-DTLI item pool.

Participants

A total of 80 UK schools and their associated expedition leaders, engaging in an Outlook expedition in the summer of 2011, were approached to participate in the study. This resulted in 62 schools participating with 76 expedition leaders (males = 58, females = 18) providing informed consent. From these 62 schools a total of 1356 students were approached with 654 students (322 males, 332 females), between the ages of 16 and 19 years (M_{age} = 16.73, *SD* = .94 years) giving informed consent to complete the E-DTLI.

Measure Development[2]

Transformational leadership

The DTLI (Hardy et al., 2010) was used as the base measure from which the context specific E-DTLI was developed. The first stage of the measurement development

[2] In order to test predictive validity of the E-DTLI (phase 3), a measure for teamwork was generated. In order to have a 'fit-for-purpose' measure, the teamwork measure was subject to CFA over the first two phases. Full details of the process and results of the development of this measure may be found in the measures section of phase 3. The participant details for the development of the measure are identical to the details given for each of the E-DTLI phases, and therefore are not repeated in the teamwork measures section of phase 3.

process involved examining and evaluating each item in the DTLI with respect to its contextual relevance. Based on this initial evaluation, items were either retained in their original form; removed, reworded, or new items were developed. Nineteen items were retained from the original DTLI and a further thirty-one items were developed, giving an initial item pool of 50. For all items, it was necessary to amend the stem and terminology of the items to reflect the first person's response to their expedition leader. Schriesheim et al. (2009) examined the necessity for specifying the level at which the leader's behaviours is examined, within the context of the MLQ-5X, and stated that ambiguity of the level (i.e., individual/group/organisation) to which the items were referenced could lead to incorrect results. To expand, results found at one level of analysis might not necessarily translate easily to another level, and as such, this presents a 'boundary condition' (p. 604). This means that results can only be interpreted for the given level, and therefore items must be defined so as to clearly state to which level they refer. Schriesheim et al.'s (2009) examination of the MLQ-5X found that there were issues with content validity, owing to the ambiguity of the focal level of some items (e.g., inspirational motivation, MLQ-5X item 9 "Talks optimistically about the future" does not specify whether this is the future of the individuals, or the group, or the organisation). Further, Schriesheim et al. state that although the extant literature may contain some examination of MLQ scales in relation to level effects, there is no other study that has provided evidence for the need to consider the 'theoretical alignment of the underlying constructs' (p. 610) of a measure, by testing the appropriateness of individual items in relation to an explicit level. Consequently, the stem of "my section corporal" was changed from Hardy et al.'s (2010) DTLI to "my leader", "the section" was changed to "the team", and group level terms such as 'we' and 'us' were replaced to 'me' or 'I' (depending on the item)

in order to clarify that the level of focus for the measure was from the perspective of the individual. The original 5-point Likert scale was retained anchored by 1 (*not at all*) to 5 (*all of the time*). See Appendix 4 for all items.

Procedure

Following the research institution's school ethics board approval, students and parents of students were approached via an Outlook Expeditions email address to gain permission for their child/children to participate in the study; the general purpose and nature of the study was explained in this same email. Similarly, all expedition leaders were contacted via email to explain the study, and ask for their help in administering the measures during the expedition. In return for their administrative help, expedition leaders were offered feedback from the results of the leadership inventory. More specifically, leaders were provided with information concerning their own leadership behaviours, and information on how these scores compared to the average and range of all the other expedition leaders' scores. Leaders were explicitly informed that the only individual that would have access to their data was the researcher and that the data would be presented in such a way that no individual leader or participant would be identifiable. Thus, confidentiality of individual responses and team identification was maintained in all cases. Immediately prior to administration of the measure, each expedition leader read, verbatim, instructions and information about the study, specifically the purpose of the questionnaire, clarification of confidentiality, and explanation of the response scale.

The participants were asked (in their teams) to complete the E-DTLI at, or just after, the mid-point of their expedition. The teamwork measure (see footnote above) was administered within the last three days of the expedition. All questionnaires were

returned to the research team upon arrival back in the UK, in sealed envelopes provided.

Data Analysis

Confirmatory factor analysis (CFA) was used to examine the factorial validity of the E-DTLI. Lisrel 8.72 (Jöreskog & Sörbom, 2006) with maximum likelihood estimation was used for this purpose. A sequential approach to model testing, advocated by Biddle, Markland, Gilbourne, Chatzisarantis and Sparkes (2001) was utilised. In the sequential model testing, the single factor models for each scale were examined to assess the convergent validity of the items making up that scale. A number of "fit indices" can be used to assess model fit. For the present study, the following fit indices were selected: the Satorra-Bentler chi-square statistic (Satorra & Bentler, 1994), the root mean square error of the approximation (RMSEA; Steiger & Lind, 1980), the comparative fit index (CFI; Bentler, 1990), the non-normed fit index (NNFI; Tucker & Lewis, 1973), and the standardised root mean square residual (SRMR; Bentler, 1995). Conventional cut-off values for the above fit indices have seen new alternatives in more recent years (Hu & Bentler, 1999), and these will be applied to the results. These 'new' cut-off values are as follows: For RMSEA a cut-off value close to .06 (Hu & Bentler, 1999) or a stringent upper limit of .07 (Steiger, 2007) is recommended. For CFI, ≥ .95 is indicative of good fit. For NNFI, Hu and Bentler suggest ≥ .95 as the threshold. For SRMR, values as high as .08 are deemed acceptable by Hu and Bentler.

The Satorra-Bentler chi-square was used to correct for non-normality where the data showed departure from multivariate normality (indicated by large Mardia coefficients: Mardia, 1970). Within exploratory confirmatory factor analyses scales

are modified if the resultant 'fit statistics' are judged as unacceptable. For poorly fitting scales items were considered for removal based on two criteria: first, if items displayed low factor loadings and/or highly positive or negative standardised residuals. Low factor loadings reveal items that are poor indicators of their underlying factor, and problem residuals can indicate that the model is under or over parameterised. Second, identified problem items were then scrutinised to see if there was an appropriate theoretical rationale for their removal. For example, the high performance expectation (HPE) item "…will not tolerate laziness and slacking" (HPE1) had a large positive standardised residual with HPE3. Scrutiny of the items led to the conclusion that implicit within HPE1 is a non-negotiable demand for the best performance. Theoretically, this demand is contrary to the underlying premise of transformational leadership, which is based on the building of relationships through personal, emotional and inspirational exchanges. Indeed, within this theoretical context, exchanges should occur in terms of expectations, beliefs, and hopes rather than demands. Consequently, taking the statistical results and theoretical rationale together, HPE1 was deleted. Once problem items had been removed, the goodness of fit for each pair of scales was then examined. Finally, using the same criteria, the full model was tested.

Results

Single Factor Models

CFA on the five items that were designed to tap intellectual stimulation demonstrated a poor fit to the data. Inspection of the items led to one item being removed, the subsequent fit with the remaining four items was good ($\chi^2(2) = 1.23$; RMSEA =.00; SRMR =.01; CFI = 1.00; NNFI =1.00), in other words, RMSEA was

well below the accepted .06 (Hu & Bentler, 1999) SRMR was well within the bounds of a .08 threshold, CFI was >.95, as was NNFI. CFA on the ten items that were designed to tap individual consideration demonstrated a poor fit to the data. Inspection of the items led to five items being removed, the subsequent fit with the remaining five items was good ($\chi^2(5) = 2.23$; RMSEA =.00; SRMR =.01; CFI = 1.00; NNFI =1.00), the fit indices are well within the accepted thresholds, as above. CFA on the ten items that were designed to tap inspirational motivation demonstrated a poor fit to the data. Inspection of the items led to six items being removed, the subsequent fit with the remaining four items was good ($\chi^2(2) = 5.64$; RMSEA =.06; SRMR =.01; CFI = 1.00; NNFI =.99). Again the fit indices fall within the accepted thresholds, although the RMSEA would be considered too high by Hu and Bentler, it is acceptable (i.e., < .07) according to Steiger (2007). CFA on the six items that were designed to tap contingent reward demonstrated a poor fit to the data. Inspection of the items led to two items being removed, the subsequent fit with the remaining four items was good ($\chi^2(2) = 3.86$; RMSEA =.03; SRMR =.01; CFI = 1.00; NNFI =1.00). The fit indices here are all within the accepted bounds. CFA on the five items that were designed to tap foster acceptance of group goals demonstrated a poor fit to the data. Inspection of the items led to one of the items being removed, the subsequent fit with the remaining four items was good ($\chi^2(2) = 4.93$; RMSEA =.05; SRMR =.02; CFI = 1.00; NNFI =.99), again the fit indices are within the suggested thresholds. CFA on the seven items that were designed to tap appropriate role model demonstrated a poor fit to the data. Inspection of the items led to three of the items being removed, the subsequent fit with the remaining four items was good ($\chi^2(2) = 0.65$; RMSEA =.05; SRMR =.01; CFI = 1.00; NNFI =.99), these fit indices are well within the accepted bounds. CFA on the seven items that were designed to tap high performance

expectations demonstrated a poor fit to the data. Inspection of the items led to three of the items being removed, the subsequent fit with the remaining four items was good ($\chi^2(2) = 2.34$; RMSEA =.02; SRMR =.01; CFI = 1.00; NNFI =1.00), and again there is no issue with fit indices exceeding accepted limits here. See Table 4 for deleted items.

Paired Models

The above process was followed by investigation of paired models. The output revealed that there were no items that cross-loaded onto a non-intended factor more than their intended factors, thus the remaining factors did not need any further item deletion.

Full Model

The item refinement resulted in a 29-item scale which was revealed to have a good fit ($\chi^2(356) = 969.02$; RMSEA =.05; SRMR =.04; CFI = .99; NNFI =.99), with factor loadings ranging from .34 to .87. The fit indices for the full model are all well within the range of the suggested thresholds (Hu & Bentler, 1999). The scale alpha coefficients ranged from .71 to .89. Discriminant validity was assessed by examining whether the factor correlations included unity, that is, whether standard error plus the correlation encompassed one (Rafferty & Griffin, 2004), during CFA of the full model, the results of the summed standard errors plus correlations ranged from .67 (contingent reward with high performance expectations) to .98 (inspirational motivation with fostering acceptance of group goals), demonstrating that none of the factors were perfectly correlated (i.e., 1.00), thus indicating discriminant validity between the different factors.

Table 4
Standardised factor loadings and fit statistics for full and single factor models for the E-DTLI in 2011 and 2012. Scale alpha coefficients are displayed in parentheses in the factor loadings column.

	(d.f) S-B χ^2	*RMSEA*	*SRMR*	*CFI*	*NNFI*	Factor loadings 2011 (n = 654)	Factor loadings 2012 (n = 760)
Full Model							
2011 (Phase 1)	(356) 969.02, p = .00	.05	.04	.99	.99		
2012 (Phase 2)	(356) 859.54, p = .00	.04	.04	.99	.99		
Intellectual Stimulation						(.77)	(.77)
2011 (Phase 1)	(2) 1.23, p = .54	.00	.01	1.00	1.00		
2012 (Phase 2)	(2) 3.88, p = .14	.04	.01	1.00	.99		
1 Challenges me to work out how to solve problems.						.55	.48
2 Gets me to rethink the way I do things.						.57	.63
3 Shows me how to look at difficulties from a new angle.						.79	.79
4 Challenges me to think about problems in new ways.						.83	.81
5d Allows me to solve problems.						d	d
Individual Consideration						(.86)	(.86)
2011 (Phase 1)	(5) 2.23, p = .08	.00	.01	1.00	1.00		
2012 (Phase 2)	(5) 23.51, p = .00	.07	.02	.99	.99		
1 Cares about my needs.						.69	.65
2 Guides me to help me improve.						.78	.81

3 Takes time to help me reflect on my actions.						.71	.72
4 Helps me to talk through any difficulties.						.75	.73
5a Helps me to recognise my unique contribution to the expedition.						.79	.81
6d Treats me as an individual.						d	d
7d Considers that I have different strengths and abilities from others.						d	d
8d Recognises that I have different needs.						d	d
9d Provides feedback that helps me to improve my performance.						d	d
10d Understands that I have different needs than others.						d	d
Inspirational Motivation **2011 (Phase 1)** **2012 (Phase 2)**	(2) 5.64, *p*= .06 (2) 12.05, *p* = .00	.05 .08	.01 .02	1.00 .99	.99 .98	(.88)	(.88)
1 Expresses confidence that I can achieve my goals.						.75	.75
2 Inspires me to want to do the best I can.						.82	.84
3 Talks optimistically about how I can overcome obstacles.						.81	.79
4 Inspires me with their enthusiasm.						.82	.81
5d Is optimistic about my future.						d	d
6d Talks in a way that makes me believe I can succeed.						d	d

7d Expresses confidence in my ability.						d	d
8a,d Expresses to me that I make a valuable contribution to the expedition.						d	d
9a,d Talks in a way that makes me believe my role on the expedition is important.						d	d
10d Inspires me to persist when I am having difficulty solving a problem.						d	d
Appropriate Role Model							
2011 (Phase 1)	(2) .65, p = .72	.00	.01	1.00	1.00	(.80)	(.75)
2012 (Phase 2)	(2) 1.79, p = .41	.00	.01	1.00	1.00		
1 Acts in a way that makes me respect him/her.						.84	.87
2 Behaves appropriately in the company of others.						.68	.65
3 Leads by example.						.81	.77
4a Looks after themselves and their belongings.						.48	.34
5d Behaves in a way that is consistent with what they say.						d	d
6d Leads by “doing” rather than simply “telling”.						d	d
7d Is a good role model for me to follow.						d	d
Foster Acceptance of Group Goals							
2011 (Phase 1)	(2) 4.93, p = .09	.05	.02	1.00	.99	(.77)	(.77)
2012 (Phase 2)	(2) 9.19, p = .01	.07	.02	.99	.98		
1 Makes me think about how my actions affect the team.						.47	.53

3 Develops a strong team attitude and spirit among team members.						.80	.80
4 Gets the team to work together for the same goal.						.71	.68
5 Encourages me to think as part of a team.						.74	.72
2d Encourages me to be a team player.						d	d
High Performance Expectations							
2011 (Phase 1)	(2) 2.34, p = .03	.00	.01	1.00	1.00	(.71)	(.68)
2012 (Phase 2)	(2) 2.01, p = .30	.00	.01	1.00	1.00		
1 Will not settle for second best.						.55	.46
2 Expects me to give maximal effort.						.68	.71
3 Always expects me to do my best.						.78	.79
4a Expects me to contribute to team meetings.						.50	.52
5d Will not tolerate laziness or slacking.						d	d
6d Expects a lot from me.						d	d
7d Expects me to achieve high standards.						d	d
Contingent Reward							
2011 (Phase 1)	(2) 3.86, p = .01	.03	.01	1.00	1.00	(.89)	(.89)
2012 (Phase 2)	(2) 2.77, p = .25	.02	.01	1.00	1.00		
2 Gives me praise when I do good work.						.82	.79

3 Praises me when I show improvement.	.81	.82
4 Always recognises my achievements.	.85	.83
6 Gives me precise feedback about what I do well.	.82	.83
1d Gives me special recognition when I do very good work.	d	d
5d Always recognizes my level of effort.	d	d

a New items.
d Items deleted after first single factor confirmatory factor analyses (CFAs).

Phase 2: Confirming the factor structure of the E-DTLI.

Participants

A total of 81 UK schools and their associated expedition leaders engaging in an Outlook expedition in the summer of 2012 were approached to participate in the study. This resulted in 55 schools participating with 82 expedition leaders (males = 53, females = 29) providing informed consent. From these 55 schools a total of 992 students were approached with 760 students (402 males, 324 females, 34 n/a), between the ages of 12-23 years (M_{age} = 16.63, *SD* = .92 years) giving informed consent.

Measures

Transformational leadership

The E-DTLI developed in phase 1 was used. The E-DTLI has 29 items, tapping seven factors of transformational leadership, and was demonstrated to have a good fit to the data in phase 1 ($\chi^2(356)$ =969.02; RMSEA =.05; SRMR =.04; CFI = .99; NNFI =.99), with factor loadings ranging from .34 to .87. The scale alpha coefficients ranged from .68 to .89. See Appendix 5 for all items.

Procedure

The procedure was identical to the procedure in phase 1.

Results

Consistent with Study 1, the model revealed a good fit ($\chi^2(356)$ = 859.54; RMSEA =.04; SRMR =.04; CFI =.99; NNFI =.99), with factor loadings ranging from .46 to

.87. Fit indices are within the accepted bounds: For RMSEA a cut-off value close to .06 (Hu & Bentler, 1999) or .07 (Steiger, 2007) is recommended. For CFI, ≥ .95 is accepted. For NNFI, Hu and Bentler suggest ≥ .95 as the threshold. For SRMR, values of .08 are recommended (Hu & Bentler, 1999). Discriminant validity was found between the seven factors: the sum of correlations and standard errors ranged from .64 (appropriate role model with high performance expectations) and .98 (inspirational motivation and fostering acceptance of group goals).

See Table 4 for factor loadings and scale alpha coefficients. Taken together, the results from phases 1 and 2 demonstrate the factorial validity of the E-DTLI.

Phase 3: Reconfirming factor structure and predictive validity testing.

Participants

A total of 121 UK schools and their associated expedition leaders engaging in an Outlook expedition in the summer of 2013 were approached to participate in the study. This resulted in 85 schools participating with 110 expedition leaders (males = 78, females = 30, n/a = 2) providing informed consent. From these 85 schools a total of 2094 students were approached with 1142 students (482 males, 653 females, 7 N/A), between the ages of 16 and 22 years (M_{age} = 16.76; *SD* = .72) giving informed consent. Of these 1142, 353 students (173 males, 180 females), between the ages of 16 and 19 years (M_{age} = 16.73; *SD* = .73), also completed the teamwork measure.

In 2012 (phase 2), 526 participants (283 males, 239 females, 4 N/A), between the ages of 12 and 23 years (M_{age} = 16.72; *SD* = 1.00), completed the teamwork measure. This sample of participants was used to run CFA on the teamwork measure, so as to have a final, validated version for use in the predictive validity testing in 2013 (phase 3).

Measures

Transformational leadership

The E-DTLI developed in phases 1 and 2 was used. The E-DTLI has 29 items, tapping seven factors of transformational leadership, and was demonstrated a good fit to the data in phase 1 ($\chi^2(356) = 969.02$; RMSEA =.05; SRMR =.04; CFI = .99; NNFI =.99, with factor loadings ranging from .34 to .87. The scale alpha coefficients ranged from .71 to .89), and phase 2 ($\chi^2(356) = 859.54$; RMSEA =.04; SRMR =.04; CFI =.99; NNFI =.99), with factor loadings ranging from .46 to .87. The scale alpha coefficients ranged from .68 to .89). As mentioned previously, all of these fit indices for the full models are within the recommended parameters set by Hu and Bentler (1999) and Steiger (2007), in other words: the RMSEA is close to .06 (Hu and Bentler, 1999) or no greater than .07 (Steiger, 2007). The CFI and NNFI are $\geq .95$, and the SRMR is no higher than .08. See Table 4 for factor loadings and scale alpha coefficients.

Teamwork

For the current research, a measure of teamwork was generated that reflected the key components of an expedition team in collaboration with expedition experts from the company partner (Outlook Expeditions). Arguably, the research team has much experience of group dynamics and team factors, and this knowledge, in conjunction with the expedition-specific expertise of the company partner staff resulted in the generation of items that fit the following key elements of teamwork: organisation, bonding, time management, compromise, sharing tasks, contributing to tasks and meetings. The measure consists of ten items, five that focus on the

participant's ability to perform the item function, and five that tap the participant's understanding of the item concept. Items are measured on a 9-point Likert scale (*where 1 = Strongly Disagree, and 9 = Strongly Agree*), and respondents were asked to complete the measure on the day of/day prior to departure from the UK (pre-test), at the same time as the SDQ III, and within three days of the end of the expedition (post-test). Following confirmatory factor analysis of the measure during the data collection in phase 2, the measure was adjudged not to have a good fit, and as such, six problem items were identified and subsequently removed. For example, two of the items: item 1 ("I understand that I should be effective in the roles I perform in a team") and item 3 ("It is important that I work well in a team") did not demonstrate a good fit, and so were removed. Following removal of the six poorly-fitting items, an amended 4-item measure was used in the predictive validity testing in phase 3, and demonstrated a good fit ($\chi^2(2) = 5.31$; RMSEA =.03; SRMR =.04; CFI =1.00, and NNFI =1.0), well within the accepted bounds for a good fit (Hu & Bentler, 1999), with factor loadings ranging from .60 to .90. The scale alpha coefficients ranged from .84 to .89 across the two samples. See Table 5 (and Appendices 6 and 7) for all items.

Procedure

The procedure was identical to the procedure in phases 1 and 2.

Results

E-DTLI Full Model

As with phases 1 and 2, the full model revealed a good fit ($\chi^2(356) = 1044.28$; RMSEA =.06; SRMR = .04; CFI = .99; NNFI =.99), with factor loadings ranging from .44 to .90. The full model indices all fall within the accepted thresholds as

recommended by Hu and Bentler (1999) and Steiger (2007). Discriminant validity was also found for the model, with no perfect correlations between factors: results ranged from .63 (high performance expectations and contingent reward) and .99 (individual consideration and appropriate role model).

Means, standard deviations, and zero order correlations for the E-DTLI and teamwork measures are displayed in Table 6. The correlations revealed that five of the seven transformational leadership behaviours were correlated with teamwork, these were, intellectual stimulation, individual consideration, inspirational motivation, fostering acceptance of group goals, and high performance expectations. Appropriate role model and contingent reward were not demonstrated to be related to teamwork.

Table 5
Standardised factor loadings and fit statistics for the teamwork measure. Scale alpha coefficients are displayed in parentheses in the factor loadings column.

	(d.f) S-B χ^2	*RMSEA*	*SRMR*	*CFI*	*NNFI*	Factor loadings 2012 (*n* = 526)	Factor loadings 2013 (*n* = 353)
Full Model							
2012	(2) 1.33, *p* = .51	.00	.01	1.00	1.00	(.84)	(.89)
2013	(2) 5.31, *p* = .28	.03	.04	1.00	1.00		
1 I understand that I should take shared responsibility for poor organisation by a team.						(.60)	(.70)
2 I cooperate with a team.						(.90)	(.88)
3 I understand the need to participate in team tasks.						(.87)	(.88)
4 I bond with my team.						(.71)	(.84)
5d I understand that I should be effective in the roles I perform in a team.						d	d
6d I contribute to effective time management in a team.						d	d
7d It is important that I work well in a team.						d	d
8d If we have a problem as a team, I want to improve the situation.						d	d
9d I am able to put a team's needs before my own.						d	d
10d It is important for me to make compromises for the good of the team.						d	d

d Items deleted after first single factor confirmatory factor analyses (CFAs).

Table 6

Means, Standard Deviations, and Zero Order Correlations between E-DTLI and Teamwork for predictive validity testing.

	M	*S.D.*	1.	2.	3.	4.	5.	6.	7.	9.
1. IS	3.63	.86	-							
2. IC	3.57	.98	.76**	-						
3. IM	3.68	1.07	.73**	.88**	-					
4. ARM	4.03	.93	.71**	.84**	.85**	-				
5. FAGG	3.85	.95	.76**	.86**	.87**	.86**	-			
6. HPE	4.03	.72	.61**	.68**	.67**	.62**	.71**	-		
7. CR	3.50	1.03	.69**	.87**	.80**	.74**	.79**	.60**	-	
9. TW T2	7.46	1.37	.11*	.12*	.11*	.09	.15**	.16**	.10	-

**p <.01; *p<.05

Key:

IS – intellectual stimulation, IC – individual consideration, IM – inspirational motivation, ARM – appropriate role model,

FAGG – fostering acceptance of group goals, HPE – high performance expectations, CR – contingent reward, TW - teamwork

Discussion

The present chapter details three phases of a study that developed and validated the Expedition Differentiated Transformational Leadership Inventory (E-DTLI). In phase 1 the items for the measure were selected and subsequently refined using CFA in an exploratory way. The resulting fit was good, demonstrating fit indices within the accepted thresholds (Hu & Bentler, 1999), and discriminant validity between factors at each phase. Phase 2 confirmed the factor structure obtained in phase 1, and phase 3 further confirmed the factor structure and provided some evidence of the predictive validity of the E-DTLI with a newly generated measure of teamwork. The development of the E-DTLI will enable future measurement of theoretically grounded leadership to be conducted in an expedition context. Furthermore, the differentiated nature of the E-DTLI allows for examination of the separate effects that each of the behaviours might have on outcomes. By using a differentiated model, possible relationships between individual leadership behaviours and other variables may be explored (cf. Hardy et al., 2010). Consequently, these results offer foci on specific behaviours to be targeted in a transformational leadership training intervention.

The current study has provided evidence that a measure for transformational leadership is valid within an expedition setting, given the sound factorial validity of the measure, which was demonstrated over 3 independent samples. The results further extend the contexts in which transformational leadership has already been demonstrated to be relevant (e.g., the military, Hardy et al., 2010; sport, Callow et al., 2009; business Barling et al., 1996; the public sector, Rafferty & Griffin, 2006; and education, Koh, Steers, & Terborg, 1995). The results also support previous research

examining the usefulness of a differentiated measure (Antonakis et al., 2003; Hardy et al., 2010; Rafferty & Griffin, 2004). Further to this, the current research adds a firm theoretical foundation to the proposition in the expedition literature that leadership is a valid component of outdoor experiences, such as expeditions (Behrendt, 1998; Palinkas et al., 2000; Palinkas & Suedfeld, 2008; Schmidt et al., 2004).

The present research has provided a theoretically based measure that can quantify whether leadership actually is as important in an expedition context as the expedition literature attests. Such a model gives scientific rigour to the outdoor and expedition literature, as it is grounded in theory, and offers a thoroughly tested, and re-tested construct for measuring leadership behaviours. The results demonstrate that transformational leadership behaviours in the expedition setting are indeed evident, but further examination of the relationships between the behaviours and the outcomes associated with expeditions is needed. Analysis of relationships between the behaviours and outcomes will explain the actual effect of leadership in the expedition setting. In this way, the following chapter of the present thesis will explore the impact of transformational leadership on selected outcome variables (namely, self-esteem domains) of expedition participants. The validated E-DTLI can provide assessment of expedition leaders' transformational leadership capabilities, which allows for the proposed examination of leadership impact with the outcome variables. By using the data collected from the E-DTLI, there is also future opportunity to design an intervention to investigate whether leadership behaviours can be modified, by comparing data across time, or group (e.g., by comparing scores before and after an intervention, or potential contrasts between experimental and control groups).

There are, however, a number of limitations to the present study. First, no tests were carried out for concurrent validity. Validity testing (Cronbach & Meehl, 1955) is

vital to assess the credibility of a measure, and for this chapter, content and construct validity are inherent within the investigation because content validity requires that the measure will indeed measure the subject it sets out to measure, and construct validity requires that the measure is investigating something that is not yet operationally defined (in this case, it is the context of expeditions). Concurrent validity relates to whether the new measure correlates well with an already validated measure (Cronbach & Meehl, 1995). While this is a reasonable test to run, in the present study, however, the researcher did not wish to overburden the data collection process by adding yet another measure for participants (please note that the data collections in this chapter were part of a wider data collection, and as such, participants had numerous measures to complete across three time points).

Second, while the current research program developed a differentiated measure of transformational leadership in an expedition context it is noted that developing a global measure amalgamating the present seven factors may also be warranted. For example, there may be occasions when researchers are interested in the broader effects of transformational leadership (i.e., if there is no intention to examine the differentiated effects, or to focus on developing individual behaviours in a training intervention), rather than the differentiated results for independent behaviours, and so having a contextually relevant global measure would help to further knowledge in the pursuit of global effects of transformational leadership in the expedition context.

Third, although the present study has produced a psychometrically sound differentiated instrument, there is no broader exploration of the impact of specific leadership behaviours. Future studies should focus on examining the relationship

between the separate transformational leader behaviours on a wide range of outcomes in an expedition setting.

Fourth, although predictive validity was tested with a teamwork measure, not all the behaviours predicted teamwork, namely, contingent reward and appropriate role model did not have a significant relationship with teamwork. It may be argued, however, that these two factors are not directly related to teamwork. To elaborate, contingent reward is a transactional behaviour and focuses on praise and recognition, which is not directly related to the foundations of teamwork, as the praise comes from a leader, not a peer. Although praise may be construed to be important in a team context, it is perhaps not directly relevant to predicting teamwork. Similarly, appropriate role model is not necessarily a peer focus in a team. Role modelling may be important for the elected youth participant as team leader, so as to create an exemplar environment for his/her team, but again, it is more probable that, in this context, the expedition leader will set the example. Thus, there is no apparent reason why role modelling would be directly related to teamwork. Nonetheless, future research would benefit from exploring the predictive validity of contingent reward and appropriate role modelling with other more theoretically relevant outcomes, for example; trust in the leader, basic needs satisfaction, or follower leadership styles.

Fifth, while the teamwork measure was newly generated for the purpose of addressing predictive validity, it is also presents a limitation as it is not yet a well-established measure. Future research may wish to include previously validated measures. In defence of this limitation, however, it was an expectation of the agreement between the research team and Outlook Expeditions, that teamwork was tested as an outcome of expeditions, and as previously stated, no other directly relevant measure was found within the teamwork literature.

To conclude, the present study has demonstrated the validity of transformational leadership in a new context, by producing a theoretically driven, factorially valid measure of transformational leadership in the expedition setting (the E-DTLI). It is hoped that the E-DTLI will enable further theoretical examination of transformational leadership in the expedition context by other researchers. By implementing a differentiated model, the current research allows for further examination of the impact of transformational leadership behaviours, potentially assessing which behaviours are most important in an expedition context, and how the behaviours may be differentially impacted by a training intervention. Given the demonstrable effectiveness of transformational leadership in other contexts (as detailed previously), and its validity within an expedition setting, it is proposed that there will also be a positive impact of transformational leadership behaviours on selected outcome variables in the expedition setting. Chapter 4 aims to explore this proposition further, and to add quantifiable evidence to the outdoor literature as to the importance of expedition leadership.

Chapter 4

Examining the impact of transformational leadership on multidimensional self-esteem domains

Abstract

Study 3 examined the impact of transformational leadership (TL), using the E-DTLI, on self-esteem domains, using the SDQ III, of youth expedition participants. In total, 356 expedition participants returned E-DTLI and SDQ III questionnaires. Correlation analyses revealed that all leader behaviours were significantly related to the majority of the self-esteem subscales, and regression analyses revealed two of the hypothesised TL behaviours (intellectual stimulation, individual consideration) were significant predictors of certain self-esteem domains (e.g., general self-esteem, honesty/trustworthiness). However, there were no significant results for inspirational motivation and contingent reward on any of the self-esteem domains. Other predictive relationships that were not hypothesised were also evident (high performance expectations predicting general self-esteem and fostering acceptance of group goals predicting honesty/trustworthiness). Taken together, these results add further support to the evidence base of the positive impact of transformational leadership on follower outcomes. The results were used to inform a pilot TL training intervention in Study 4.

Introduction

Research demonstrates that self-esteem is positively impacted by an expedition (Grocott & Hunter, 2009; Hattie et al., 1997; Marsh et al., 1986, 1986a; McKenzie, 2000, 2003; Paxton & McAvoy, 2000; Wright, 1996). Indeed, in Chapter 2 of the present thesis the concept of the positive effect of expeditions on self-esteem was supported. However, across the literature the results and magnitude of effect on self-esteem varies. As highlighted in Chapter 2, this variation may be due to design and methodological issues with these studies (cf. Campbell & Stanley, 1963). In addition, other differences across studies such as the duration of the expedition (Cason & Gillis, 1994), the destination (Hattie et al., 1997), the amount of effort applied to the expedition by the participant (Scherl & Smithson, 1987), the age of the participants (Hattie et al., 1997) and leadership (Kayes, 2004) may all influence the effect of expeditions. The current chapter will examine the impact of transformational leadership on self-esteem in an expedition context. As proposed in Chapter 3, given the role that leadership plays in the success of expeditions (Behrendt, 1998; Palinkas et al., 2000; Palinkas & Suedfeld, 2008), it is surprising that the context of expedition leadership has not previously been examined within the framework of transformational leadership.

Transformational leadership consists of behaviours that encourage the leader to consider individual needs, to challenge and stimulate others to solve their own problems, and to inspire them with a common vision (Bass, 1985; Podsakoff et al., 1990). At a general level these behaviours are in contrast to Kayes' (2004) examples of unsuccessful expedition leadership exemplified by the leader being directive, ignoring problems and demonstrating a lack of consideration for others. Considering

the underlying principles of support and encouragement of transformational leadership, intuitively it would seem that this framework is ideally suited to the field of expeditions, where the leader can have a supportive role with the followers.

Consequently, the current research employs a model of transformational leadership, specific to expeditions, based on Hardy et al.'s (2010) differentiated transformational leadership inventory (DTLI). As reported in Chapter 3, an expedition-specific transformational leadership inventory (the E-DTLI) was developed for the purpose of the thesis. The E-DTLI consists of seven behaviours, and was validated through three separate phases of data collection.

In terms of the link between transformational leadership and self-esteem, there has been little investigation of this other than Kark and Shamirs' (2002, 2002a) theoretical studies on the relationship between the two factors. Indeed, in line with the research demonstrating the positive effect of transformational leadership on a range of outcomes, such as social and task cohesion (Smith et al., 2013), team cohesion and performance level (Callow et al., 2009), and role-breadth self-efficacy, affective commitment, and job satisfaction (Rafferty & Griffin, 2004), Kark and Shamir (2002, 2002a) proposed that there would be a positive relationship between transformational leadership and self-esteem because of the way that a follower relates to the leader. To elaborate, the greater the frequency that a leader demonstrates the predominantly supportive and individualised transformational leadership behaviours (in other words, individual consideration and intellectual stimulation), the more that the followers will engage with their leader. Kark and Shamir (2002a) state that it is this strengthening relationship that increases the follower's self-esteem, personal efficacy, energy and sense of meaningfulness. These concepts are equally applicable to the expedition context: The expedition leader uses the transformational leadership behaviours not

only to support, and be considerate to, the followers, but also to facilitate the process of how a participant brings meaning to their experiences on expedition.

Further, expedition leadership has been cited as one of the underpinning mechanisms for positive changes in outcomes, specifically self-esteem (McKenzie, 2000). The supportive role of the leader on an expedition is fundamental to facilitating the learning processes for all of the new and challenging experiences that the participants undergo. In this respect, it follows, that the supportive transformational behaviours will have a greater effect on the self-esteem domains that are more influenced by an expedition leader's input. Further, Kark and Van Dijk (2007) proposed that the transformational leader behaviours shape follower outcomes depending on which behaviours are demonstrated. This supports the proposition that individual leader behaviours will have a differential effect on the domains of self-esteem, as each domain is unique in its construct, so may be viewed as a separate 'outcome'. Consequently, it is reasonable to suggest that an examination of the effect of transformational leadership on the sub domains of self-esteem is warranted.

With the premise that different transformational leader behaviours affect follower outcomes (Kark & Shamir, 2002, 2002a; Kark & Van Dijk 2007), the current research proposes that the specific leadership behaviours of intellectual stimulation, individual consideration, inspirational motivation, and contingent reward are of particular relevance in the expedition context. Further, these behaviours will positively impact the domains of self-esteem that are more leader-facilitated: specifically, general self-esteem, honesty/trustworthiness, emotional stability and problem solving.

To expand, expeditions provide many occasions for the leader to demonstrate the behaviour of intellectual stimulation, as there is frequently the need for

participants to problem solve in unfamiliar situations. For instance, procuring tickets to travel to a different region of the host country; finding alternative accommodation when rooms have been double-booked; planning a chores rota to ensure jobs are fairly distributed, negotiating a language barrier. Opportunities like these allow the leader to encourage followers to engage in problem solving and take ownership for critical thinking and decision-making, rather than the leader making all decisions on their behalf. Successfully engaging in this process of demonstrating belief in the followers' abilities to solve their own problems (in other words, promoting risk-taking and independence) will thus increase followers' general self-esteem (Kark & Shamir, 2002a) as well as increasing their problem solving, honesty/trustworthiness, and emotional stability self-esteem domains.

With reference to individual consideration, while on expedition the leader has to consider and engage with the differential needs and capabilities of each individual to ensure that the expedition is safe and that the leader provides sufficient support and challenge for each participant (Drury et al., 2005). For example, on a trek, the leader must assess how the differing fitness and strength levels of the team, and the distribution of team kit, can be managed to ensure that the challenge is equal, yet relative to each person's capacity, and will not incur safety issues, such as undue fatigue. To this end, the leader is showing an active interest in followers and their needs, thus making them feel valued, which in turn will likely increase general self-esteem (Kark & Shamir, 2002a) and emotional stability.

Drury, Bonney, Berman, and Wagstaff (2005) list 'vision' and 'ability to inspire others' (p. 350) among the key qualities and traits required of outdoor leaders in order to facilitate personal development, and this is aligned with inspirational motivation. On expedition, the leader is often required to motivate and encourage

followers when there are unplanned changes to the itinerary, long and tiring trekking days, discord within the group, or negative experiences (such as losing group money or getting lost), which may discourage the followers. Indeed, research highlights that leaders inspiring individuals in this manner, redefining the team vision and motivating followers' low spirits in times of crisis, can all enhance self-esteem (Stevens et al., 2004).

Whilst on expedition the leader can demonstrate contingent reward by giving appropriate praise and positive feedback, which signals achievement to the followers, and encourages them to continue contributing to the team, or task. Hattie et al. (1997) proposed that this type of feedback from the expedition leader is the most important moderator for improving affective and achievement outcomes, such as the self-esteem domains of general self-esteem, emotional stability, and problem solving.

Conversely, it may be argued that the behaviours of appropriate role model, high performance expectations and fostering acceptance of group goals may not be related to a follower's self-esteem. To elaborate, while demonstrating themselves to be a good role model may increase follower respect, the leader would not be tapping into a follower's evaluation of self-worth. Appropriate role model is more leader-focused, and therefore would primarily affect leader/follower relations, not follower self-esteem. Similarly, fostering acceptance of group goals is a collection of behaviours centred on the team, and not the individual followers. In this way, it may be reasonable to expect that teamwork skills, and team cohesion may be positively impacted, but not necessarily self-esteem. High performance expectations behaviours focus on achievement and therefore would not be expected to impact the self-esteem domains directly. Context is also important with high performance expectations. The focus of an expedition is development, not achievement, per se. Indeed, Hardy et al.

(2010) found that high performance expectations was a significant predictor (albeit the least predictive of the behaviours) of performance in their military sample, and this is understandable given the context of high standards and achievement within a military training setting.

The current research therefore extends the expedition and transformational leadership literatures by examining the impact of transformational leadership on selected domains of self-esteem. For this purpose, a differentiated approach to measurement of transformational leadership was selected to fully explore the impact of individual leadership behaviours on participants' self-esteem domains. Further, the current research will focus on the self-esteem domains that would be expected to be related to the expedition leader's behaviours, namely: General self-esteem, honesty/trustworthiness, emotional stability, and problem solving.

Based on the review of the literature, it is hypothesised that:

H1 – Intellectual stimulation, individual consideration, inspirational motivation and contingent reward will positively predict the following self-esteem domains of followers: general self-esteem, honesty/trustworthiness, emotional stability and problem solving, in the expedition context.

Method

Participants

The participants were students recruited from UK schools and colleges engaging in an Outlook expedition during summer vacation period in 2011. The participants completed self-report questionnaires measuring self-esteem domains at pre-test and post-test, and the E-DTLI measuring their leader's transformational leadership behaviours at the mid-point of the expedition.

A total of 80 schools/colleges, with 1356 students were approached to participate in the study. From this, 62 schools elected to participate. From these schools, 815 participants gave informed consent to take part: 496 of whom completed the self-esteem pre-test measure, 654 completed the mid-test E-DTLI, and 403 completed the post-test self-esteem measure. Of these participants, a total of 356 (192 male, 164 female, M_{age}= 16.76, *SD*= .76) were matched for all three time points, resulting in 43 leaders being assessed by the E-DTLI.

Given the large attrition rate, Independent samples t-tests were carried out to test for possible differences between the sample of 356 completers, and the 459 non-completers. The t-tests were run for general self-esteem, all the separate sub-domains of self-esteem, age and sex. The results revealed that there were no significant differences between the two samples on any of the variables tested.

Measures

Transformational Leadership To determine perceptions of transformational leadership behaviours the E-DTLI was administered. The E-DTLI is an inventory that measures six transformational behaviours: inspirational motivation (e.g., "My leader expresses confidence that I can achieve my goals"); appropriate role-modelling (e.g., " My leader acts in a way that makes me respect him/her"); individual consideration (e.g., "My leader cares about my needs"); intellectual stimulation (e.g., "My leader challenges me to work out how to solve problems"); high performance expectations (e.g., "will not settle for second best"); and fostering acceptance of group goals (e.g., "My leader makes me think about how my actions affect the team"). The inventory also measures one transactional behaviour: contingent reward (e.g., "My leader gives me praise when I do good work"). The 29-item inventory is measured on a 5-point

Likert scale anchored by 1 (*not at all*) to 5 (*all of the time*). See Appendix 5 for all items.

Self-Esteem The Self Description Questionnaire III (SDQ III, Marsh & O'Neill 1984) measures thirteen domains of esteem. For the purposes of this study eight domains were selected for measurement: General self-esteem, honesty/trustworthiness, emotional stability, parent relations, opposite sex peer relations, same sex peer relations, physical appearance and problem solving. Twelve items represent general esteem and honesty/trustworthiness; all other domains have ten items. Half of all items are negatively worded. Responses to each item are made along an 8-point Likert response scale that ranges from 1 (*definitely false*) to 8 (*definitely true*).

The SDQ III appears to have generally good psychometric properties based on analyses of the normative archive of responses by 2,436 respondents that are described in the test manual (Marsh, 1990). Furthermore, the scale reliability (Cronbach's alpha) obtained from Hardy and Moriarty's (2006) sample of 506 participants ranged from .72 for same sex peer relations to .90 for general self-esteem. See Appendix 1 for all items.

Procedure

Following the research institution's school ethics board approval, Outlook expedition participants, their parents, their teachers, and their expedition leaders were approached to take part in the study via email. The email provided detailed information on the purpose and outline of the study. Confidentiality of responses was also explained in the email. Following this, participants were invited to take part in the study and written consent was obtained. Parents gave their consent for those

participants under 16 years of age. During the administration of the questionnaires the teams were supervised either by the first author, or a trained staff member from Outlook expeditions, who gave detailed information about the study, for example, outlining the purpose of the study, clarifying confidentiality, and explaining the response scales.

The SDQ III was issued within 24 hours prior to expedition departure (pre-test) and within the last three days of the expedition (post-test). The E-DTLI was administered to the participants at the halfway point of each expedition (mid-test). All completed questionnaires were placed in an envelope, sealed and handed back to the research team via Outlook expedition staff upon return to the UK.

Data analysis and manipulation check

Forced entry hierarchical multiple regression analysis using SPSS (v.20) was employed to examine the impact of the selected transformational leadership behaviours on the four hypothesised self-esteem domains. Hierarchical multiple regression analysis allows for exploration of the extent to which the behaviours predict the self-esteem domains (cf. Callow & Hardy, 2001). Each dependent variable (general esteem, honesty/trustworthiness, emotional stability and problem solving) was run as a separate analysis with the leadership behaviours entered in two blocks in the following order: Block 1 consisted of the four behaviours hypothesised to have a predictive effect: Intellectual stimulation, individual consideration, inspirational motivation and contingent reward. Block 2 consisted of the remaining (not hypothesised) three behaviours of appropriate role model, fostering acceptance of group goals, and high performance expectations.

With respect to the assumptions of a multiple hierarchical regression analysis, first, the sample size to number of variables ratio was 89:1 which more than meets the ideal standard of 20:1 (Ntoumanis, 2001). Second, outliers were not an issue, as there were no extreme observations beyond the minimum and maximum ranges (i.e., there were no data points with a greater Mahalanobis distance from the rest of the sample), and thus it was unlikely that there were system errors in the data that needed to be removed (Ntoumanis, 2001). Third, Table 7 indicates high correlations between the leadership behaviours; however, collinearity statistics did not violate the assumption of multicollinearity, as tolerance levels are all greater than 0.10 and variance inflation factors (VIF) are all below 10 (O'Brien, 2007). Finally, there was normal distribution of the standardised residuals and the data were parametric.

Results

Mean scores for expedition leaders on the seven transformational leadership behaviours and correlations are presented in Table 7. The independent t-tests demonstrated that there were no significant differences between the 'completer' sample and 'non-completer' sample on the variables tested.

Correlation analyses revealed that all leader behaviours were significantly related to the majority of the self-esteem subscales. Honesty/trustworthiness, same sex peer relations, physical appearance, and problem solving, however, did not have significant correlations with some of the transformational leadership behaviours.

The hierarchical regression analyses indicated that the four hypothesised leadership behaviours predicted a significant proportion of the variance in the general self-esteem domain scores, $R^2 = .09$, $F\ (4, 355) = 7.20$, $p < .01$. For the first block, the

Table 7

Zero order correlations between transformational leadership behaviours and self-esteem subscales (N = 356)

	M	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.
1. IS	3.90	-										
2. IC	3.81	.68**	-									
3. IM	3.78	.66**	.88**	-								
4. ARM	3.95	.55**	.55**	.79**	-							
5. FAGG	4.13	.66**	.75**	.74**	.69**	-						
6. HPE	4.05	.50**	.46**	.46**	.54**	.36**	-					
7. CR	3.65	.62**	.82**	.81**	.69**	.67**	.40**	-				
8. GE	5.97	.24**	.25**	.21**	.15**	.20**	.23**	.18**	-			
9. HT	5.81	.17**	.08	.09	.14**	.19**	.16**	.07	.33**	-		
10. ES	5.71	.25**	.23**	.24**	.25**	.22**	.17**	.22**	.67**	.38**	-	
11. PS	5.57	.19**	.21**	.19**	.12*	.16**	.15*	.12*	.57**	.23**	.34**	.29**

*p < .05; **p < .01

Transformational leadership behaviours

IS – Intellectual stimulation
IC – Individual consideration
IM – Inspirational motivation
ARM – Appropriate role model
FAGG – Fostering acceptance of group goals
HPE – High performance expectations
CR – Contingent reward

Self-esteem subscales

GE – General esteem
HT – Honesty/trustworthiness
ES – Emotional stability
PS – Problem solving

results revealed a significant R^2 value ($R^2 = .08$, F (4, 351) = 7.20, $p < .01$), with the betas revealing significant contributions for intellectual stimulation ($B = .15$, $p < .05$), and individual consideration ($B = .26$, $p < .05$). For the second block, however, the R^2 change value was not significant, but the beta value for high performance expectations was significant ($B = .13$, $p < .05$).

For honesty/trustworthiness the hierarchical regression analyses indicated that the four hypothesised leadership behaviours predicted a significant proportion of the variance in scores ($R^2 = .07$, F (4, 355) = 2.84, $p < .05$). For the first block, the results revealed a significant R^2 value ($R^2 = .03$, F (4, 351) = 2.84, $p < .05$), with the beta coefficients revealing a significant contribution for intellectual stimulation ($B = .21$, $p < .01$). The rest of the behaviours did not return significant beta coefficients. For the second block, the R^2 change value was significant ($R^2 = .03$, F (3, 348) = 4.23, $p < .05$), with the betas also revealing a significant contribution for fostering acceptance of group goals ($B = .19$, $p < .05$).

For emotional stability the hierarchical regression analyses indicated that the four hypothesised leadership behaviours predicted a significant proportion of the variance in scores ($R^2 = .08$, F (4, 355) = 7.12, $p < .01$). For the first block, the results revealed a significant R^2 value ($R^2 = .08$, F (4, 351) = 7.12, $p < .01$), with the betas revealing a significant contribution for intellectual stimulation ($B = .17$, $p < .05$). For the second block, the R^2 change value was not significant.

For problem solving the hierarchical regression analyses indicated that the four leadership behaviours predicted a significant proportion of the variance in scores ($R^2 = .06$, F (4, 355) = 5.25, $p < .01$). For the first block, the results revealed a significant R^2 value ($R^2 = .06$, F (4, 351) = 5.25, $p < .01$), but no significant beta

values. For the second block, the R^2 change value was not significant. Please see Table 8 for hierarchical regression analysis results.

Table 8
Hierarchical Regression results for hypothesised transformational leadership behaviours and the self-esteem domains

Predictor	R^2	R^2_{cha}	F_{cha} *(df)*	Sig_{cha}	*Beta*	*Sig p*
Block 1: General self-esteem (n = 356*)*	.09	.08	7.20 (4, 351)	.00**	-	-
Intellectual Stimulation	-	-	-	-	.15	.04*
Individual Consideration	-	-	-	-	.26	.03*
Inspirational Motivation	-	-	-	-	-.05	.69
Contingent Reward	-	-	-	-	-.09	.36
Block 2: General self-esteem	.09	.02	1.88 (3, 348)	.13	-	-
Fostering acceptance of group goals	-	-	-	-	-.04	.65
Appropriate role model	-	-	-	-	-.10	.26
High performance expectations	-	-	-	-	.13	.04*
Block 1: Honesty and trustworthiness (n = 356*)*	.07	.03	2.84 (4, 351)	.02*	-	-
Intellectual Stimulation	-	-	-	-	.21	.00**
Individual Consideration	-	-	-	-	-.08	.54
Inspirational Motivation	-	-	-	-	.04	.34

Contingent Reward	-	-	-	-	-.03	.77
Block 2: Honesty and trustworthiness	.07	.03	4.23 (3,348)	.01*	-	-
Fostering acceptance of group goals	-	-	-	-	.19	.04*
Appropriate role model	-	-	-	-	.15	.09
High performance expectations	-	-	-	-	.07	.25
Block 1: Emotional stability (n = 356)	.08	.08	7.12 (4, 351)	.00**	-	-
Intellectual Stimulation	-	-	-	-	.17	.02*
Individual Consideration	-	-	-	-	-.02	.86
Inspirational Motivation	-	-	-	-	.12	.31
Contingent Reward	-	-	-	-	.04	.66
Block 2: Emotional stability	.08	.01	1.13 (3,348)	.34	-	-
Fostering acceptance of group goals	-	-	-	-	-.01	.90
Appropriate role model	-	-	-	-	.15	.10
High performance expectations	-	-	-	-	.05	.47
Block 1: Problem solving (n = 360*)*	.06	.06	5.25 (4, 351)	.00	-	-

Intellectual Stimulation	-	-	-	-	.10	.17
Individual Consideration	-	-	-	-	.17	.16
Inspirational Motivation	-	-	-	-	.13	.28
Contingent Reward	-	-	-	-	-.17	.08
Block 2: Problem solving	.06	.01	.63 (7,359)	.59	-	-
Fostering acceptance of group goals	-	-	-	-	-.02	.82
Appropriate role model	-	-	-	-	-.08	.37
High performance expectations	-	-	-	-	.06	.32

*$p < .05$; **$p < .01$

Discussion

The present chapter explored the impact of the separate transformational leader behaviours on selected self-esteem domains. The results demonstrated that the differentiated transformational leadership behaviours had varying impacts: the behaviour of intellectual stimulation was demonstrated to be the most significant predictor of the hypothesised self-esteem domains, significantly predicting three of the four hypothesised self-esteem domains. Individual consideration, contingent reward and inspirational motivation also demonstrated high levels of variance in the self-esteem domain scores, but only individual consideration demonstrated significant predictive ability (with general self-esteem).

Although the significant results for intellectual stimulation were related to general self-esteem, honesty/trustworthiness and emotional stability, there was no significant result between intellectual stimulation and problem solving, which was contrary to the hypothesis. Individual consideration demonstrated just one significant result for general self-esteem, and there were no significant results for inspirational motivation and contingent reward, which was also contrary to the hypothesis. Two unexpected significant results were revealed for the behaviour of high performance expectations (with general self-esteem), and for the behaviour of fostering acceptance of group goals (with honesty/trustworthiness). These results were not hypothesised, but by using the differentiated model of transformational leadership, this allowed for such results by permitting a deeper scrutiny of the behaviours than would be feasible if using a global model.

The study adds to the extant literature by providing empirical evidence that transformational leadership does seem to predict self-esteem domains over and above the effects of the expedition alone. That is to say, while expeditions do appear to have

a positive effect on self-esteem domains, crucially, transformational leadership is one of the factors influencing this impact. It is important to consider, however, the fact that there may be a number of other potential variables present in the transformational leadership/self-esteem relationship (i.e., self-regulation, autonomy, etc.). In other words, the present study is limited in that it is not possible to determine the magnitude of whether transformational leadership partially or fully mediates the relationship between self-esteem increases and the expedition, or indeed whether it is a moderator. Separate analyses on other potential variables would first be warranted.

The study does provide some evidence to support the argument for using a differentiated model of transformational leadership to examine the impact of separate behaviours (cf. Antonakis, Fenley, & Liechti, 2011; Hardy et al., 2010; Rafferty & Griffin, 2004). Further, the study adds support to the concept that leadership is indeed a mechanism that underpins outcomes of expedition participants (Kayes, 2004; McKenzie, 2000), namely self-esteem domains.

It is surprising that the behaviour of high performance expectations was found to have such an impact on general self-esteem. This result was not hypothesised, but it could be proffered that adolescents respond well to leaders setting high standards and expectations, as this allows followers to perceive that their leader has belief that they can still be successful even if they aim higher. The significant result for fostering acceptance of group goals was also surprising, but it may be argued that honesty/trustworthiness is an integral part of creating the ideal environment of trust and openness required for a team to work optimally together. All of the significant results add further weight to the demonstrable and positive effects of transformational leadership found in other field studies (Barling et al., 1996; Hardy et al., 2010; Dvir et al., 2002; Dvir & Shamir, 2003), although further exploration of the other potential

variables that may mediate the relationships herein observed, would add clarification over the exact effects of the expedition and transformational leadership on self-esteem domains.

The results may also be used as a basis to inform a transformational leadership training intervention (Dvir et al., 2002; Hardy et al., 2010). Typically, transformational leadership training interventions have been implemented to examine whether leadership behaviours are modifiable. By using a differentiated model, it is possible to explore the properties of each of the behaviours, rather than the global concept. In this respect, it is possible to select specific behaviours for target in an intervention. For example, selection may be based purely on preceding theory from the literature, or on the regression analyses, or on the mean scores, or indeed a combination of these. In this way, it is important to consider both the mean scores and regression results in relation to the level of each of the leader behaviours. For example, although intellectual stimulation had the second lowest mean score of all the leadership behaviours, it had the strongest relationship with the self-esteem domains. Conversely, Hardy et al. (2010) found that intellectual stimulation did not contribute to training outcome, but they proposed that the reason for this was a lack of relevance for the behaviour in the military setting. Therefore, in order to develop a successful training intervention, focus should be made primarily on the behaviours that are most contextually relevant. The behaviours that are strong predictors of the outcomes may be the obvious choice for focused training, as they are demonstrated to have the biggest effect on follower outcomes, but lower scoring behaviours may prove to be a prudent avenue of research for interventions, as they have the most potential for change. Further, in the present study, the leaders already appeared to demonstrate high levels of capacity across some of the hypothesised behaviours, so perhaps these

higher scoring behaviours should not be the focus for modification. Within the context of the present research, the purpose of a training intervention would be to enhance only a selection of the seven behaviours, in order to choose those that are most relevant to expeditions, and to limit training overload for participants. Selection would likely result in a small combination of contextually relevant behaviours that (i) significantly predict self-esteem domains, and (ii) are lower scoring, and thus in most need of development.

There are, however, a number of limitations to the present study. First, data were only collected for self-esteem domains, so the study is limited to examining this variable only in the context of the impact of transformational leadership, and not other potentially influencing variables. More research is needed in this area to expand the variables examined in relation to impact in the expedition setting. Second, unexpected results were found for high performance expectations and fostering acceptance of group goals, which suggests that they were not hypothesised because there is not yet enough theoretical grounding for these two behaviours in the expedition context. Further research into the differential impact of the behaviours is warranted in terms of the relevance of these behaviours to the expedition setting. Third, multilevel analysis was not used in this study, as regression analysis was deemed most suitable for scrutinising the current data set. Regression analysis examines the differential effects of the independent variables on the dependent variables, and looks for the predictive ability of each independent variable. The limitation to regression analysis is that it cannot explore the nested group-level data. Multilevel analysis would, however, add further detail in terms of the group-level data, that is, the impact of individual expedition leaders on their own teams could be analysed, rather than analysing the data at the individual-level.

Overall, despite these limitations, the results of the present study demonstrate the value of using a differentiated model to examine individual leader behaviours, given the different relationships that each of the behaviours were shown to have with self-esteem. Moreover, the results indicate that all of the transformational leadership behaviours are important predictors of self-esteem domains, albeit to differing degrees. The results seem to add further support to the findings of Kark and Shamir (2002, 2002a), and Kark and Van Dijk (2007), with respect to the predictive capacity of transformational leadership behaviours.

Following other experimental studies of transformational leadership (Barling et al., 1996; Dvir et al., 2002; Dvir & Shamir, 2003; Hardy et al., 2010; Rafferty & Griffin, 2004), and focusing on a differentiated approach (cf. Hardy et al., 2010), the research team propose to develop a training intervention for expedition leaders that will explore whether specific transformational leadership behaviours can indeed be modified. The mean results and regression analyses from the current study can be used to inform the intervention. In particular, consideration can be given to the results in combination, in other words, attention may be given to the behaviours that are the strongest predictors, but are currently among the lower-scoring levels demonstrated by the expedition leaders. The subsequent chapter will examine the literature on guidelines for interventions, and subsequently detail the processes for developing a suitable and contextually relevant training intervention for modifying expedition leaders' transformational leadership behaviours.

Chapter 5

Examination of the effectiveness of transformational leadership training interventions

Abstract

Two studies examined the effectiveness of training interventions to modify transformational leadership (TL) behaviours. Study 1 was a pilot intervention to explore the feasibility of running a TL training intervention for expedition leaders. Eleven expedition leaders were randomised into experimental (intervention) and control groups and were trained in three TL behaviours. Results from the pilot indicated that there was a significant increase in one of the behaviours (intellectual stimulation) for the experimental group at post-test in comparison to the control group, but there were no significant differences in post-test scores between the groups. Subsequent review of Study 1 led to amendments in content and design of the intervention for Study 2, resulting in the development of a full-scale intervention. In total, 42 expedition leaders were randomly assigned to experimental and control groups, and trained in TL behaviours, selected by self-assessment of strengths and weaknesses. Results for Study 2 demonstrated that the TL intervention had a significant and positive impact on experimental expedition leaders' TL behaviours compared to the control group. When examining the self-esteem domains of followers, however, there was only one domain that was significantly higher for the experimental group. The studies raise important issues about theoretical underpinnings, best practice guidelines, and overall design of interventions.

Introduction

Transformational leadership has frequently been demonstrated to have a positive impact on a wide range of outcomes, for example, in the military (Hardy et al., 2010), sport (Callow et al., 2009), business (Barling et al., 1996), the public sector (Rafferty & Griffin, 2004), and education (Koh et al., 1995). Indeed, in Chapter 4 of the present thesis, results produced some evidence that demonstrated the positive and predictive effect of some of the transformational leadership behaviours on self-esteem domains in a youth expedition setting. Despite these apparent positive effects there have been few field experiments carried out to explore the causal relationship between transformational leadership and follower performance, with most studies being of a static, correlational, or non-experimental design (Kirkpatrick & Locke, 1996).

As highlighted in the General Introduction, there are few studies undertaking field-based interventions in transformational leadership (Antonakis et al., 2011; Arthur & Hardy, 2014; Barling et al., 1996; Beauchamp, Barling, & Morton, 2011; Dvir et al., 2002; Hardy et al., 2010; Vella, Oades, & Crowe, 2013). While these studies have begun a process of providing evidence for the successful modification of transformational leadership behaviours, more research is needed to examine these interventions across contexts and encompassing other variables. Consequently, it is the aim of the present research to conduct two studies to explore the effectiveness of training intervention, specifically a small-scale pilot intervention followed by a larger-scale intervention. In addition, the larger-scale intervention will examine the impact of individual transformational leadership behaviours on the sub domains of self-esteem.

The rationale for selecting a field-based experimental design in the present

thesis is two-fold. First, the present thesis aimed to extend the current expedition literature by conducting field-based interventions that are evaluated by experimental research designs. It is important not only to run training interventions, but also to empirically evaluate the efficacy of the training. To this end the current thesis will extend the expedition literature by utilising an experimental paradigm.

Second, the company partner requested that a usable training programme be created during the research, with the aim of targeting as many expedition leaders during the process as was possible. Whilst the current research adopted an empirical approach to evaluate the intervention other methods are available. As discussed in the General Introduction, there is a strong case for using either qualitative or quantitative methods to examine research questions, and each approach provides a different interpretation of the data. While quantitative methodologies allow for quantification of effects and hypothesis testing, qualitative approaches have the advantage of being able to provide a richness of data not available using quantitative means. For example, in the present study, using an in-depth exploration of the effects of the intervention on a small number of leaders would have elicited greater detail of individuals' experiences. Qualitative approaches undoubtedly provide much richer data that can provide greater insight into the experiences of a small number of leaders. Adopting such qualitative approaches might have also facilitated a deeper level of reflection of the leader's experience of the intervention. Equally, other qualitative methods such as using focus groups, which would offer group-perspective insights into the intervention, while accounting for limited resources such as time and having only one researcher; or interviews with a slightly larger population (as per the numbers used in the current studies), to explore particular aspects of the training and how it may be implemented. Of these, the focus groups may have offered more content to the

evaluation of the intervention, but the feasibility of connecting sufficient group members may not have been possible, as was found in the pilot. For the full-scale intervention, there was insufficient time in the expedition leaders' schedules to run the training followed by the focus groups. The interviews are similarly not ideal in the current studies, as the time involved to create a rigorous and structured interview plan, and deliver it on an individual basis may have resulted in issues akin to those found in the pilot, given that resources were similarly stretched.

Although other methods of experiment may have been adopted, the requirements of the company partner are among the primary considerations of KESS-funded research, and as such, scheduling further sessions with the leaders (such as interviews and focus groups) was not possible in the operational timeline of the company partner. Further, the requirement of the company partner was to create and deliver a training intervention involving as many leaders as possible, in particular for the full-scale intervention, and to ensure that the training intervention was in place as soon as was feasible in the research programme.

The seven field experiment studies cited all demonstrated a positive relationship between transformational leadership and a range of measured outcomes. Specifically, employing a sample of 20 bank employees randomly assigned to experimental and control groups, Barling et al. (1996) found significant and positive effects of transformational leadership on the experimental groups' perceptions of their leaders' behaviours, their organisational commitment, and two areas of branch sales performance indicators, above and beyond the control group. Although the sample size was small for this study, and only three factors of transformational leadership (intellectual stimulation, charisma and individual consideration) were measured, the study provided the foundation for future field experiments in transformational

leadership.

Extending the research of Barling et al. (1996), Dvir et al (2002) employed a large sample (868 participants) of Israeli Army service personnel and applied a global transformational leadership training intervention, using a two-tier strategy that measured both the platoon leader's direct followers (non-commissioned officers), and their indirect followers (recruits). Results revealed that the experimental group leaders had a more positive impact on the development of direct followers and on performance of indirect followers, above and beyond the control group leaders. While the sample size and number of variables tested were much greater than the Barling study, the Dvir study still had its limitations. First, a global measure of transformational leadership was employed, which does not allow for examination of specific behaviours and their causal relationship to the outcomes. Second, there were no results provided for end of course pass/fail rates, which is, arguably, the most important outcome of an Army training course. Interestingly, Dvir et al. (2002) did not find positive results for the more physical elements of the Army training, which may raise questions of suitability for aspects of the intervention in this context.

Perhaps the most relevant field study to the present research is that conducted by Hardy et al. (2010). Hardy further extended the literature base using a differentiated measure of transformational leadership to examine specific behaviours in a British military setting. They found that a transformational leadership training intervention positively affected recruits 'perceptions of their leaders' transformational leadership behaviours, and their attitudinal outcomes. As in the Dvir study, Hardy et al. used a two-tier approach, first recruiting senior Army personnel who then trained their recruits. As with previous studies, there were limitations to the Hardy et al. study. First, although control and experimental groups were randomly assigned, the

groups were not assessed for potential differences at baseline. Second, potential common method variance was not controlled for in the study design, so correlations between the attitudinal outcomes and the leadership behaviours were not reported, owing to potential inaccuracies. The authors called for more experimental studies to address the contextual effects of transformational leadership.

Similarly, in a business context, and using a differentiated approach, Antonakis et al. (2011) ran an intervention using an action training approach, which examined whether 'charisma' ('charisma' and 'transformational' terms were used interchangeably) could be modified using two transformational leadership interventions. Action training is focused on exploring how different desires and beliefs lead to action, and whether these facets may be manipulated in order to change the action, or 'behaviour'. In their first study, with 34 middle managers in Switzerland, they found that the intervention leaders were reported to be significantly more charismatic than control leaders. In their second study of 41 MBA students delivering a speech, they found that charisma significantly predicted leader emergence and prototypicality, as well as significantly predicting outcomes such as trust in the leader.

More recently, and using a pilot study, rather than a full-scale intervention, Vella et al. (2013) tested a transformational leadership training intervention for sports coaches who coached youth sport participants. They found that coaches who had received the intervention were perceived to have higher rates of transformational leadership, and that these increases were linked to higher self-reported development experiences by the participants. The Vella intervention raises the important question of whether a pilot study should be employed prior to running a larger intervention. The Beauchamp et al. (2011) study was also a pilot intervention, this time examining

transformational teaching on adolescents' self-determined motivation, their self-efficacy, and their intentions to participate in extra curricular physical activities. Employing a pilot study is in line with the Medical Research Council's guidance of how to run complex interventions (Craig, Dieppe, Macintyre, Michie, Nazareth, & Petticrew, 2008; Van Teijlingen, & Hundley, 2001). The Vella study extended the literature base by using 'real-world' application by collaborating with community organisations, however, it was noted that the lack of any training given to the control group was a limitation to the study.

To build on these field studies and to address the limitations in each, the present study sought to design a training intervention that: uses a differentiated model of transformational leadership, employs random assignment to a control group and experimental group, has a large sample size, and controls for common method variance (controls included using different time points for completing measures, having a different Likert scale and answer format (either circle a number or write a number) for each measure, and consistently using a paper and pen method). In order to maximise the effectiveness of a large-scale intervention, a pilot test was conducted as a 'test-run' to explore strengths and limitations, which could then be reviewed prior to making amendments for the main intervention (Craig et al., 2008; Van Teijlingen, & Hundley, 2001).

Further to this, extracting from Langan, Blake and Lonsdale (2013), who conducted a systematic review of published empirical research on the effectiveness of coach education training interventions, the underlying conclusion was that evidence of best practice for interventions involved a degree of creative freedom in the intervention design. To expand, they found that the majority of interventions employed a combination of training techniques. These included behavioural

techniques (Smith & Smoll, 1996; Smoll, Smith, & Cumming, 2007), cognitive-behavioural therapy, educational training, and role-playing. It would appear then, that these are all examples of good practice, as they focused on changing the coach's interpersonal effectiveness. Consequently, the current pilot study was based on a behavioural (Watson, 1913) and action training approach (Antonakis et al., 2011). The purpose of the pilot intervention was to examine the grounding for a large-scale intervention in transformational leadership.

In order to develop the content of the training intervention, in terms of which transformational leadership behaviours should be targeted, the research team reviewed the results of the previous chapter for guidance. Specifically, the results of chapter 4 revealed transformational leadership behaviours that varied in terms of mean frequency of use. That is, contingent reward[3] had the lowest mean score of all the transformational behaviours (M = 3.65, SD = .80), followed by inspirational motivation (M = 3.78, SD = .81), individual consideration (M = 3.81, SD = .69), intellectual stimulation (M = 3.90, SD = .60), appropriate role model (M = 3.95, SD = .74), and high performance expectations (M = 4.05, SD = .52). The highest mean score was for fostering acceptance of group goals (M = 4.13, SD = .63). Based on these results, it can be ascertained which behaviours have the most potential for change via an intervention (i.e., those with low mean frequency).

In addition to the mean data, the findings of the multiple hierarchical regression analyses identified which of the leadership behaviours were the strongest predictors of self-esteem domains. Specifically, intellectual stimulation was the strongest predictor of the four hypothesised self-esteem domains that were examined,

[3] Contingent reward is the only transactional behaviour in the transformational leadership model, and so it is not surprising that it should have the lowest score, given that expedition leaders are encouraged to demonstrate rapport-based behaviours, and not transactional behaviours.

followed by individual consideration and inspirational motivation (see page 107 for the correlations table and page 110 for the regression table in Chapter 4).

Taking into consideration the means and the regression results, however, it was deemed that a combination of leadership behaviours that encompassed low means, but were still important predictors of the self-esteem domains, in addition to the strongest predictor would be the most prudent leadership behaviours to consider for the pilot intervention. Thus, taking into account all the results from Chapter 4, 1) intellectual stimulation, 2) inspirational motivation and 3) contingent reward were selected for the training intervention. In order not to overload participants in the training intervention, it was decided to limit the intervention to three leadership behaviours.

In view of Hardy et al.'s (2010) comments regarding Barling et al.'s (1996) use of a global measure, the present study opted to use a differentiated model of transformational leadership for greater inspection of the effects of specific behaviours on outcomes.

It is therefore hypothesised that:

H1 – Intellectual stimulation, inspirational motivation and contingent reward, will significantly increase intervention participants pre to post transformational leadership scores above and beyond a control group.

Method

Study 1

Participants

Although the current study uses a repeated measures design, it is worth noting that this is not the typical repeated measures design. To expand, the repeated

measures used herein are based on the same expedition leader being tested at two time points, but not the same respondents at the two time points. This was owing to the fact that expedition participants change each year (i.e., the expedition is a one-off experience for participants, even if leaders return each year). In this way, 'baseline' scores for the current study were the mean scores for expedition leaders' transformational leadership behaviours from student participants in the year before the pilot (2011). These scores were then compared with the pilot year (2012) scores from a new set of student participants.

In total, there were two sets of participants for this study: First, the expedition leaders employed by Outlook Expeditions, leading an expedition during the summer vacation period of 2012, and second, the young people who were going on these expeditions. The expedition leader participants were only selected if they had E-DTLI data from the 2011 expeditions, which would be used as a baseline. As part of a wider data collection (see Chapters 2 and 3), each expedition leader's team of young people completed the E-DTLI at the mid-point of the expedition in order to measure their leader's transformational leadership behaviours.

Based on the requisite of having E-DTLI scores from 2011, a total of 20 leaders were approached in 2012. Of these 20 leaders, 11 (8 males, 3 females, M_{age} = 38.02, SD = 13.67 years) consented to take part in the training intervention. The 11 leaders were then randomised into two groups, an experimental group and a control group. Of the 11 leaders, all but one from the experimental group returned completed E-DTLI questionnaires for analysis. The leader who did not return questionnaires stated that their team did not wish to complete the E-DTLI at the time of administration. The youth participants were recruited via Outlook Expeditions, as part of a wider data collection. For the purpose of this study, 91 participants (45 males, 46

females, M_{age} = 16.58, SD = .64 years) were extracted and all returned completed E-DTLI questionnaires.

Measures

Transformational leadership To determine perceptions of transformational leadership behaviours the E-DTLI, developed in Chapter 3, was administered. The E-DTLI is an inventory that measures six transformational behaviours: inspirational motivation (e.g., "My leader expresses confidence that I can achieve my goals"); appropriate role-modelling (e.g., " My leader acts in a way that makes me respect him/her"); individual consideration (e.g., "My leader cares about my needs"); intellectual stimulation (e.g., "My leader challenges me to work out how to solve problems"); high performance expectations (e.g., "will not settle for second best"); and fostering acceptance of group goals (e.g., "My leader makes me think about how my actions affect the team"). The inventory also measures one transactional behaviour: contingent reward (e.g., "My leader gives me praise when I do good work"). The 29-item inventory is measured on a 5-point Likert scale anchored by 1 (*not at all*) to 5 (*all of the time*). The 29-item E-DTLI was found to be highly reliable when used for a related study in Chapter 3: The seven scales revealed the following fit statistics from CFA: ($\chi^2(356) = 1044.28$; RMSEA =.06; SRMR = .04; CFI = .99; NNFI =.99), with factor loadings ranging from .44 to .90. See Appendix 5 for all items.

Intervention Procedure The intervention training employed a behavioural (Watson, 1913) and action training approach (Antonakis et al., 2011) and was divided into four parts. First, the leaders had to rate their abilities in each of the

transformational leadership behaviours. Second, the researcher presented a summary of the correlation and regression results, and explained the key tenets of the three selected behaviours (intellectual stimulation, inspirational motivation and contingent reward). Third, the leader was presented with three expedition scenarios to discuss. Each scenario focused on one of the three selected behaviours. Fourth, the leader was asked to detail his/her action plan as to how they aimed to improve the three selected behaviours, using an aide memoire detailing the relevant theory about the transformational leadership behaviours. The first author recorded all responses from the leader. The session finished with the leader and first author arranging a follow-up session to review action plan progress, where possible. All leaders from both the experimental and control groups attended an Outlook Expedition annual training event, which incorporated a two-hour session focusing on the practical application of personal development concepts and transformational leadership to an expedition context. The experimental group leaders received the one-to-one intervention training from the first author, at a date, time and venue of their choice prior to expedition departure. One of the leaders only received their training on their day of expedition departure, having previously cancelled an earlier arrangement to meet.

Procedure

Following the research institution's school ethics board approval, Outlook's expedition leaders were approached to take part in the study via email. For the purposes of gaining feedback on the leaders using the E-DTLI, expedition participants were also approached to take part via email. The email provided detailed information on the purpose and outline of the study, and explained confidentiality of responses. Following this, the youth participants were invited to take part in the study and

written consent was obtained. Parents gave their consent for those participants under 16 years of age. Eligible leaders were invited by a further email to participate in the research, but not informed which group they would be assigned to. Written consent was then obtained for those who elected to/were available to participate. The experimental group's training interventions occurred on a one-to-one basis with the first author, at a location convenient to each of the expedition leaders, prior to their departure on expedition. (See Table 9). During the administration of the E-DTLI the teams were supervised by their expedition leader, who gave detailed information about the study, for example, outlining the purpose of the study, clarifying confidentiality, and explaining the response scales. The E-DTLI was administered to all youth participants at the halfway point of each expedition (mid-test). All completed questionnaires were placed in an envelope, sealed and handed back to the research team via Outlook expedition staff upon each expedition team's return to the UK.

Table 9

Leader group, number of sessions and contact method for each intervention session.

Leader code name	No. of training sessions	Session 1 contact method	Session 2 contact method
Experimental 1	2	Face to face	Email
Experimental 2	2	Skype	Email
Experimental 3	1	Skype	N/A
Experimental 4	2	Face to face	Phone
Experimental 5	1	Face to face	N/A
Experimental 6	1	Face to face	N/A

Data analysis

The data were analysed using three separate repeated measures ANOVAs (group x time), with repeated measures on the second factor. Repeated measures ANOVAs were selected as the most appropriate analysis as the intention was to measure the same leader's scores at both time points. As with Chapter 2, conducting multiple ANOVAs increases the chances of making a type I error, which, it could be argued, should be controlled for by either Bonferroni correcting the significance level, or running a MANOVA on the three leadership variables (Tabachnik & Fidell, 2007). However, neither of these options was selected, for the following three reasons: (i) a clear directional a priori hypothesis was given for the three selected leadership behaviours, and if such effect patterns were repeatedly demonstrated for the hypothesised behaviours then they clearly could not have been demonstrated by chance, as chance effects would be random in direction; (ii) MANOVA is only appropriate if there are genuinely multidimensional hypotheses, in other words, hypotheses about the combined linear effects of transformational leadership behaviours in the present study. The main purpose of using a differentiated (as opposed to global) model of transformational leadership is that there is little theoretical meaning in considering linear combinations of the behaviours. Huberty and Morris (1989) suggest a further reason for taking a multiple univariate approach: (iii) When some or all of the current variables being examined have been previously studied in a univariate way. To this end, the data analysis strategy of the present study is in line with Hardy et al. (2010).

Results

Mean scores and ANOVA results for expedition leaders on the three hypothesised transformational leadership behaviours are presented in Table 10. ANOVA implies four main assumptions: (i) that the population is evenly distributed; (ii) that there is homogeneity of variance; (iii) that there is independence of scores; and (iv) that the data are parametric. In each of these cases, the assumptions were not violated.

The results of the first ANOVA demonstrated that for intellectual stimulation there was no main effect for group, and no main effect for time, but there was a statistically significant group by time interaction ($F(1,190) = 4.02$, $p < .05$), $\eta^2 = .02$ and $\beta = .51$. The significant interaction was followed up using two independent samples t-tests: one examining possible differences for 2011 (pre-test) baseline scores, and one for 2012 (post-test) scores. There were no statistically significant differences between the experimental and control groups' scores for baseline or at time two. From such inspection of the mean data, it is likely that the interaction was caused by the control group mean scores decreasing between pre-test and post-test, while the experimental scores increased between baseline and time two. To test this, two further dependent samples t-tests were carried out. The t-tests revealed that there was a significant difference in scores for the experimental group between baseline ($M = 3.78$, $SD = .68$), and time two ($M = 4.04$, $SD = .59$, $t(99) = -1.99$, $p < .05$), but there were no significant differences between time points for any of the behaviours for the control group.

The results of the second ANOVA examined the mean scores of the two groups for inspirational motivation, and demonstrated that there were no main effects for time, group and no significant interaction. There were also no significant

differences in mean scores between the two groups at post-test. The third ANOVA examined the mean scores of the two groups for contingent reward, and again demonstrated that there were no main effects for time, or group and no significant interaction. There were also no significant differences in the mean scores between the two groups at post-test.

Table 10
Means, and SDs for 2011/2012 experimental and control group scores.

	Means (SDs) Experimental Group		Means (SDs) Control Group		*t-value*
	pre-test (*n*=51)	post-test (*n*=50)	pre-test (*n*=52)	post-test (*n*=41)	(Experimental & Control post-test)
E-DTLI Scales					
IS	3.78 (.68)	4.04 (.59)	4.12 (.75)	3.89 (.69)	-.61
IM	3.75 (.76)	3.95 (.76)	4.25(.68)	3.85 (.94)	-1.10
CR	3.50 (.89)	3.67 (.82)	4.16 (.66)	3.66 (.95)	-1.95

*$p < .05$; **$p < .01$

Key:
IS – Intellectual stimulation
IM – Inspirational motivation
CR – Contingent reward

Discussion

The purpose of running a pilot study was to test an intervention with the express intent of developing a larger-scale training intervention. The Medical Research Council's guidance of how to run complex interventions recommends the use of a pilot intervention prior to running a full intervention (Craig et al., 2008; Van Teijlingen, & Hundley, 2001). The pilot presented preliminary results in terms of the effectiveness of a small intervention. Contrary to the hypothesis, however, there was only one significant result, for the leadership behaviour of intellectual stimulation. The first ANOVA results demonstrated a significant interaction: the mean scores of the experimental group increased between years for all three behaviours, and the control group's means decreased. This means that that although the experimental group's leader behaviours increased, while the control group's scores decreased, it is likely that the interaction between the groups is a combination of the effects of the intervention, and the difference in scores for the control group between pre and post-test. The results for the leader behaviours (except for intellectual stimulation) are contrary to the hypothesis, however, possible reasons for this may be (i) owing to the small sample sizes of both the experimental and control groups, and (ii) the relatively high scores of the control group (compared with the experimental group) at pre-test, which still exceed the experimental group's post-test scores in two of the behaviours.

In the present study, the pilot offered initial exploration of how to run an intervention for the purpose of modifying transformational leadership behaviours, and raised many pertinent issues about intervention design, content and logistics. To this end, Study 1 was useful to the overall aim of designing a large-scale intervention.

As well as offering initial results for the modification of leadership behaviours, the pilot intervention presented several limitations that needed to be reviewed prior to the second intervention. First, although the pilot intervention does include transformational leadership theory, and was based on a behavioural (Watson, 1913) and action training approach (Antonakis et al., 2011), the pilot may be open to some criticism in terms of limitations about its theoretical foundations. For example, Langan et al. (2013) found that the majority of interventions were more 'theory inspired' than actually 'theory driven'. It may be argued that the pilot was indeed more theory 'inspired', as the approaches taken did not underpin the design of the intervention, per se. The second intervention should heed the recommendation for much firmer theoretical foundations, rather than the broader remit of 'behavioural' and 'action training' approaches. Following Langan et al.s' (2013) findings of 'theory inspired' rather than firmly underpinned interventions, the second intervention is designed with Kelly's (1955/1991) theory of personal construct psychology as a foundation. That is to say, the focus of the second intervention is not to pre-select target behaviours as in the pilot, but to allow each leader to select their own 'top three' behaviours to work on. Kelly's (1955/1991) theory proposes that every individual creates their own constructs of the world around them, and each construct is either reinforced or amended depending on the future experiences of that person. In this way, Kelly's theory supports the notion that if a leader is given the freedom to choose which behaviours to improve, they are more likely to select behaviours that are important to their construct, and thus, be more committed to improving them. For example, one expedition leader may have encountered praise as a genuine and frequent outcome of succeeding during their lifetime, and as such may see this as a positive construct and therefore tend towards giving genuine and frequent praise,

which may result in them taking a more positive attitude to contingent reward. Conversely, a leader who has built a construct that praise is disingenuous or infrequent from having many experiences of receiving such 'praise', may see praise as a negative construct, and thus be less inclined to demonstrate it. As such, they may not be so moved to work on improving their contingent reward behaviours. Following Kelly's theory, it is reasoned that individuals will be more likely to engage in the training and development process if they have ownership of the areas to be modified.

Second, some of the one-to-one training sessions occurred on a date very close to (or on) the day of expedition departure, which may have resulted in a lack of reflection time to embed learning (Cushion, Nelson, Armour, Lyle, Jones, & Sandford, 2010). Indeed, in a review of coach learning and development, Cushion et al. (2010) express the importance of having time to reflect in, on, and retrospectively on an experience, in order to frame knowledge and embed learn from their experience. The Medical Research Council's (Craig et al., 2008) guidelines on running complex interventions propose that timescale can be a factor when considering the efficacy of complex interventions, and the process needs consideration for allowing adequate time for effects to manifest.

Third, although each leader was given the opportunity to receive the training face-to-face, some elected to use other methods (see Table 9), and most of the leaders received a mix of training methods for the two training sessions. Importantly, although being offered two sessions, half of the leaders did not receive the second training session (typically, this was owing to the lack of available time prior to the expedition for some of the expedition leaders). This meant that there was no consistency in number of training sessions, and training method, resulting in unique data for each leader, in other words, each method/frequency combination had $n = 1$.

This left no option for analysing whether training method could have been a covariate (typically an ANCOVA would be preferred, should sample size be sufficiently large enough). The literature on using different methods for training interventions, however, gives mostly positive results. For example, in healthcare interventions (cf. Fenig, Levav, Kohn, & Yelin, 1993; Rohde, Lewinsohn, & Seeley, 1997; Steele, Mummery, & Dwyer, 2009; Wagner, Horn, & Maercker, 2013), the majority of studies provide evidence that online and telephone methods are as effective as face-to-face delivery. Further, in education literature, there are examples of successful teaching via Skype, compared with the traditional face-to-face method (Motteram, & Sharma, 2009; Wang, & Hsu, 2008), and of e-learning blended methods (Ellis, Ginns, & Piggott, 2009; Howlett, Vincent, Watson, Owens, Webb, Gainsborough, Fairclough, Taylor, Miles, Cohen, & Vincent, 2011; Sharpe, Benfield, Roberts, & Francis, 2006; Turney, Robinson, Lee, & Soutar, 2009).

It appears that the majority of the intervention literature states that e-learning and blended methods of delivery can be successful, but this is typically in a teaching or therapeutic context (as above), not *training*, as is the case in the present study. This raises an interesting point about the implications of using a variety of methods for intervention delivery where lack of theoretical evidence and appropriate analysis is a feature. It would seem that the best approach for the second intervention would be to follow best practice guidelines (Craig et al., 2008; Langan et al., 2013) and remove the mixed methods/frequency element so as to negate the need for examining covariates at all.

Fourth, the restricted availability of leaders for the pilot intervention ultimately forced one-to-one training delivery. It would appear from the transformational leadership intervention literature that it is common practice to work

with leaders in a group setting (Antonakis et al., 2011; Barling et al., 1996; Dvir et al., 2002; Hardy et al., 2010; Vella et al., 2013). Further, Vella et al. (2013) posited that one of the key elements required for a successful learning environment was social support, as found in group training. Consequently, amendments to overcome these limitations should be addressed in the design of Study two's intervention.

Study 2

Introduction

The pilot intervention in Study 1 raised many pertinent questions about study logistics, such as an inadequate timescale for reflection, the mixed methods of delivery, the number of sessions received by each leader, and not delivering in a group format. From the intervention literature, it would seem that these complexities do not follow best practice (Craig et al., 2008; Langan et al., 2013), and as such, may have resulted in the ineffectiveness of the actual training delivered. In terms of the aims of the pilot, these logistical problems can now be reviewed, and remedied. For example; with respect to group training rather than individual training, working on a one-to-one basis would not be feasible for Study 2, as training could involve more than 100 leaders, which would be inefficient in terms of time and other resources. It was thus deemed appropriate to design an intervention that would be delivered in a group format, given the standard set by the seven published field studies (Antonakis et al., 2011; Arthur & Hardy, 2014; Barling et al., 1996; Beauchamp et al., 2011; Dvir et al., 2002; Hardy et al., 2010; Vella et al., 2013), which would provide social support in training (Vella et al., 2013).

Another consideration for amending Study 2's intervention design is that two of the published transformational leadership field experiments successfully employed a two-tier approach for the intervention, rather than using a member of the research team to train the followers (Dvir et al, 2002; Hardy et al, 2010). Given the relative success of both of these studies, it was deemed prudent to follow a similar design. To this end, Study 2's intervention was designed so that the first author would be the facilitator for three senior staff members of Outlook Expeditions who would then deliver the training intervention to the expedition leaders.

Chapter 4 explored the impact of transformational leadership on self-esteem domains, and the regression results demonstrated that the selected leadership behaviours predicted significant proportions of the hypothesised self-esteem domains. In consideration of these results, it is reasonable to hypothesise that those leaders who have higher transformational leadership scores (in other words the experimental leaders, post-intervention) will exert a more positive effect on the self-esteem domains of their followers. In this way it is expected that experimental leaders will have higher transformational leadership scores (having raised their overall level of transformational leadership scores by targeting weaker behaviours) than the control leaders, and that experimental leaders' expedition participants will have higher self-esteem domain scores than the control groups' participants.

Consequently, the present study designed a training intervention underpinned by Kelly's (1955, 1991) personal construct theory; presented a two-tiered training approach; employed a control group; was delivered in ample time prior to expedition departure; uses consistent methods of delivery for all leaders (face-to-face group learning with written and audio-visual support materials); leaders all receive the same number of sessions (one); and relied on self-assessment and selection by leaders of

which behaviours should be targeted for modification. It is therefore hypothesised that:

H2 – A training intervention aimed at participants developing their self-assessed weaker transformational leadership behaviours will lead to significantly higher E-DTLI scores than those of a control group.

H3 – A training intervention aimed at participants developing their self-assessed weaker transformational leadership behaviours will lead to significantly higher scores in the multidimensional self-esteem domains of their followers, above and beyond a control group.

Method

Participants

As with Study 1, there were two sets of participants: First, the expedition leaders employed by Outlook Expeditions, leading an expedition during the summer vacation period of 2013, and second, the young people who were going on these expeditions. As part of a wider data collection, each expedition leader's team of young people completed the E-DTLI at the mid-point of the expedition in order to measure their leader's transformational leadership behaviours.

A total of 182 leaders were approached in 2013. Of the 182 leaders, 42 (29 males, 13 females, M_{age} = 37.78, SD = 11.21 years) gave written consent to take part in the training intervention. These 42 leaders were randomly assigned to different training conditions, resulting in an experimental group (11 males, 9 females, M_{age} = 33.50 SD = 10.46 years) who would receive training in the transformational leadership behaviours, and a control group (18 males, 4 females, M_{age} = 42.82, SD = 10.13 years), who would receive no further training outside of the mandatory Outlook

annual leader training. In total, 8 of the control group leaders (6 males, 2 females, M_{age} = 51.60, SD = 5.18 years) did not return completed data sets.

The youth participants were recruited via Outlook Expeditions, as part of a wider data collection. In total, 269 participants (125 males, 144 females, M_{age} = 16.70, SD = .68 years) returned completed E-DTLI and self-esteem questionnaires. Of these, 160 (69 males, 91 females, M_{age} = 16.85, SD = .68 years) represented the experimental leader group, and 109 (56 males, 53 females, M_{age} = 16.48, SD = .62 years) represented the control leader group. A total of 80 (42 males, 38 females, M_{age} = 16.66, SD = .75 years) participants representing both the experimental and control leader groups did not return completed questionnaires. These non-completion participants were from seven experimental teams, and eight control teams.

Design. The Outlook staff members trained to deliver the intervention were selected on the basis of their seniority, leadership experience, and presentation skills. The participating expedition leaders were assigned to an experimental group. Control leaders were all those leaders attending an Outlook Expeditions training event on a different date to the experimental group, and thus did not have the option to take part in the intervention. These logistics were intended to try and randomise the groups, insofar as the research team could not influence who was placed in either group.

Measures

Transformational Leadership. To determine perceptions of transformational leadership behaviours the E-DTLI, developed for the purpose of the present thesis, was administered. The E-DTLI is an inventory that measures six transformational behaviours: inspirational motivation (e.g., “My leader expresses confidence that I can

achieve my goals"); appropriate role-modelling (e.g., " My leader acts in a way that makes me respect him/her"); individual consideration (e.g., "My leader cares about my needs"); intellectual stimulation (e.g., "My leader challenges me to work out how to solve problems"); high performance expectations (e.g., "will not settle for second best"); and fostering acceptance of group goals (e.g., "My leader makes me think about how my actions affect the team"). The inventory also measures one transactional behaviour: contingent reward (e.g., "My leader gives me praise when I do good work"). The 29-item inventory is measured on a 5-point Likert scale anchored by 1 (*not at all*) to 5 (*all of the time*). The 29-item E-DTLI was found to be highly reliable when used for a related study in Chapter 3: The seven scales revealed the following fit statistics from CFA: ($\chi^2(356) = 1044.28$; RMSEA =.06; SRMR = .04; CFI = .99; NNFI =.99), with factor loadings ranging from .44 to .90. The E-DTLI was used to evaluate the success of the training intervention, by comparing scores between experimental and control groups' self-esteem domain mean scores, and their leaders' respective E-DTLI mean scores. See Appendix 5 for all items.

Intervention staff training. The researcher trained three Outlook staff members in transformational leadership theory and intervention design, so that they could run the intervention with the expedition leaders. The Outlook staff were trained by the researcher three months in advance of the intervention delivery. The Outlook staff participated in a four-hour training session that covered the following: a preliminary discussion on the traits and characteristics of an effective leader; transformational leadership theory, and how this relates to the 'effective leader' discussion; explanation of the E-DTLI model; mapping the seven E-DTLI behaviours into an expedition context; self-rated performance profile on the seven behaviours,

and self-selecting three weakest behaviours to improve; creating an action plan of how to improve these behaviours; intervention session planning. The session finished with questions and feedback, and the Outlook staff were given a booklet detailing the research aims, theoretical underpinnings, and results so far. The staff were then asked to collaborate and return a finalised session plan to the research team within three weeks. During this time, the research team telephoned each Outlook staff member, twice, to discuss their action plans for improving their own behaviours, and their progress on the session plans. Once the session plans had been approved, the author was present for the intervention training sessions, visiting each staff member in turn throughout their delivery.

Intervention group. The intervention occurred on two separate occasions, resulting in three small groups being trained at each session. The intervention consisted of a single two-hour session for each group, with each group led by one of the Outlook Expeditions trained staff. The session was divided into three parts: First, the trainers discussed relevant theory, and used practical tasks to disseminate key information about transformational leadership. Second, the training staff explained the performance profiling process (Butler & Hardy, 1992) and allowed time for each leader to complete their own profile pertinent to their transformational leadership capabilities. Butler and Hardy (1992) and Gucciardi and Gordon (2008) demonstrated the effectiveness of this tool, underpinned by personal construct psychology (Kelly, 1955/1991), using a sport-psychology setting. Third, each leader had to select three leadership behaviours that they felt needed improvement, and a group discussion followed to initiate action plans as to how improvements would be made.

Control group. Control group leaders were not given the option to join the experimental group, and received only generic training at a separate Outlook Expeditions leader-training event. Selecting a control group who do not have the option of participating in the intervention is an important consideration, as there could be differences (e.g., in attitude, ability, or motivation) between groups of leaders who could participate in the training, but choose not to do so. The year after the experiment (2014), when it could no longer affect the results, all expedition leaders employed by Outlook Expeditions were privy to the intervention training.

Both the intervention and control groups were issued with E-DTLI packs prior to expedition departure to administer to their own expedition teams, and these questionnaires were returned to the research team upon each team's return to the UK.

Procedure

Following the research institution's school ethics board approval, Outlook's expedition leaders and expedition participants were approached to take part in the study via email. The emails provided detailed information on the purpose and outline of the study. Confidentiality of responses was also explained in the email. Following this, expedition participants were invited to take part in the study and written consent was obtained. Parents gave their consent for those participants under 16 years of age. During the administration of the E-DTLI questionnaires the teams were supervised by their expedition leader, who gave detailed information about the study, for example, outlining the purpose of the study, clarifying confidentiality, and explaining the response scales. The E-DTLI was administered to the participants at the halfway point of each expedition (mid-test). All completed questionnaires were placed in an

envelope, sealed and handed back to the research team via Outlook expedition staff upon each expedition team's return to the UK.

Expedition leaders were invited by email to participate in the intervention, which constituted part of a wider research programme, but not informed that they would be either an experimental or control group. Written consent was obtained prior to the intervention for leaders who elected to participate.

As a courtesy to Outlook's expedition leaders, the year after the experiment (2014), when it could no longer affect the results, all expedition leaders were privy to the intervention training. The purpose of this was to offer everyone the knowledge and skills provided to the experimental leaders in 2013. In this way, equity of treatment for leaders was achieved, and the overarching agreement with Outlook Expeditions (please see page 16 for details of the Outlook Expeditions partnership and the underlying aims of all the studies) to provide a usable and effective training programme for future training purposes was fulfilled.

Data analysis and manipulation check

A randomisation check was carried out to examine potential differences between the groups. This was deemed appropriate given that the experimental group had elected to attend the training workshop, which may infer something about them that is different to other groups (e.g., desire for development). Independent t-tests were used for this purpose. The results of the checks using independent t-tests demonstrated that there were no significant differences between the leader groups for E-DTLI mean scores (pre-test), or for age. Unfortunately no data were available for number of years of experience.

For hypothesis 2, a one-way ANOVA was carried out to examine potential

differences between the groups' E-DTLI mean scores. For hypothesis 3, 8 one-way ANOVAs were carried out to examine differences between groups for followers' self-esteem domain scores at time 2. Consistent with the data analysis strategy used in Study 1, and in line with the approach taken by Hardy et al. (2010), multiple ANOVAs were used instead of conducting a single MANOVA. See page 130.

Results

Mean scores for both groups on the seven transformational leadership behaviours are presented in Table 11. As with Chapters 2 and 4, and indeed the pilot study, ANOVA implies four main assumptions: (i) that the population is evenly distributed; (ii) that there is homogeneity of variance (Levene's statistic); (iii) that there is independence of scores; and (iv) that the data are parametric. In each of these cases, for hypothesis 1, Levene's statistic was violated for each of the behaviours (all $p < .01$). Welch's F test (1951) was used to adjust the F value and the residual degrees of freedom. Following these analyses, all of the behaviours (all $p < .01$), except contingent reward ($p > .05$) were still significant, violating the assumption. Typically, unequal group sizes can be the cause of a significant result for this assumption. In this study, the group sizes are not the same, but in terms of ANOVA, they are within the bounds of a 5:1 ratio, so are deemed 'equal'. The results must be interpreted with some caution, although ANOVA is fairly robust even when homogeneity of variance has been violated, as long as group sizes are equal (Field, 2011).

For hypothesis 2, the domains of general esteem ($p < .05$) and honesty/trustworthiness ($p < .05$) both returned significant results for Levene's statistic. In this instance, using Welch's F, the general esteem domain was no longer significant, but honesty/trustworthiness still remained significant ($p < .05$). The

results for the honesty/trustworthiness domain should therefore be interpreted with some caution.

H2 Comparisons between groups for E-DTLI scores

The one-way ANOVA revealed that E-DTLI mean scores after the intervention (post-test) were significantly higher in all behaviours except for contingent reward for the experimental group: intellectual stimulation ($F(1,267) = 12.62$, $p < .01$), with $\eta^2 = .05$ and $\beta = .94$; individual consideration ($F(1,267) = 9.96$, $p < .01$), with $\eta^2 = .04$ and $\beta = .88$; inspirational motivation ($F(1,267) = 21.83$, $p < .01$), with $\eta^2 = .08$ and $\beta = 1.00$; appropriate role model ($F(1,267) = 18.35$, $p < .01$), with $\eta^2 = .06$ and $\beta = .99$; fostering acceptance of group goals ($F(1,267) = 18.94$, $p < .01$), with $\eta^2 = .07$ and $\beta = .99$; and high performance expectations ($F(1,267) = 6.54$, $p < .05$), with $\eta^2 = .02$ and $\beta = .72$. Please see Table 11 for results.

The results demonstrate that the intervention was successful in so far as demonstrating significantly higher mean E-DTLI scores of the intervention group's leaders in all behaviours, except for contingent reward, compared with the control group's mean scores. The high power statistics (ranging from .72 – 1.00) reveal that the results are almost certainly correctly represented in this analysis.

H3: Comparisons between groups for multidimensional self-esteem domains

The eight one-way ANOVAs revealed that only honesty/trustworthiness was significantly higher for the experimental group than the control group ($F(1,267) = 6.57$, $p < .05$), with $\eta^2 = .02$ and $\beta = .72$. The other seven domains demonstrated no significant differences between groups. However, the means for the eight domains

were all higher for the experimental group at post-test, except for opposite sex peer relations (experimental M = 5.35, SD = 1.19; control M = 5.56, SD = 1.19), emotional stability (experimental M = 5.43, SD = 1.16; control M = 5.55, SD = 1.25), and same sex peer relations (experimental M = 5.59, SD = 1.10; control M = 5.64, SD = 1.11), nonetheless, these were not significantly different. Please see Table 12 for ANOVA results.

The results demonstrate that the intervention appears to have significantly impacted on only one of the self-esteem domains: honesty/trustworthiness. While the means for six of the seven domains were higher for the experimental group than the control group, these differences were not significant. For the domain of same sex peer relations, the control group mean score was higher, albeit not significantly higher than the experimental group.

Table 11
One-way ANOVA with descriptive statistics for transformational leadership behaviours for both groups.

	Mean (SD)		df	*F*
	Experimental (*n* =160)	Control (*n* =109)		
1. IS	3.75 (.63)	3.41 (.96)	(1,267)	12.62**
2. IC	3.71 (.77)	3.34 (1.13)	(1,267)	9.96**
3. IM	3.88 (.81)	3.30 (1.23)	(1,267)	21.83**
4. ARM	4.22 (.66)	3.77 (1.07)	(1,267)	18.35**
5. FAGG	4.04 (.67)	3.56 (1.11)	(1,267)	18.94**
6. HPE	4.12 (.60)	3.90 (.83)	(1,267)	6.55**
7. CR	3.57 (.84)	3.39 (1.22)	(1,267)	2.18

*$p < .05$; **$p < .01$

Key:
IS – Intellectual stimulation
IC – Individual consideration
IM – Inspirational motivation
ARM – Appropriate role model
FAGG – Fostering acceptance of group goals
HPE – High performance expectations
CR – Contingent reward

Table 12
Eight one-way ANOVAs with descriptive statistics for the multidimensional self-esteem scores for both groups.

	Means (SDs)		df	*F*
Self-esteem domains	Experimental (*n*=160)	Control (*n*=109)		
General	5.77 (1.01)	5.75 (1.24)	(1,267)	.01
Honesty/ Trustworthiness	5.85 (.79)	5.58 (.96)	(1,267)	6.57*
Opposite Sex Peer Relations	5.35 (1.19)	5.56 (1.19)	(1,267)	1.92
Emotional Stability	5.43 (1.16)	5.55 (1.25)	(1,267)	.65
Parental Relationships	6.27 (1.25)	6.13 (1.40)	(1,267)	.84
Problem Solving	5.29 (.94)	5.27 (1.02)	(1,267)	.02
Physical Appearance	4.84 (1.12)	4.76 (1.40)	(1,267)	.21
Same Sex Peer Relations	5.59 (1.10)	5.64 (1.11)	(1,267)	.12

*$p < .05$; **$p < .01$

Discussion

The results of Study 2 demonstrate that while the intervention revealed significantly higher E-DTLI mean scores for the experimental group above and beyond the control group, the effects on followers' domains of self-esteem were limited to a significantly higher mean score in the experimental groups' honesty/trustworthiness self-esteem domain only. This demonstrates that a training intervention can positively impact leaders' transformational leadership behaviours, but that this only has a limited positive effect on the followers' self-esteem domains.

Taken together, the results of Study 1 and Study 2 reveal that an effective intervention, with appropriate theoretical grounding, suitable timescale for uptake and embedding of learning, and sufficient sample size can have a positive impact on the transformational leadership behaviours of experimental group leaders. These results add support to the extant transformational leadership field-based studies demonstrating that leadership behaviours can be modified by an appropriate intervention. The fact that the intervention appeared to only impact one of the self-esteem domains is contrary to expectations. One possible explanation for this is that there may be other influences during an expedition that might account for changes in the self-esteem domains, for example, level of challenge, or competency of the follower. To examine these influences in greater detail would require further research in the expedition setting of the underpinning mechanisms of self-esteem changes. There appears to be no clear conclusion as to why the domain of honesty/trustworthiness was significantly impacted above any of the other domains. Potentially this may be owing to the reliance and trust built within the community of the expedition team, and role modeled by the expedition leader, which exerts a greater

need for followers to make greater efforts in this domain (i.e., to tell the truth and respect other peoples' belongings). Alternatively, if the leaders are demonstrating more of the behaviours that elevate the trust placed on the followers to complete expedition tasks (e.g., intellectual stimulation and inspirational motivation), this might raise their levels of honesty and trustworthiness, as they reciprocate that trusting relationship.

The current chapter aimed to explore the effectiveness of a pilot intervention, followed by a larger-scale intervention for developing transformational leadership behaviours. Study 1 served to highlight design and theoretical issues, and therefore informed the larger-scale intervention. The pilot study, however, did reveal one significant result for intellectual stimulation, for the experimental group, which demonstrates that it was not entirely ineffective. Arguably, it may be assumed that the expedition leaders had greater opportunity to modify the behaviour of intellectual stimulation, as challenging the students to solve their own problems is one of the main elements of their role as expedition leader, and opportunities for the participants to actually solve problems abound during an expedition.

Study 2 demonstrated that the training intervention had a positive and significant effect on the E-DTLI scores of the experimental leaders across all the behaviours, when compared to the control group. It can be surmised then that a training intervention targeting transformational leadership behaviours can indeed successfully modify, and augment those behaviours. However, there was no such significant difference in follower self-esteem scores between the experimental and control groups, except for the domain of honesty/trustworthiness, which was

significantly higher in the experimental group[4]. However, the results further revealed two things (i) all self-esteem domain means increased at post-test for the followers of both leader groups, and (ii) all but three of the self-esteem domain means were higher for the experimental group (the exceptions were emotional stability, opposite sex peer relations and same sex peer relations). Interestingly, in Chapter 2, the domains of opposite and same sex peer relation also produced no significant differences in results between experimental and control groups. These results further strengthen the proposition given in Chapter 2, that expeditions (and it seems, the expedition leader, too) exert little effect on follower peer relation self-esteem domains.

Potentially, future research may benefit from further exploring the impact of transformational leadership on multidimensional self-esteem domains in non-adolescent populations, as this may give clarity to the proposition of maturation effects with adolescent samples.

The studies bring into focus the need for strict attention to study design, and the requisite of using a pilot study prior to running a full intervention, while considering the MRC guidelines, and best practice recommendations (Vella et al., 2013). The main differences between the pilot and large-scale training intervention were: a firm theoretical grounding to the content of the intervention; an increased sample size; group (as opposed to individual) training sessions; sufficient time for reflection between training and application (Cushion et al., 2010); and consistency of training in terms of number of sessions and delivery method.

The current studies add to the small number of experimental field studies available in the transformational leadership literature, and extend the literature by

[4] Followers were measured at pre-test and post-test time points (please see Chapter 2 for procedural details) for self-esteem domain scores, but leaders were only measured at one time point.

exploring a pilot study prior to an intervention. Further to Kark and Shamir's (2002) study of the impact of transformational leadership on self-esteem, the current studies explore not only a different population for the study of impact on self-esteem, but allow for a greater level of scrutiny by using a multidimensional conceptualisation of self-esteem. By examining the effectiveness of interventions, the current studies demonstrate that training can indeed positively modify expedition leaders' transformational leadership skills. Experimental field studies are lacking in the extant literature, but the difficulties inherent in collecting data in the field (as per some of the limitations and restrictions reported in Study 1) may explain their paucity. Running interventions is a significant undertaking in terms of time and resources and so perhaps researchers prefer to err away from conducting such research.

The current studies do present some limitations, however, first, although Study 2 employed a far more robust study design in terms of theoretical underpinnings and logistical factors than Study 1, it may be argued that Study 2 may actually present a *weaker* study design in terms of analysis, owing to the fact that there is no pre-test for the expedition leaders in the two groups. The main reason for not having the pre-test is that many of the expedition leaders, in both groups, did not have previous E-DTLI scores, and as such the sample size of the intervention would have been drastically reduced. This would have presented the same problems as found in Study 1 in terms of power. Given the strengths of Study 2 with respect to addressing the shortfalls identified in Study 1, it was deemed that the lack of pre-test was not of sufficient detriment to the overall study design. The intervention would simply gauge the effect of the intervention at post-test; however, it may be prudent to interpret the results with some caution.

Second, Cushion et al. (2010) discussed the need for proper evaluation of

interventions to ensure that they have achieved their aims. In other words, not just a measurement of the variables being examined, but also collection of data that relates directly to the intervention itself. In the present studies, however, there was no time in the company partner's schedule to allow for sufficient evaluation of the interventions with the expedition leaders. Evaluation offers evidence of the effectiveness of an intervention, and is a tool often employed by researchers in the sports coaching literature (Allen, Bell, Lynn, Taylor, & Lavallee, 2012; Cushion et al., 2010; Kirkpatrick, 1959, 1976, 1996; Lyle, 2002), and the organisational literature (Arthur, Bennet, Edens, & Bell, 2003; Eseryel, 2002; Goldstein, 1993). Kirkpatrick's (1959, 1976) four-level model of evaluation has always been the most popular evaluative tool in the organisational literature (Arthur et al., 2003), and so may offer a pertinent approach for future researchers evaluating training interventions in transformational leadership. The four levels are broad in remit, and evaluate the reaction of the student (i.e., their feelings and reflections on the training), the learning that has occurred (i.e., the resulting increase in knowledge following the training), improvements and changes in behaviour as a result of the training, and the results (i.e., the effects on the variables being tested). Such a comprehensive model may be well placed to evaluate a transformational leadership intervention, as it allows opportunity to explore the effectiveness of the entire process, from a number of different perspectives. In the present two studies, E-DTLI (transformational leadership scores) and SDQ III (self-esteem domains scores) responses were the only forms of measurement. Future studies would benefit from evaluation measures that test the intervention participant's (in this case, the leader's) knowledge and skills both before and after the intervention, as well as using interviews, or appraisals. In this way, the effectiveness of a training intervention on knowledge and trainee's perception of the training would be

measurable, not just the impact on follower outcomes.

In summary, the present chapter has added to the small literature base on transformational leadership training interventions, and has added support to the general findings that these leadership behaviours can be modified, and has provided some evidence of the positive impact of a training intervention on follower outcomes. The chapter highlights the need for rigorous study design, and opens up new avenues of research to explore the evaluation of such interventions. The chapter offers insight into the positive effects of transformational leadership behaviours on multidimensional self-esteem domains, insight that would not be revealed if using a global model of self-esteem. Further, the chapter raises questions about why the pilot training intervention may have only impacted on one self-esteem domain, and why it was that domain in particular. Such questions may form the basis of future research. Similarly, there may be further research potential in examining the maturation effects of adolescents above and beyond the expedition impact, and in particular, how adolescence affects peer relations over the effect of an experience such as an expedition.

General Discussion

This Chapter draws together the research aims and findings of the four empirical chapters within the PhD. A summary of the main findings from the thesis is presented, followed by a discussion featuring theoretical and conceptual points of interest, the strengths and limitations, and the applied implications of the thesis. Finally, recommendations for future research directions are forwarded.

Thesis summary

The thesis had several underpinning aims: (i) to review the limitations in the extant outdoor and expedition literature; (ii) to address some of these research shortcomings to extend the literature; (iii) to develop a contextually relevant measure of transformational leadership for the expedition setting; and (iv) to examine differentiated transformational leadership behaviours for their potential impact on self-esteem domains, and modification in a training intervention.

The main findings of the thesis were: (1) evidence was provided for the positive impact of expeditions on the multidimensional self-esteem domains of youth participants, over and above a control group, and supported by one other source report; (2) evidence of factorial validity, and some evidence of predictive validity, was presented for the expedition specific differentiated measure of transformational leadership; (3) some evidence for the positive impact of transformational leadership on self-esteem domains was demonstrated; (4) the usefulness of a pilot training intervention was demonstrated; and (5) evidence for the effectiveness of a

transformational leadership training intervention was found. These findings are presented in detail as follows:

(1) The effect of expeditions on youths' multidimensional self-esteem domains

Self-esteem was selected as the dependent variable for examination owing to a number of key factors: First, the importance of self-esteem as a psychological construct (please see Chapter 2 for examples of the impact of self-esteem on factors such as life satisfaction); second, the proliferation of references about the impact of expeditions on self-esteem within the extant expedition literature; and third, the company partner focus groups elected self-esteem as one of the five most reported variables when asked to select 'outcomes' of an expedition for participants. The results for the eight selected domains of self-esteem are as follows: between pre and post-test, expedition participants' general self-esteem means increased significantly. There were also significant increases in honesty/trustworthiness, emotional stability, parent relations, problem solving and physical appearance, whilst opposite sex peer relations and same sex peer relations means increased at post-test, but were not significantly different from pre-test. Although there may be other factors inherent in an expedition (please see General Introduction for elaboration of potential mediating variables), which may affect self-esteem, these results would seem to indicate that expeditions have a significant and positive effect on general self-esteem, which supports previous findings in the literature (Hattie et al., 1997; Marsh et al., 1986, 1986a). The results further imply that expeditions appear to have a significant and positive effect on five of the seven remaining domains. For all of the domains, the effect sizes revealed the level of impact of the expedition above and beyond control group participants. For two of the domains (general and problem solving esteem)

there was a medium sized impact (.62 and .67 respectively), but for parental relations and same sex peer relations, the impact as very large (.96 and .92). The effect sizes offer deeper insight into the level of impact of the expedition, not just the differences between the two groups tested. The domains that were significantly different at post-test were measured at the six-month follow-up, but there was only a maintenance effect for one of these domains (honesty/trustworthiness). This demonstrates that benefits derived from expeditions on self-esteem domains may simply be confined to immediacy. The maintenance results from the current thesis are in contrast to previous research (Marsh et al., 1986a), where a maintenance effect was found at 18-months post-test, but one factor that may affect the present results is low power in the analyses. The differential effects for maintenance in the extant literature are interesting, and Wright (1996) notes an increase in peoples' perception of the challenge and risks undertaken at 13 years post-expedition, compared to immediately after the event. This may suggest that as individuals experience other events throughout their life, their expedition memories become stronger by comparison, as they recognise the achievements of the expedition in comparison to other life events. In Wright's study, the participants had a very difficult mountain summit as their main goal, and while results indicated an appreciation of the achievements at the time of the event, their 13-year follow-up suggests that the success has even greater meaning. This may be because the participants have not repeated a comparable feat, and so it serves as a peak experience, which is only recognised as they get older and have other experiences with which to compare it. This is an interesting study, and offers questions for the present research in terms of how meaningful might an expedition be to a young participant, if they have few other comparable experiences by which to

rate it? Future research may benefit from exploring how expedition experiences compare with other life events for adults who have previously been on an expedition.

In comparisons between expedition and control groups, the results revealed that the domains of general esteem, parental relations and same sex peer relations were significantly higher at post-test for the expedition group. It may be stated then, that even if there are other mediating variables at play in the expedition that could affect self-esteem; the comparison made with a control group demonstrates that expeditions do, categorically, have a significant and positive impact on three of the self-esteem domains of expedition participants, over and above non-expedition participants. Contrary to the hypothesis, however, the control group demonstrated a significant increase in mean scores for the domain of emotional stability, while the expedition sample did not reveal a significant increase. For multi source reports, the results demonstrated that leader team informant reports (i.e., the expedition leaders and teachers) saw a significant increase in general self-esteem at post-test, however the parent informant data was not significant.

Overall, the results offer some support to the extant literature on the positive effects of participating in an overseas expedition (Bartunek, 2004; Hans, 2000; Hattie, Marsh, Neill, and Richards, 1997; Wilson & Lipsey, 2000). Further, with the aim of addressing some of the limitations to the expedition literature, the current study expands the literature base in a number of ways. First, by using quantitative analyses, as recommended by Hattie et al. (1997), to redress the balance from the somewhat over population of qualitative-only studies in the research. Second, the present PhD has a six-month follow-up data collection, in order to bolster the few extant longitudinal studies (i.e., Grocott & Hunter, 2009; Marsh, Richards, & Barnes, 1986; Stott, Allison, Felter, & Beames, 2013; Wright, 1996), and examine the effects of

expeditions over time. Third, the current study uses a control group in order to reduce the effects of variables (e.g., maturation effects) other than the variable being examined, in this case, the expedition. Having a control group increases the reliability of the results, as the experimental condition is subject to a comparison. Further, the lack of a control group was stated as a major limitation to Wright's (1996) longitudinal study, as the results could not be categorically stated as being a result of the expedition alone, and not, say, due to maturation effects. Fourth, although the limitations of the other source reports have been hitherto reported, the study attempts to address the lack of reports other than self-report, as recommended by Mount, Barrick, and Strauss (1994), Oh, and Berry (2009), Oh, Wang, and Mount (2011), and Vazire (2006), in order to triangulate results, and avoid possible self-report bias. To conclude, the PhD has successfully addressed some of the current limitations to the literature, and has made preliminary steps towards addressing others (such as other source reports). Further, the PhD offers potential new areas for future research, for example, investigating the parameters of at what point a maintenance effect might occur post-expedition, and whether the exam period during which the data were collected may have had an impact on the domain scores, and also invite exploration of some of the unexpected results, such as the control group's significant increase in emotional stability at post-test, compared with the non significant result in this domain for the expedition group. These research directions will be expanded on later.

Overall, the thesis demonstrates the importance of the impact of a significant event on three self-esteem domains during adolescence, over and above a control group, thus illustrating the need for examination of self-esteem in the expedition context.

(2) Validity of a transformational leadership measure

Owing to the importance of leadership in the expedition context (Behrendt, 1998; Palinkas, Gunderson, Holland, Miller, & Johnson, 2000; Palinkas & Suedfeld, 2008; Schmidt, Wood, & Lugg, 2004), the lack of extant theoretically underpinned leadership models (Brymer, 2006), and the relevance of the transformational leadership model to this setting (Bass, 1985), it was necessary to find a suitable measure of transformational leadership for the expedition context. The decision to develop a differentiated model for the expedition context was owing to the recommendations in the literature that differentiated models are desirable for interventions (cf. Antonakis et al., 2011, Hardy et al., 2010). The training intervention was very important to the underpinning KESS partnership, as the company partner had specifically requested development of a training intervention for expedition leaders. The extant transformational leadership measurement literature is dichotomous in nature, with some researchers opting for a global structure (cf. Antonakis & House, 2002; Bass & Avolio, 1995; Beauchamp et al., 2010), and others, a differentiated approach (cf. Hardy et al., 2010; Podsakoff et al., 1990; Rafferty & Griffin, 2004). Hardy et al.'s (2010) DTLI measure was originally designed for the military setting, but offered a robust and valid differentiated measure, which could be adapted for use in the expedition setting. For this, a three-phase approach (first, to explore item selection and removal, second, to confirm the factor structure of the amended model, and third, to reconfirm the factor structure and test for predictive validity) to item refinement and factorial validity testing of an expedition-related transformational leadership measure was adopted. This resulted in a good fit for the 29-item Expedition Differentiated Transformational Leadership Inventory (E-DTLI). The E-DTLI retained the factor structure of the DTLI, measuring seven behaviours

(intellectual stimulation, individual consideration, inspirational motivation, appropriate role model, fostering acceptance of group goals, high performance expectations, and contingent reward), but made amendments to the stem of the items, and added new items that were pertinent to expedition leadership. The E-DTLI was found to have a sound factor structure, with each of the seven subscales demonstrating good internal consistency. The final phase also provided some evidence of the predictive validity of the E-DTLI with a newly generated measure of teamwork.

Given the needs of the company partner to design a leadership intervention based on the differential effects and expedition leaders' scores for each of the transformational behaviours, it was necessary to use a measure that examined each of the behaviours separately, hence the choice to adapt the DTLI, rather than choose a global measure. Further, a differentiated measure was required as the following chapter aimed to explore possible relationships between the differentiated leadership behaviours and the eight self-esteem domains.

(3) The impact of transformational leadership

Given that there are a number of variables that may influence the magnitude of the effects of an expedition (cf. Cason & Gillis, 1994; Hattie et al., 1997; Scherl & Smithson, 1987; Kayes, 2004), and the important role that leadership plays in the expedition context, the study in Chapter 4 opted to measure the impact of leadership on the self-esteem domains. The results demonstrated that the differentiated transformational leadership behaviours had varying relationships with the self-esteem domains. To expand, the behaviours of intellectual stimulation and individual consideration demonstrated significant predictive ability (with general self-esteem).

Inspirational motivation and contingent reward, however, each had high (but not significant) levels of predictive variance of the hypothesised self-esteem domains.

Although the significant results for intellectual stimulation were related to general self-esteem, honesty/trustworthiness and emotional stability, intellectual stimulation did not predict problem solving self-esteem, which was contrary to the hypothesis. Individual consideration returned only one significant result for general self-esteem, and there were no significant results for inspirational motivation and contingent reward, which was also contrary to the hypothesis. Unexpected significant results were revealed for the leadership behaviour of high performance expectations with general self-esteem, and for the leadership behaviour of fostering acceptance of group goals with the domain of honesty/trustworthiness. These results were not hypothesised, owing to the achievement-focused nature of these two leadership behaviours, as opposed to the common elements of building positive relationships of the hypothesised behaviours (e.g., individual consideration). By using a differentiated model to measure the transformational leadership behaviours, however, it is possible to scrutinise the behaviours at a deeper level than would be attainable if using a global model.

These results add to the current literature expounding the positive impact of transformational leadership on a wide range of outcomes (cf. Smith et al., 2013; Callow et al., 2009; Rafferty & Griffin, 2004; Kark & Shamir, 2002, 2002a), and add weight to the proposition that leadership is an influencing factor on the outcomes of expedition participants. The reasons for how transformational leadership positively impacts followers' outcomes may be due to the emotional element of the behaviours. For example, the follower-centred nature of the leadership behaviours can tap into followers' self-determined needs, such as a need for relatedness, autonomy and

competence (Deci & Ryan, 1985), as found by Beauchamp et al. (2010), where students who perceived that their teachers demonstrated more transformational behaviours reported greater self-determined motivations for taking part in activities (i.e., for the enjoyment of doing so, and not for reward). Emotionally based components such as trust may also explain why transformational leadership is successful in augmenting follower outcomes. For example, Podsakoff et al. (1990) found that trust in the leader mediated the relationship between transformational leadership behaviours organisational citizenship behaviours. While Podsakoff et al.s' study focused on an organisational setting, it is reasonable to suggest that the transformational behaviours would act in a similar way in other contexts, such as on an expedition. An important facet of the expedition leader's role is to build rapport by creating an open and trusting relationship with their followers. The more that this relationship is developed, and follower trust in the leader is increased, potentially the more that this will impact the followers' outcomes, albeit indirectly (c.f. Podsakoff et al.).

(4) A pilot training intervention

In the transformational leadership literature, experimental studies are still lacking; indeed only seven studies currently exist (Antonakis, Fenley, & Liechti, 2011; Arthur & Hardy, 2014; Barling, Weber, & Kelloway, 1996; Beauchamp, Barling, & Morton, 2011; Dvir, Eden, Avolio, & Shamir, 2002; Hardy et al., 2010; Vella, Oades, & Crowe, 2013). The current study set out to address this limitation to the literature and design a full-scale training intervention preceded by a pilot intervention. A pilot intervention is one of the major recommendations of the intervention literature, and of the Medical Research Council, when designing complex interventions (Craig et al., 2008; Van Teijlingen & Hundley, 2001).

CHAPTER 6: GENERAL DISCUSSION

Using the results of Chapter 4, it was evident that three behaviours would be suitable for focus in the pilot intervention, owing to their relative importance in terms of correlations and predictive ability, and because of their mean scores suggesting potential for improvement. The results of the pilot study demonstrated that although the mean scores of the experimental group increased between pre-test and post-test for the three targeted behaviours, and the control group's means decreased, only intellectual stimulation significantly increased. This result is contrary to the hypothesis, but potential reasons for this may be (i) small sample sizes, (ii) the relatively high scores of the control group (compared with the experimental group) at pre-test, which still exceed the experimental group's post-test scores in two of the hypothesised behaviours, and (iii) the specific design of the intervention may have been too weak to effect changes.

Issues arising from the pilot included the following: not being theoretically driven (Langan et al., 2013); the narrow timescale between training and expedition, thus restricting time for reflection (Craig et al., 2008; Cushion et al., 2010); small sample sizes/low power; inconsistent delivery method, although intervention literature across domains suggests that this, in itself is not a limitation (cf. Fenig, Levav, Kohn, & Yelin, 1993; Rohde, Lewinsohn, & Seeley, 1997; Steele, Mummery, & Dwyer, 2009; Wagner, Horn, & Maercker, 2013; Motteram, & Sharma, 2009; Wang, & Hsu, 2008; Ellis, Ginns, & Piggott, 2009; Howlett et al., 2011; Sharpe, Benfield, Roberts, & Francis, 2006; Turney, Robinson, Lee, & Soutar, 2009). Rather, it is likely that the mixture of delivery methods, number of sessions, and timescale of the pilot, combined with small sample sizes, created problems in terms of analysing whether delivery method was indeed a limiting factor. Further, the use of one-to-one delivery method in the pilot is contrary to recommendations in the literature (Antonakis, Fenley, &

Liechti, 2011; Barling et al., 1996; Dvir et al., 2002; Hardy et al., 2010; Vella, Oades, & Crowe, 2013). Consequently, the aim of the full-scale intervention was to address these limitations by further consulting the literature and following best practice recommendations (as per Craig et al., 2008, and Cushion et al., 2010), while targeting a larger cohort of expedition leaders for both the experimental and control groups.

Owing to the requirements of the KESS company partner, it was necessary to focus on training as large a group as possible in the full-scale intervention, which limited the options for study design (e.g., using case studies, or small focus groups) to the design reported herein. Although there may have been some conceptual weaknesses in the chosen study design, these were inevitable elements of satisfying the training needs of the company partner.

(5) A transformational leadership training intervention

The full-scale intervention was founded on best practice recommendations from a diverse range of intervention literature (cf. Craig et al., 2008; Cushion et al., 2010; Langan et al., 2013). Consequently, it addressed the main limitations of the pilot. The results demonstrated that the intervention had a positive and significant effect on all of the transformational leadership scores of the experimental group, compared to the control group. With regard to the impact of the behaviours on self-esteem, however, there was no significant difference in follower self-esteem domain mean scores between the experimental and control groups, except for the domain of honesty/trustworthiness, which was significantly higher in the experimental group. Despite having just one significant result for the self-esteem domains (honesty/trustworthiness), however, the results also revealed that: (i) all self-esteem domain means increased at post-test for the followers of both leader groups, and (ii) all but three of the self-esteem domain means were higher for the experimental group

(the exceptions were emotional stability, opposite sex peer relations and same sex peer relations).

The results of the two interventions revealed that by examining the effectiveness of interventions, and introducing a pilot prior to running a full-scale intervention, it is possible to positively modify expedition leaders' transformational leadership behaviours. The results also, however, demonstrate that modification of leadership behaviours does not necessarily lead to significant differences in follower outcomes. Further research is needed in this area to explore why this might be the case, and to examine if other types of leadership interventions may have a more positive result on follower outcomes. As discussed in Chapter 2, it may be that there is/are one or more variables that impacts the relationship between transformational leadership and self-esteem domains, and it is perhaps this, as yet unnamed variable, which should be the target for measurement during the intervention training. In other words, although the current intervention only significantly impacted the domain of honesty/trustworthiness, it may be that (one of) these other unexplored variables mediate the normal relationship between transformational leadership and self-esteem, and that the lack of focus in the intervention on this/these variable(s) led to only one significant result. For example, as cited previously, Podsakoff et al. (1990) found that transformational leadership behaviours were mediated by follower trust in the leader, and Smith et al. (2012) found that communication partially mediated the relationship between some of the leadership behaviours and team cohesion. In this way, future interventions may be more effective if designed with due consideration to what other variables (such as trust in the leader, and communication) may be mediating the transformational leadership relationship with the outcome variable. In relation to the present thesis, self-esteem is often found to be the mediator *of* relationships, for

example between parent-adolescent relationships and depression (Hu & Ai, 2014), and in the relationship between authoritative child-rearing style and aggression (Hesari & Hejazi, 2011). It can be stated then, that although the present thesis does provide substantive extension to the current literature (as previously posited, by addressing some of the design issues replete in the expedition literature; by testing transformational leadership in a new context, and by exploring the effectiveness of transformational leadership training interventions), it still presents limitations in terms of examining the potential meditational/moderational effects of other variables present in the self-esteem/leadership/expedition relationships. Future research, then, would benefit from exploring what could be mediating the relationship *between* transformational leadership and self-esteem, so that this may be introduced into the design of an intervention to target the mediator, as well as the leadership behaviours.

As highlighted earlier experimental field studies are scarce in the transformational leadership literature. Consequently, the studies presented in Chapter 5, employing their two-stage process to design a full-scale training intervention further extend the transformational leadership field-studies literature base. Further research on transformational leadership interventions would add greater knowledge of how the modification of behaviours can be used to positively impact follower outcomes.

Theoretical and conceptual points of interest

The thesis raises some pertinent points of interest about both self-esteem and transformational leadership: namely, the multidimensional nature of self-esteem, and the global/differentiated conceptualisation of transformational leadership. In terms of self-esteem, the literature has developed so that, currently, a multidimensional

concept of self-esteem is the preferred method of interpretation (Marsh, 1990). Indeed, Marsh (1990) proposes that to ignore the multidimensional nature of self-esteem would lead to research that does not fully understand the concept of self-esteem. As such, it would be erroneous for the current thesis to have elected to use a global model. By contrast, however, the expedition literature has mostly focused on using self-esteem as a global construct (Hattie et al., 1997), with few authors (e.g., Grocott & Hunter, 2009; Marsh et al., 1986, 1986a) examining self-esteem as a multidimensional construct. It may be of further interest to replicate some of the earlier studies to examine the impact of expeditions on self-esteem domains, given that the results in the present thesis are so varied, and because the extant literature on multidimensional self-esteem within the field of expeditions is limited. It seems at odds with the wider self-esteem literature that the expedition research would keep with the more traditional view of self-esteem as a global construct. As a side note, it may be said that the current thesis only explores 8 of the proposed 13 domains of self-esteem in the SDQ III (Marsh & O'Neill, 1984), but, as explained in Chapter 2, the domains were selected for their relevance to the expedition setting, and as such, the academic domains (such as general academic and verbal self-esteem) were left out. Self-esteem certainly justifies due consideration in the expedition literature, considering its proximal relationship to psychological well-being (Hagger, Biddle, & Wang, 2005; Marsh, 1989), and its relationship with other important variables (Marsh, 1990; Wu, Tsai & Chen, 2008). Given that the present research has demonstrated that expeditions have a positive impact on self-esteem domains, the expedition literature would benefit from using a multidimensional conceptualisation of self-esteem in future research, in order to explore differential relationships with self-esteem. Further, for a more detailed analysis of the role of expeditions, and

indeed leadership, upon self-esteem domains, it would be recommended that other variables, related to expeditions should be examined.

For transformational leadership, the current literature still raises discussion for the benefits of using either global or differentiated model (cf. Beauchamp et al., 2010; Hardy et al., 2010). Unlike the conceptualisation of self-esteem, which seems to draw only positives for using a multidimensional model as opposed to a global model, the research in transformational leadership is not so clear-cut. Indeed, it appears that an argument for either model is justifiable, depending on the intentions of the researcher. Issues surrounding multicollinearity (cf. Judge & Bono, 2003) may persuade some researchers to avoid differentiated models, however, for those interested in scrutinising the differential effects of the behaviours, or modification of specific behaviours (cf. Antonakis et al., 2003), a global model would not suffice. For the purposes of the current thesis, however, a differentiated model was clearly advantageous in addressing the proposed research aims, allowing for the examination of the differential effects of the behaviours, and the design of a training intervention. The present thesis supports the argument for using a differentiated model of transformational leadership (cf. Podsakoff et al., 1990; Hardy et al., 2010), and extends the literature base by applying transformational leadership to a new context, and focusing the differentiated behaviours into a pilot, and then full-scale training intervention, following the designs of previous transformational leadership interventions.

Strengths of the thesis

There are several strengths to the thesis as it targets a number of different areas in the research literature, namely: expeditions, self-esteem, and transformational

leadership. The thesis extends the literature in each of the fields by addressing limitations of the extant research and adding new knowledge. To expand, in the context of expeditions, the thesis uses quantitative analysis to explore the beneficial effects of expeditions, and such analysis is uncommon in the outdoor and expedition literature. With respect to self-esteem, the thesis supports the argument for using a multidimensional conceptualisation of self-esteem, and examines it thoroughly in the expedition context, addressing the question of longitudinal effects of expeditions on self-esteem. Finally, with reference to transformational leadership, the use of a theoretically based model of leadership in the outdoor/expedition context gives rigour to a context that has previously used only competencies and guidance in terms of frameworks for leader development. Moreover, exploration of a new context, and development of training interventions in this new setting further demonstrates the effectiveness of transformational leadership as an effective and positively influential model of leadership. Specifically, the thesis has designed an amended measure of transformational leadership befitting the expedition context, and an exploration of leadership in this context as a mechanism for underpinning positive changes in self-esteem domains was examined.

Another strength to the thesis is that it has employed robust methods with respect to study design, for example, using pre-test/post-test/follow-up post-test designs to measure longitudinal changes in self-esteem; incorporating multi source reports so as to triangulate the self-esteem data; using control groups throughout the studies for comparative analyses; and using a pilot intervention as an exploratory pre-cursor to running a full-scale training intervention. In terms of samples, one of the major benefits of being in the KESS partnership was having access to such a wide

population of participants, which led to large sample pools for data collection, and the opportunity to gather data from sources other than simply self-report.

By collecting data annually, it was possible to replicate the studies year-on-year. This was particularly useful in terms of development of the transformational leadership measure, where the factorial validity of the E-DTLI was tested and re-tested over three separate data collections. Further, the flexibility offered by the partnership allowed for exploration of other variables potentially affected by expeditions. This meant that for the measure development chapter, predictive validity could be tested using a new measure of teamwork, generated specifically for the expedition setting.

Limitations of the thesis

There are, however, limitations to the current research. First, there has been no exploration of the mechanisms by which leadership can actually influence self-esteem. In Chapter 4, leadership is examined as one of the potential mechanisms for impacting self-esteem in expeditions, but little examination of how this occurs is given. As cited earlier, there are a number of potential mediators/moderators (e.g., trust in the leader, or communication) that may affect the relationship between the transformational leadership behaviours and follower outcomes. Future research would find ample grounds for further exploring potential mediators/moderators of the transformational leadership and outcome relationship.

A further limitation is that the current PhD did not explore the potential role of personality of either the follower or the leader. Future research would further benefit from exploring aspects of leader, and indeed follower personality that may influence the relationship between transformational leadership and self-esteem domains.

Peterson, Martorana, Smith, and Owens (2003) explored the idea that leader personality is a significant feature in how leaders interact with their top-level management teams, and that perhaps it is something within personality factors that predicts the effectiveness of leadership, in other words, leader personality may predict how transformational (and therefore, how effective) a leader is. This is not a new concept; indeed, Judge et al. (2002) found significant relationships between each factor of the 'big-five' personality model (the five-factor model: Digman, 1990) and leadership effectiveness. Peterson et al., however, state that although meta-analyses such as Judge et al. have explored the nature of personality and leadership, this is done in only a cross-sectional way, looking at the relationship between leader personality and performance outcomes. An alternative research area is exploring the influence of follower personality in moderating the leader effectiveness relationship. Indeed, as mentioned earlier in the present thesis, Arthur et al. (2011) explored the role of follower narcissism in moderating the transformational leadership and athlete motivation relationship. Arthur et al. found that narcissism moderated the relationship between fostering acceptance of group goals and athlete effort, and between high performance expectations and athlete effort. The Arthur et al. study, however, examined *follower* personality, and not leader personality, so although it extends the literature in terms of examining personality as a moderator, further research is still needed to specifically explore *leader* personality. In considering the role of leader and follower personality it would appear that the nature of relationships between transformational leadership and follower outcomes is indeed complex, and further research is necessary to explore the potential role of personality of both the leader and the follower.

Third, is the lack of evaluation of the training intervention by the expedition leaders, which may be viewed as a limitation to the final study in Chapter 5. An evaluation could allow for qualitative data in terms of feedback from the leaders about their experience and knowledge gained from the intervention. As discussed in Chapter 5, the current intervention literature is replete with examples of using evaluation as best practice when running a training intervention, and is described by Cushion et al. (2010) as a way of ensuring that an intervention has met its aims, and it offers evidence of the effectiveness of the intervention (cf. Allen, Bell, Lynn, Taylor, & Lavallee, 2012; Arthur, Bennet, Edens, & Bell, 2003; Cushion et al., 2010; Eseryel, 2002; Goldstein, 1993; Kirkpatrick, 1959, 1976, 1996; Lyle, 2002). While the intervention in Chapter 5 did indeed evaluate transformational leadership behaviours and their relationship with self-esteem domains, there was no evaluation of the expedition leaders' perception of the intervention's effectiveness. For example, interviewing the leaders, or completing knowledge tests at pre-test and post-test would all form part of an overall evaluation. It was proposed in Chapter 5 that Kirkpatrick's (1994) four-level model of evaluation would be a suitable approach for evaluating the current interventions. Kirkpatrick's model is the most used in the organisational literature (Arthur et al., 2003), and offers a broad, yet comprehensive remit for each of its four levels, of which the suggested interviews and knowledge checks may form a part. Although Kirkpatrick's model has received some criticism, for example, that it does not address the fundamental question of 'how can training be adapted to be more effective?' (Bates, 2004; Holton, 1996), and other models have been offered (cf. Holton 1996), there seems to be no preferred alternative in the literature. In the current research, irrespective of which model of evaluation was selective, it is simply the *inclusion* of evaluation that would address the current

limitation. Kirkpatrick's model is suggested as an appropriate evaluation tool as it appears to be the most comprehensive choice for such an evaluation, as per Arthur et al. (2003). While the full-scale intervention followed the model of previous transformational leadership interventions, it is recognised that other methods may have proven to be more robust (i.e., the full-scale intervention lacked a pre-test data collection, so was potentially weaker than the pilot, and therefore a case study, or focusing on interviewing a smaller number of leaders may have elicited a more robust study design). As such, future interventions may wish to explore other, arguably more rigorous methodologies.

Finally, a potential limitation, particularly in reference to the study in Chapter 4, is that multilevel analysis was not employed. This means that the nested nature of the data has not been taken into account. To expand, the data collected for each of the studies in the thesis represents a large number of participants who each belong to a team, represented by different expedition leaders. For example, specifically in Chapter 4, 356 participants rated 43 expedition leaders, which means that there were a total of 43 separate teams nested within the data. Using multilevel analyses could be used to take into consideration the multilevel nature of the data. This is an important point, as not considering the multilevel nature of the variables may lead to a type I error, owing to the likely underestimation of standard errors of regression coefficients (Rasbash, Steele, Browne, & Goldstein, 2012). Second, Rasbash et al. propose that multilevel analysis accounts for random effects of the group-level data, which would otherwise be indistinguishable in a regression (fixed-effects) model. In summary there are three broad ways in which to approach multilevel analysis; (i) analyse the data at the individual level, (ii) analyse the data at the group level, or (iii) model both the group and individual level simultaneously.

The current research elected to analyse the data at the individual level as the main point of interest was focused on the individual followers' perceptions of their leader, rather than the aggregated group perception. Further, the research aimed to examine the relationship of those perceptions with an individual-level outcome variable, namely, self-esteem. As such, regression analysis was adopted. However, this approach is not always considered optimal, and future research should adopt multilevel analysis. This would enable the examination of data in their respective, nested teams, thus retaining independence of observations, as recommended by Watson, Chemers, and Preiser (2001). Specifically, Watson et al. state that 'multilevel models allow for the estimation of relations occurring within and across levels while properly accounting for the sources of variance at the different levels' (p.1061). This would allow for a more detailed analysis of both the individual-level and team-level effects.

Implications of the thesis

An important outcome of the research programme has been the impact generated from the research in the KESS partnership. The application of the research to the real world context gives impact to the knowledge gained. Through Outlook Expeditions, the research has directly impacted more than 2000 young people who have participated in the expeditions. The expedition leaders, encouraged through the transformational leadership intervention training, which was based on a theoretically grounded framework, now have the opportunity to transfer their new skills to other situations involving expeditions or outdoor education in general, thus further expanding the reach of the research to other followers and co-workers.

Over the four years of the PhD programme, the research has been disseminated at international academic conferences, via the Outlook PhD webpage (maintained by the research team), and to large numbers of expedition leaders and teachers via Outlook Expeditions' annual training events. Further, the research has been communicated to a much wider public audience, such as at an expedition leader CPD event run through the National Mountain Centre (Plas y Brenin), and via a non-academic publication aimed at outdoor educators and practitioners (Horizons). Such extension of dissemination has led to a number of recent requests from other UK companies and organisations (for example, the British Exploring Society, Remarkable Television, and the Institute for Outdoor Learning) for training and presentations at a number of diverse outdoor-related events. In this way, the research develops further than the confines of academia, and even beyond the scope of a medium sized enterprise such as Outlook Expeditions. Further, the KESS partnership has resulted in benefits for both the company partner, and the academic institution. These benefits have included the provision of a leader training programme, and unique business intelligence and marketable research knowledge for Outlook Expeditions, while simultaneously providing the University with rigorous new research in the quantitative examination of expeditions, their effects on self-esteem, and the impact of transformational leadership in the expedition context.

It may be argued, then, that the impact created by the present research, and indeed the impact potential of the research, is substantial. The research has not just impacted the participants, and those who interact with them, but has made an important contribution to the field of expeditions in terms of theoretically based leadership training. The potential for this training, as alluded to earlier, is not just on the wider net of expedition leaders who may participate, or even for their potential followers,

but also for the industry and leadership training in general. As described, transformational leadership interventions are still few, and any advancement in training in this field would be seen as beneficial, given the positive effects of transformational leadership, indeed even if there are questions raised as to the choice of study design. The company partner can indeed make claim to being the first expedition provider to create and use this training across their freelance staff, and as such, this is a unique selling point in terms of market position and quality of product (i.e., if Outlook Expeditions train their leaders to be more transformational, it is reasonable to suggest that the student participants could expect to see increases in the self-esteem domains that were demonstrated in Chapter 2 to be significantly higher than control group, above and beyond participants who use other expedition providers). KESS aims to develop business potential and visible growth (staff, product development or net profit) through research. The outcomes of the present thesis meet those aims by providing a unique product, based on research, which has a visible impact on the end users (both expedition leaders and student participants). As such, this is more likely to result in greater customer satisfaction, and therefore greater retention of existing clients, as well as possible recruitment of new clients from competitors, as Outlook's reputation for quality leaders is disseminated.

The Research Council for the UK (RCUK) defines research impact as "the demonstrable contribution that excellent research makes to society and the economy". It may be argued, then, that the current research, under the direction of the KESS aims, has indeed provided a demonstrable contribution to the company partner, and in turn, the expedition industry (bearing in mind that expedition leaders can lead for more than just Outlook Expeditions, and therefore spread their knowledge and skills via other providers). Aside from the research knowledge generated and disseminated,

the research partnership with Outlook Expeditions has successfully resulted in a training product that has been tailor-made, and co-created with the input of Outlook staff as the expedition experts, via thoughtful knowledge exchange, to suit the needs of expedition leaders. The training has been created so as to develop knowledge and experience, but also with the focus on developing the behaviours that seem to have the most positive impact on youth participants' self-esteem domains.

It is hoped that the current research will catalyse other researchers into further examining the impact of expeditions and leadership, thus advancing the literature base. It is also anticipated that the new knowledge, and particularly the training intervention, may serve as underpinning criteria, perhaps even setting a new standard, for future expedition leader training and development programmes within the industry.

Future research directions

The eight self-esteem domains were the only variable measured with respect to the impact of expeditions and transformational leadership. As cited previously, Hattie et al. (1997) found 40 variables that were pertinent to the beneficial effects of expeditions. Similarly, the extant transformational leadership research has been demonstrated to be effective on a wide range of variables (cf. Avolio, Reichard, Hannah, Walumbwa, & Chan, 2009). In this way, there are a myriad of other variables that may be prudent avenues for research within both contexts of expeditions and transformational leadership, such as teamwork, follower leadership, and responsibility (these variables were all stated by the KESS partner focus groups as being very important in terms of student outcomes affected by expeditions). The decision to solely examine self-esteem was taken owing to the fact that it was to be

examined in its multidimensional conceptualisation, thus creating eight variables from one source. To explore other variables in addition would have likely resulted in a less thorough examination of each. Self-esteem is a very important, and broad ranging topic, particularly in the social psychology literature, and as such, it is arguably justifiable to focus on it in isolation.

Linked to self-esteem is the subject of 'importance' of the self-esteem domains. The SDQ III (Marsh & O'Neill, 1984) self-esteem measure asks participants to respond to items based on the strength of their agreement with each statement (using the 8-point Likert scale of agreement), but in the present thesis, no data were collected on the subject of the importance of the individual domains. Importance has been a topic of much debate in the self-esteem literature, with many researchers forming opposing views of the role of importance with regards to self-esteem (for discussions on importance, see Hardy & Leone, 2008; Hardy & Moriarty, 2006; Marsh, 1986, 1993a, 1993b, 1994, 1995, 2008). The idea of importance is founded on the concept that contributions of specific domains of self-esteem to an individual's overall global (general) self-esteem are dependent on the individual's perceived importance of each of those domains (Hardy & Moriarty, 2006). The weighting, or importance that an individual prescribes to a specific domain is solely determined by the relative importance of that domain to the individual. In other words, participants' general self-esteem may have been impacted by perceived importance of domains, potentially above and beyond the expedition impact, so this may be a fruitful area for future research.

Another important tenet of importance is the 'discounting hypothesis' (Harter, 1986). Harter proposed that if importance does affect general self-esteem, then in order to maintain higher levels of general self-esteem, it is recommended that one

'discounts' the importance of domains where there is self-perceived lack of competence. Further, more focus must be made on the domains that an individual perceives him/herself to be more competent. Harter originally found evidence to support this hypothesis in samples of children, which may be a relevant and important consideration with regards to the current study. An important distinction to be made with the discounting hypothesis is that Harter's original hypothesis focused on lowering the importance of a low-competency domain, by dismissing (discounting) it, which lowers its importance level, thereby protecting general self-esteem. Marsh's interpretation of this, however, was that discounting a domain protects general self-esteem, as the threat is removed, which is more toward a hypothesis that 'importance is important', rather than the causal relationship of discounting.

The importance debate, however, is not without limitations; first, it is difficult to form a clear hypothesis on how importance may contribute to self-esteem scores in the current context, as there is still relatively little exploration of the concept within the extant literature. Second, results appear to vary between studies, depending on the type of analyses used. For example, much of Hardy and Moriartys' (2006) commentary of Marsh's (1995) results was based on scrutinising the statistical analyses used. To expand, although Marsh's original multiple regression model did not support the importance hypothesis, Hardy and Moriartys' re-analysis using alternative regression models did provide strong evidence for the hypothesis.

It would seem, however, that there is enough evidence to suggest that importance of self-esteem domains might be intrinsically linked to the overall self-esteem of an individual; in which case, future research would be well placed to include data collection on importance. Should this future research demonstrate consistently strong evidence in support of the importance hypothesis and discounting

hypothesis, it is feasible that such data could be used to inform training interventions to enable participants (such as those in the present study) to learn how to discount domains that may be negatively affecting general self-esteem.

Another interesting future research question raised by the subject of importance is at what age does importance become important? The academic discussion between Marsh and Hardy (cf. Hardy & Moriarty, 2008; Hardy & Leone, 2006; Marsh, 1984, 2006, 2008) focuses on the concept of whether importance is indeed important, but their samples are all adolescents. Although Marsh has two other versions of the SDQ, which are aimed at very young children (SDQ I) and pre-adolescents (SDQ II), there is no research around whether importance is a factor below adolescent age, or indeed in adult populations. Data on this topic would add further evidence to the debate over importance.

The present thesis adds evidence to the fact that the *level* of esteem in a domain can indeed be changed (in this case by an expedition), but there is no research as yet that examines specifically the question of whether it is possible to influence the level of importance that an individual attaches to a domain. Such a question would be another interesting avenue of research, and would further extend the rather limited area regarding the study of importance levels. Aligned with this is the further question of whether *importance* is more critical than *level* of esteem. If level has more of an impact on an individual than the importance level, then this would reduce the need for exploration into whether importance levels can be changed. However, if applied research can demonstrate that importance has a more critical impact on the individual than level of esteem domain, it would be of huge benefit to the enhancement of self-esteem to examine whether these levels could be modified.

Related to the effects on self-esteem domains, the present thesis found only one maintenance result for the self-esteem domains (honesty/trustworthiness), but Marsh et al.s' (1986) study suggests that positive effects of the expedition were visible at their 18-month follow-up (time 4) data collection. Although Marsh et al. explain that their time 4 collection was not intended as a means of examining maintenance effects (in fact, they stated that it was used primarily for data on factorial validity for the SDQ III in their 'interrupted time series design'), their paper is still entitled 'A long term follow-up of the effect of participating in an Outward Bound program', so it may be inferred that they consider the time 4 results as longitudinal data.

Wright (1996) found evidence for what he termed 'a specific view of self…remains as a primarily stable, permanent self-image, even after 13 years had passed' (p.11). It is worth noting that Wright tested global self-concept, and self-concept as a mountaineer, and not multidimensional domains of self-esteem, as per the current thesis, and Marsh et al. (1986a). In the Marsh et al. study, evidence was found of "maintenance effects" for five of the thirteen domains that they tested with the SDQ III (physical ability, opposite sex peer relations, parental relations, honesty/trustworthiness, and emotional stability), although, the last three of these domains demonstrated significant decreases at their follow-up data collection (time 4). Their results, however, may need some cautious interpretation, as their time 4 data was only compared with time 3 (end of expedition), and not to time 1 (pre-test), thus suggesting that the results do not represent a true test for maintenance effects. Consequently, it may prove a prudent area for future research to examine at what point exactly a maintenance effect occurs post-expedition, as it seems there is no maintenance effect at six months, some evidence at 18-months, and a stable effect on

self-concept (although not a 'maintenance effect', per se) at 13 years. Indeed, the literature is somewhat lacking in evidence as to whether expeditions do indeed have a maintenance effect. Further research at a number of follow-up time intervals would add depth and clarity to this issue, as well as offer non-exam period data collection points so as to reveal the potential impact of exams on the participants' results herein.

In this way, future research directions to address the current limitation of the present thesis may be to examine leader traits in conjunction with transformational leadership. It may be interesting to explore the relationships between specific traits (such as the components of the five-factor model), and the differentiated transformational behaviours. Thus, it may become possible to elicit how personality traits exert their influence on each of the leadership behaviours, and may offer clarity on how each of the behaviours is related to a specific level of predictive ability. For example, in an organisational setting, Colbert, Barrick, and Bradley (2014) found that CEO personality traits of emotional stability and their openness to experience were both indirectly related to organisational effectiveness via CEO transformational leadership. It would seem, then, that there are relationships between leader traits and performance in the organisational context, and given the successful transferability of transformational leadership between contexts, it may prove worthwhile to examine such personality traits in the expedition setting. Such research would further inform training interventions to aid expedition leaders in understanding how their traits impact on their leadership behaviours, and consequently, how they may impact their followers.

Finally, in relation to the impact of the transformational leadership training intervention on the self-esteem domains, there was only one positive, significant effect for the domain of honesty/trustworthiness. As discussed in Chapter 5, this is

indeed surprising, particularly when reviewing the positive impact of the leadership behaviours on the different esteem domains found in Chapter 4. This study may, however, require further investigation to determine which three leadership behaviours each of the experimental leaders did indeed elect to focus on for the intervention, given that the leaders were given the freedom to choose which three behaviours were their weakest according to their personal performance profile, and therefore required improvement. With such data, it may be feasible to scrutinise the individual impact that each expedition leader's target behaviours had on their direct followers. The present study does not explore the differential effects for each leader's selected behaviours, which may be a limiting factor to the current study, and could prove to be a worthwhile analysis for future scrutiny. In this situation, the nested nature of the group data would ideally lend itself to multilevel analysis.

Conclusions

In conclusion, the thesis has addressed several issues that are pertinent to expedition literature, and to the concepts of context and field experiments in the area of transformational leadership. Specifically, quantitative evidence was found for the beneficial effects of expeditions on self-esteem domains, and evidence was provided for the validity of a contextually specific transformational leadership inventory. In addition, some evidence was provided as to the efficacy of a transformational leadership intervention. The thesis has also provided future research directions, which would further extend the knowledge bases of expeditions, self-esteem, and transformational leadership. Moreover, the thesis has demonstrated the effects of a positive collaboration with a company partner in order to create research with wide-reaching impact.

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Appendices

Appendix 1

Chapter 2
Self-esteem questionnaire (SDQ III)
(Identical for pre-test and post-test)

Self-Report Questionnaire (SDQ III)

Name:	
School:	**Team No:**
Date of Birth:	**Today's Date:**

Please use the given response scale at the top of each page of the questionnaire to indicate how you feel about each statement. Respond to items as you now feel even if you felt differently at some other time in your life.

1 Definitely False	2 False	3 Mostly False	4 More False than True	5 More True than False	6 Mostly True	7 True	8 Definitely True

____ 1. Overall, I have a lot of respect for myself
____ 2. I often tell small lies to avoid embarrassing situations
____ 3. I get a lot of attention from members of the opposite sex
____ 4. I am usually pretty calm and relaxed
____ 5. I hardly ever saw things the same way as my parents when I was growing up
____ 6. I am never able to think up answers to problems that haven't already been figured out
____ 7. I have a physically attractive body
____ 8. I have few friends of the same sex that I can really count on
____ 9. Overall, I lack self-confidence
____ 10. People can always rely on me
____ 11. I find it difficult to meet members of the opposite sex whom I like
____ 12. I worry a lot
____ 13. I would like to bring up children of my own (if I have any) like my parents raised me
____ 14. I am good at combining ideas in ways that others have not tried
____ 15. I am ugly
____ 16. I am comfortable talking to members of the same sex
____ 17. Overall, I am pretty accepting of myself
____ 18. Being honest is not particularly important to me
____ 19. I have lots of friends of the opposite sex
____ 20. I am happy most of the time
____ 21. I still have many unresolved conflicts with my parents
____ 22. I wish I had more imagination and originality
____ 23. I have a good body build
____ 24. I don't get along very well with members of the same sex

1 Definitely False	2 False	3 Mostly False	4 More False than True	5 More True than False	6 Mostly True	7 True	8 Definitely True

____ 25. Overall, I don't have much respect for myself
____ 26. I nearly always tell the truth
____ 27. Most of my friends are more comfortable with members of the opposite sex than I am
____ 28. I am anxious much of the time
____ 29. My parents have usually been unhappy or disappointed with what I do and have done
____ 30. I enjoy working out new ways of solving problems
____ 31. There are lots of things about the way I look that I would like to change
____ 32. I make friends easily with members of the same sex
____ 33. I sometimes take things that do not belong to me
____ 34. I am comfortable talking to members of the opposite sex
____ 35. I hardly ever feel depressed
____ 36. My values are similar to those of my parents
____ 37. I am not much good at problem solving
____ 38. My body weight is about right (neither too fat nor too skinny)
____ 39. Other members of the same sex find me boring
____ 40. Overall, I have a lot of self-confidence
____ 41. I never cheat
____ 42. I am quite shy with members of the opposite sex
____ 43. I tend to be highly-strung, tense, and restless
____ 44. My parents have never had much respect for me
____ 45. I have a lot of intellectual curiosity
____ 46. I dislike the way I look
____ 47. I share lots of activities with members of the same sex
____ 48. Overall, I have a very good self-concept
____ 49. Being dishonest is often the lesser of two evils
____ 50. I make friends easily with members of the opposite sex
____ 51. Overall, nothing that I do is very important
____ 52. I do not spend a lot of time worrying about things
____ 53. My parents treated me fairly when I was young
____ 54. I am not very original in my ideas, thoughts and actions
____ 55. I have nice facial features
____ 56. Not many people of the same sex like me
____ 57. Overall, I have pretty positive feelings about myself
____ 58. I am a very honest person
____ 59. I have had lots of feelings of inadequacy about relating to members of the opposite sex
____ 60. I am often depressed
____ 61. It has often been difficult for me to talk to my parents
____ 62. I am an imaginative person
____ 63. I wish that I were more physically attractive
____ 64. I am popular with other members of the same sex
____ 65. Overall, I have a very poor self-concept
____ 66. I would feel OK about cheating on a test as long as I did not get caught

1 Definitely False	2 False	3 Mostly False	4 More False than True	5 More True than False	6 Mostly True	7 True	8 Definitely True

____ 67. I am comfortable being affectionate with members of the opposite sex
____ 68. I am inclined towards being an optimist
____ 69. My parents understand me
____ 70. I would have no interest in being an inventor
____ 71. Most of my friends are better looking than I am
____ 72. Most people have more friends of the same sex than I do
____ 73. Overall, I have pretty negative feelings about myself
____ 74. I value integrity above all other virtues
____ 75. I never seem to have much in common with members of the opposite sex
____ 76. I tend to be a very nervous person
____ 77. I like my parents
____ 78. I can often see better ways of doing routine tasks
____ 79. I am good looking
____ 80. I have lots of friends of the same sex
____ 81. Overall, I do lots of things that are important
____ 82. I am not a very reliable person
____ 83. I have never stolen anything of consequence
____ 84. Overall, I am not very accepting of myself

_____END_____

Appendix 2

Chapter 2
Other source reports: Leader Team (identical for pre-test and post-test)

Leader Team Question Sheet

The following table should be completed by the Leader Team in collaboration. Please rate every student for each of the Learning Outcome headings below. Please read the statement underneath each heading and rate each student according to the following scale:

1 Strongly disagree	2 Disagree	3 Somewhat disagree	4 Disagree more than agree	5 Neither disagree nor agree	6 Agree more than disagree	7 Somewhat agree	8 Agree	9 Strongly agree

	SELF-ESTEEM	LEADERSHIP	RESPONSIBILITY	TEAMWORK	COMMUNICATION
Student Name:	Overall, the student has high self-esteem	Overall, the student is a good leader	Overall, the student accepts responsibility for his/her actions	Overall, the student is able to put the team's needs before his/her own	Overall, the student communicates well

Appendix 3

Chapter 2
Other source reports: On-line questionnaire for Parents/Guardians (Identical for Pre-test and Post-test)

Personal Information (drop down boxes):

- Age
- Male/Female
- Relationship to expedition participant (drop down list) – parent, guardian, grandparent, blood relative, foster carer, other.
- Occupation
- Child's/dependent's school
- Expedition destination
- Expedition duration

Please rate your child/dependent on the following statements:

1 Strongly disagree	2 Disagree	3 Somewhat disagree	4 Disagree more than agree	5 Neither disagree nor agree	6 Agree more than disagree	7 Somewhat agree	8 Agree	9 Strongly agree

Self-Esteem:

1. Overall, my child/dependent has a lot of respect for him/herself
2. Overall, s/he lacks self-confidence
3. Overall, s/he is pretty accepting of him/herself
4. Overall, s/he doesn't have much respect for him/herself
5. Overall, s/he has a lot of self-confidence
6. Overall, s/he has a very good self-concept
7. Overall, I believe s/he thinks that nothing that they do is very important
8. Overall, s/he has pretty positive feelings about him/herself
9. Overall, s/he has a very poor self-concept
10. Overall, s/he has pretty negative feelings about him/herself
11. Overall, I believe s/he thinks that s/he does lots of things that are important
12. Overall, s/he is not very accepting of him/herself

Appendix 4

Chapter 3
Expedition Differentiated Transformational Leadership Inventory (E-DTLI)
Original 50-item version

Expedition Leadership Scale (E-DTLI)

Name:…….……Date of Birth:……

School (& team no):……...…Today's date:.……..

Please answer the following questions in relation to your Expedition Leader. ***Your responses to the questions will be kept confidential, only the research team will have access to this information.***

Please judge how frequently each statement fits your Expedition Leader's normal behaviour.

		Not at all	Once in a while	Sometimes	Fairly often	All of the time
1.	Challenges me to work out how to solve problems	1	2	3	4	5
2.	Treats me as an individual	1	2	3	4	5
3.	Is optimistic about my future	1	2	3	4	5
4.	Cares about my needs	1	2	3	4	5
5.	Talks in a way that makes me believe I can succeed	1	2	3	4	5
6.	Gives me special recognition when I do very good work	1	2	3	4	5
7.	Makes me think about how my actions affect the team	1	2	3	4	5
8.	Acts in a way that makes me respect him/her	1	2	3	4	5
9.	Gives me praise when I do good work	1	2	3	4	5
10.	Gets me to re-think the way I do things	1	2	3	4	5
11.	Will not tolerate laziness or slacking	1	2	3	4	5
12.	Behaves appropriately in the company of others	1	2	3	4	5

13.	Considers that I have different strengths and abilities from others	1	2	3	4	5
14.	Encourages me to be a team player	1	2	3	4	5
15.	Shows me how to look at difficulties from a new angle	1	2	3	4	5
16.	Expects a lot from me	1	2	3	4	5
17.	Praises me when I show improvement	1	2	3	4	5
18.	Develops a strong team attitude and spirit among team members	1	2	3	4	5
19.	Recognises that I have different needs	1	2	3	4	5
20.	Leads by example	1	2	3	4	5
21.	Expects me to achieve high standards	1	2	3	4	5
22.	Expresses confidence that I can achieve my goals	1	2	3	4	5
23.	Provides feedback that helps me to improve my performance	1	2	3	4	5
24.	Behaves in a way that is consistent with what they say	1	2	3	4	5
25.	Challenges me to think about problems in new ways	1	2	3	4	5
26.	Looks after themselves and their belongings	1	2	3	4	5
27.	Will not settle for second best	1	2	3	4	5
28.	Gets the team to work together for the same goal	1	2	3	4	5
29.	Guides me to help me improve	1	2	3	4	5
30.	Leads by ‘doing’ rather than simply ‘telling’	1	2	3	4	5
31.	Is a good role model for me to follow	1	2	3	4	5
32.	Always recognizes my achievements	1	2	3	4	5
33.	Always recognizes my level of effort	1	2	3	4	5

34.	Expects me to give maximal effort	1	2	3	4	5
35.	Allows me to solve problems	1	2	3	4	5
36.	Inspires me to want to do the best I can	1	2	3	4	5
37.	Encourages me to think as part of a team	1	2	3	4	5
38.	Understands that I have different needs than others	1	2	3	4	5
39.	Gives me precise feedback about what I do well	1	2	3	4	5
40.	Always expects me to do my best	1	2	3	4	5
41.	Expresses confidence in my ability	1	2	3	4	5
42.	Takes time to help me reflect on my actions	1	2	3	4	5
43.	Expresses to me that I make a valuable contribution to the expedition	1	2	3	4	5
44.	Expects me to contribute to team meetings	1	2	3	4	5
45.	Helps me to talk through any difficulties	1	2	3	4	5
46.	Helps me to recognize my unique contribution to the expedition	1	2	3	4	5
47.	Talks optimistically about how I can overcome obstacles	1	2	3	4	5
48.	Talks in a way that makes me believe my role on the expedition is important	1	2	3	4	5
49.	Inspires me to persist when I am having difficulty solving a problem	1	2	3	4	5
50.	Inspires me with their enthusiasm	1	2	3	4	5

_____ END_____

Appendix 5

Chapter 3
Expedition Differentiated Transformational Leadership Inventory (E-DTLI)
Validated 29-item version

Expedition Leadership Scale (E-DTLI)

Name:……..……..Date of Birth:……

School (& team no):…….……...……..Today's date:……

Please answer the following questions in relation to your Expedition Leader. ***Your responses to the questions will be kept confidential, only the research team will have access to this information.***

Please judge how frequently each statement fits your Expedition Leader's normal behaviour.

		Not at all	Once in a while	Sometimes	Fairly often	All of the time
1.	Challenges me to work out how to solve problems	1	2	3	4	5
2.	Cares about my needs	1	2	3	4	5
3.	Makes me think about how my actions affect the team	1	2	3	4	5
4.	Acts in a way that makes me respect him/her	1	2	3	4	5
5.	Gives me praise when I do good work	1	2	3	4	5
6.	Gets me to re-think the way I do things	1	2	3	4	5
7.	Behaves appropriately in the company of others	1	2	3	4	5
8.	Shows me how to look at difficulties from a new angle	1	2	3	4	5
9.	Praises me when I show improvement	1	2	3	4	5
10.	Develops a strong team attitude and spirit among team members	1	2	3	4	5
11.	Leads by example	1	2	3	4	5
12.	Expresses confidence that I can achieve my goals	1	2	3	4	5

13.	Challenges me to think about problems in new ways	1	2	3	4	5
14.	Looks after themselves and their belongings	1	2	3	4	5
15.	Will not settle for second best	1	2	3	4	5
16.	Gets the team to work together for the same goal	1	2	3	4	5
17.	Guides me to help me improve	1	2	3	4	5
18.	Always recognizes my achievements	1	2	3	4	5
19.	Expects me to give maximal effort	1	2	3	4	5
20.	Inspires me to want to do the best I can	1	2	3	4	5
21.	Encourages me to think as part of a team	1	2	3	4	5
22.	Gives me precise feedback about what I do well	1	2	3	4	5
23.	Always expects me to do my best	1	2	3	4	5
24.	Takes time to help me reflect on my actions	1	2	3	4	5
25.	Expects me to contribute to team meetings	1	2	3	4	5
26.	Helps me to talk through any difficulties	1	2	3	4	5
27.	Helps me to recognize my unique contribution to the expedition	1	2	3	4	5
28.	Talks optimistically about how I can overcome obstacles	1	2	3	4	5
29.	Inspires me with their enthusiasm	1	2	3	4	5

_____ END_____

Appendix 6

Chapter 3
Teamwork Measure (for predictive validity): Original 10-item version

Teamwork

Answer the following questions in relation to when you have been a member of a team.

Please state which team you have referred to when answering these questions:

……..

1 Strongly Disagree	2 Disagree	3 Somewhat Disagree	4 Disagree more than agree	5 Neither agree nor disagree	6 Agree more than disagree	7 Somewhat Agree	8 Agree	9 Strongly Agree

____1. I understand that I should be effective in the roles I perform in a team

____2. I contribute to effective time management in a team

____3. It is important that I work well in a team

____4. I understand that I should take shared responsibility for poor organisation by a team

____5. If we have a problem as a team, I want to improve the situation

____6. I am able to put a team's needs before my own

____7. I cooperate with a team

____8. I understand the need to participate in team tasks

____9. I bond with my team

____10. It is important for me to make compromises for the good of the team

_____ END_____

Appendix 7

Chapter 3
Teamwork Measure (for predictive validity): Validated 4-item version

Teamwork

Answer the following questions in relation to when you have been a member of a team.

1 Strongly Disagree	2 Disagree	3 Somewhat Disagree	4 Disagree more than agree	5 Neither agree nor disagree	6 Agree more than disagree	7 Somewhat Agree	8 Agree	9 Strongly Agree

Please state which team you have referred to when answering these questions:

……..

____1. I understand that I should take shared responsibility for poor organisation by a team.

____2. I cooperate with a team.

____3. I understand the need to participate in team tasks.

____4. I bond with my team.

_____ END_____